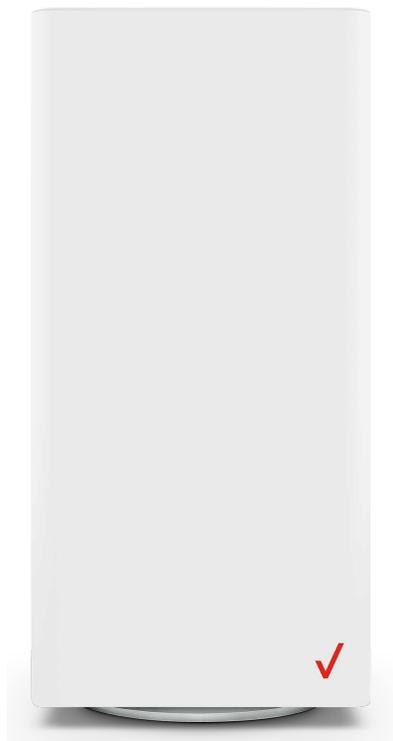




Verizon  
Router  
**USER  
GUIDE**



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# 01 /

# INTRODUCTION

- 1.0** Package Contents
- 1.1** System Requirements
- 1.2** Features
- 1.3** Getting to Know Your Verizon Router

---

Verizon Router lets you transmit and distribute digital entertainment and information to multiple devices in your home/office.

Your Verizon Router supports networking using coaxial cables, Ethernet, or Wi-Fi, making it one of the most versatile and powerful routers available.

# PACKAGE CONTENTS, SYSTEM REQUIREMENTS AND FEATURES

---

## 1.0/ PACKAGE CONTENTS

*Your package contains:*

- Verizon Router
- Power adapter
- Ethernet cable, three meters (white)

## 1.1/ SYSTEM REQUIREMENTS

*System and software requirements are:*

- A computer or other network device supporting Wi-Fi or wired Ethernet
- A web browser, such as Chrome™, Firefox®, Internet Explorer 8® or higher, or Safari® 5.1 or higher

## 1.2/ FEATURES

*Your Verizon Router features include:*

- Support for multiple networking standards, including
  - WAN – 10 Gigabit Ethernet
  - LAN – 802.11 a/b/g/n/ac/ax, 10/2.5 Gigabit Ethernet and MoCA 2.5 interfaces
- Integrated wired networking with 3-port Ethernet switch and Coax (MoCA)
  - Ethernet supports speeds up to 10 Gbps

- 
- MoCA 2.5 LAN enabled to support speeds up to 2500 Mbps over coaxial cable
  - One Type-C USB 3.0 port
  - Integrated Wi-Fi networking with 802.11a/b/g/n/ac/ax access point featuring:
    - backward compatible to 802.11a/b/g/n/ac
    - 2.4 GHz 11ax 4x4
    - 5 GHz 11ax 4x4
    - 6 GHz 11ax 4x4
  - Enterprise-level security, including:
    - Fully customizable firewall with Stateful Packet Inspection (SPI)
    - Content filtering with URL-keyword based filtering, parental controls, and customizable filtering policies per computer
    - Intrusion detection with Denial of Service protection against IP spoofing attacks, scanning attacks, IP fragment overlap exploit, ping of death, and fragmentation attacks
    - Virtual server functionality; providing protected access to internet services such as web, FTP, email, and telnet
    - DMZ (demilitarized zone) host support of a network security neutral zone between a private network and the internet
    - Event logging
    - Home Network Protection
    - SIP ALG

# FEATURES

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- Static NAT
- Port forwarding
- Port triggering
- Access control
- Advanced Wi-Fi protection featuring WPA2 & WPA3 Modes and MAC address filtering
- Wi-Fi Multimedia (WMM) for Wi-Fi QoS (quality-of-service)
- Dual-stack network configuration of IPv4 and IPv6
- DHCP server
- WAN interface auto-detection
- Dynamic DNS
- DNS server
- LAN IP and WAN IP address selection
- MAC address cloning
- QoS support (end to end layer 2/3) featuring: Differentiated Services (Diffserv), 802.1p/q prioritization, and pass-through of WAN-side DSCPs, Per Hop Behaviors (PHBs), and queuing to LAN-side devices
- Secure remote management using HTTPS or Verizon app
- Static routing
- VPN (VPN pass through only)
- IGMP
- Daylight savings time support

## 1.3/ GETTING TO KNOW YOUR VERIZON ROUTER

### 1.3a/ FRONT PANEL

The Router Status LED will be solid white when your Verizon Router is turned on, connected to the internet, and functioning normally.

*Front  
Panel  
router  
status  
LED*



#### *Router Status LED*

Condition Status	LED Color	Verizon Router
Normal	WHITE	Normal operation (solid) Router is booting (fast blink) System restart (fast blink)
	BLUE	Pairing mode (slow blink) WPS pairing successful (fast blink)
	GREEN	Wi-Fi has been turned off (solid)
Issue(s)	YELLOW	No internet connection (solid)
	RED	Hardware/System failure detected (slow blink) Overheating (fast blink) System update error (fast blink) WPS pairing failure (fast blink)
Power	OFF	Power off

# GETTING TO KNOW YOUR VERIZON ROUTER

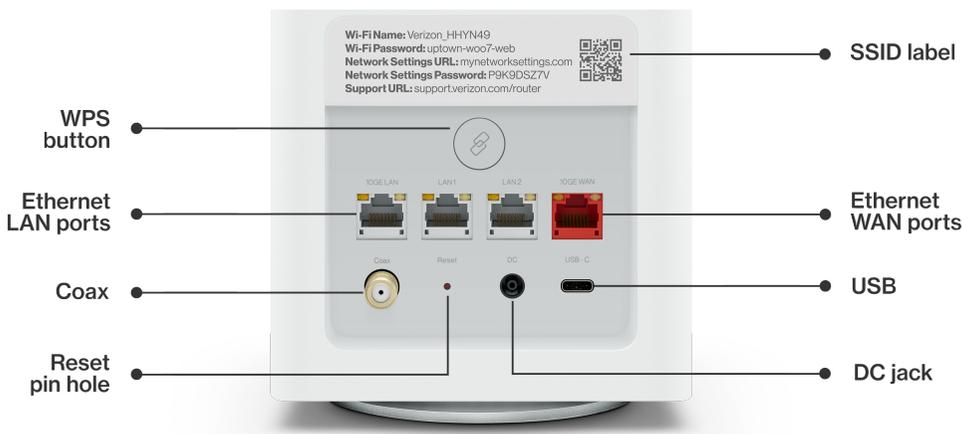
## 1.3b/ REAR PANEL

The rear panel of your router has a label that contains important information about your device, including the default settings for the Verizon Router's Wi-Fi name (SSID), Wi-Fi password (WPA2 key), local URL for accessing the router's network settings, and network settings password. The label also contains a QR code that you can scan with your smartphone, tablet, or other camera-equipped Wi-Fi device to allow you to automatically connect your device to your Wi-Fi network without typing in a password (requires a QR code reading app with support for Wi-Fi QR codes).

**Wi-Fi Name:** Verizon\_HHYN49  
**Wi-Fi Password:** uptown-woo7-web  
**Network Settings URL:** mynetworksettings.com  
**Network Settings Password:** P9K9DSZ7V  
**Support URL:** support.verizon.com/router



The rear panel has six ports; F-type coax, Ethernet LAN (three), Ethernet WAN, and USB. The rear panel also includes a DC power jack and a reset button.



- **WPS Button** - allows quick access to the Wi-Fi Protected Setup (WPS) feature and pairing mode.

The WPS button is used to initiate Wi-Fi Protected Setup. This is an easy way to add WPS capable devices to your Wi-Fi network. To activate the WPS function, press and hold the WPS button located on the rear of your Verizon Router for more than two seconds. When WPS is initiated from your router, the Router Status LED slowly flashes blue for up to two minutes, allowing time to complete the WPS pairing process on your Wi-Fi device (also known as a Wi-Fi client). When a device begins connecting to your router using WPS, the Router Status LED rapidly flashes blue for a few seconds, and then solid white as the connection completes.

If there is an error during the WPS pairing process, the Router Status LED rapidly flashes red for two minutes after the error occurs.

Refer to “Connecting A Wi-Fi Device Using WPS” on page 34 for more details. In addition, the Router Status LED also provides a quick view of the operational state of the Verizon Router using various colors as indicated in the chart above.

- **Ethernet LAN** - connects devices to your Verizon Router using Ethernet cables to join the local area network (LAN). The three Ethernet LAN ports:
  - one 10GE LAN port is 100 Mbps, 1/2.5/5/10 Gbps auto-sensing
  - the other two 2.5GE LAN ports are 10/100 Mbps, 1/2.5 Gbps auto-sensing

# GETTING TO KNOW YOUR VERIZON ROUTER

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- **Type-C USB** - provides up to 1000 mA at 5 VDC for attached devices. For example, you could charge a cell phone.
- **10Gbps Ethernet WAN** - connects your Verizon Router to the internet using an Ethernet cable.
- **Coax LAN** - connects your router to other MoCA devices using a coaxial cable.

***Warning:** The coax port is intended for connection to Verizon devices only. It must not be connected to any exterior or interior coaxial wires not designated for Verizon devices.*

- **Reset Button** - allows you to reset your router to the factory default settings. To perform a soft reboot, press and hold the button for at least three seconds. To reset your router to the factory default settings, press and hold the button for at least ten seconds.
- **Power** - connects your Verizon Router to an electrical wall outlet using the supplied power adapter.

***Warning:** The included power adapter is for home use only, supporting voltages from 105-125 voltage in AC. Do not use in environments with greater than 125 voltage in AC.*

## **1.3c/ REAR LIGHTED INDICATORS**

### **LAN/WAN Ethernet**

- Unlit – Indicates no Ethernet link or dims after 5 minutes idle

### **Left LED**

- Solid yellow – Indicates less than 1 Gbps link
- Flash yellow – Indicates LAN/WAN activity. The traffic can be in either direction.

### **Right LED**

- Solid white – Indicates 1/2.5/5/10 Gbps link
- Flash white – Indicates LAN/WAN activity. The traffic can be in either direction.

## **1.3d/ MOUNTING THE VERIZON ROUTER TO A WALL**

For optimum performance, the Verizon Router is designed to stand in a vertical upright position. Verizon does not recommend wall mounting the Verizon Router. However, if you wish to mount your Verizon Router, you can purchase a wall mount bracket from the Verizon Accessories Store at [verizon.com/home/accessories/networking-wifi](https://www.verizon.com/home/accessories/networking-wifi)

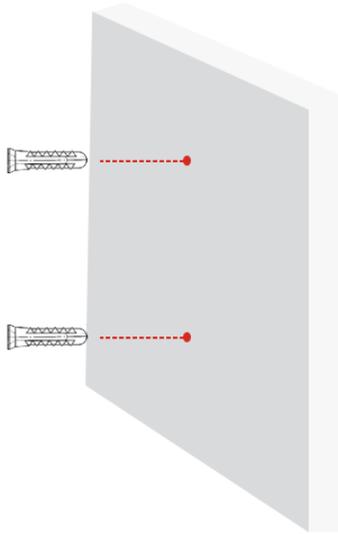
To mount your Verizon Router to a wall:

1. Select a mounting spot near a power outlet and the Ethernet port of the device that provides internet on your premises.

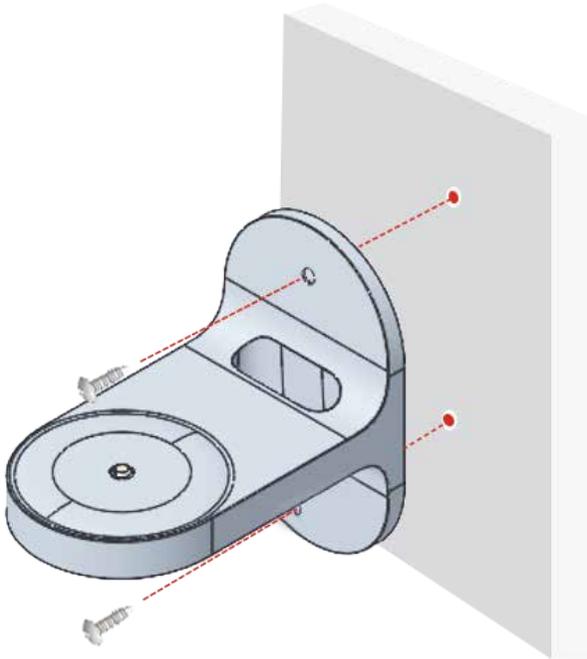
# GETTING TO KNOW YOUR VERIZON ROUTER

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2. Mark screw hole positions on the wall. Drill holes for the wall anchors using a 1/4 inch (6.35 mm) drill bit.
3. Insert the anchors in the drilled holes and hammer until they are flush with the wall.



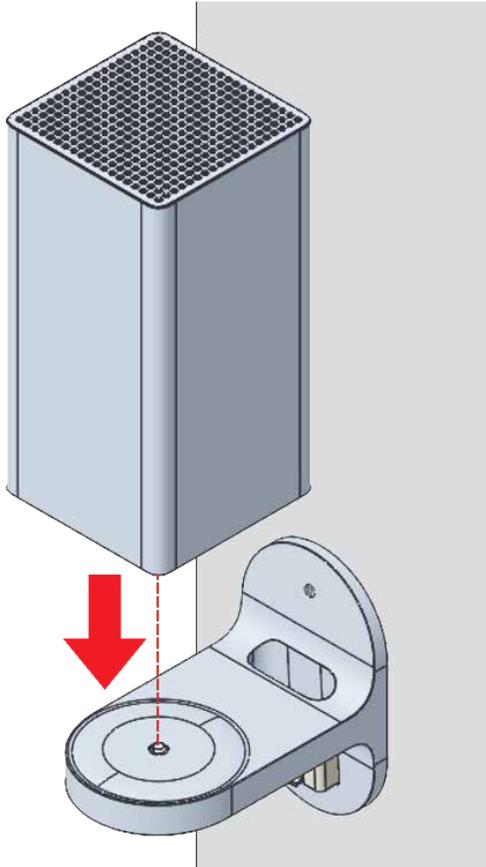
4. Place the screws into the small holes of the bracket and tighten the screws into your wall for securing the wall mount bracket.



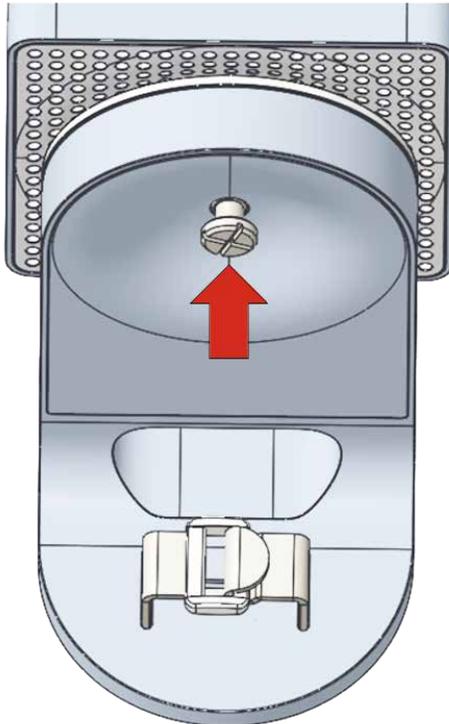
# GETTING TO KNOW YOUR VERIZON ROUTER

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5. Align the mounting hole located on the bottom of the Router to the screw of the wall mount bracket.



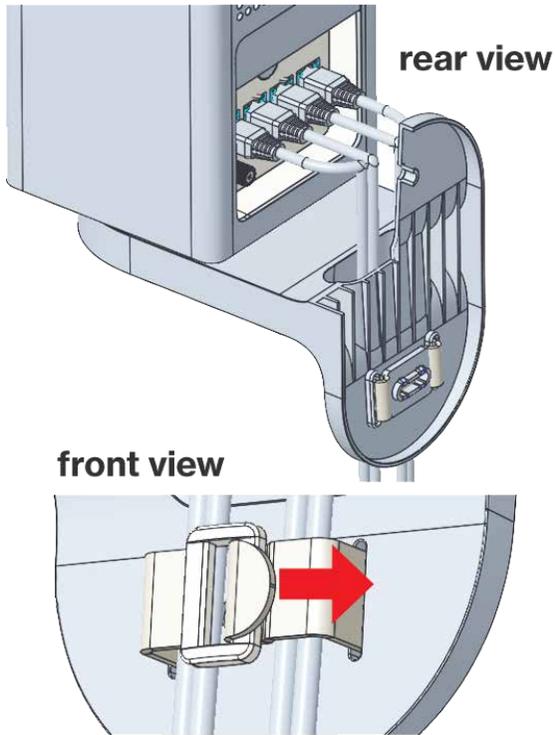
6. Rotate and align the router to the preferred position. While using the hole in the mounting bracket, connect the Ethernet cable providing internet to the router's WAN port and other cables as needed. Tighten the bracket screw to lock the device in place.



# GETTING TO KNOW YOUR VERIZON ROUTER

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7. To fasten the attached cables of the Router, manage the cables, then tighten the Velcro® strap with buckle.



---

# 02 /

## CONNECTING YOUR VERIZON ROUTER

- 2.0** Setting up Your Verizon Router
- 2.1** Expanding Wi-Fi Coverage
- 2.2** Computer Network Configuration
- 2.3** Main Screen

Connecting your Verizon Router and accessing its web-based User Interface (UI) are both simple procedures.

Accessing the UI may vary slightly, depending on your device's operating system and web browser.

# SETTING UP YOUR VERIZON ROUTER

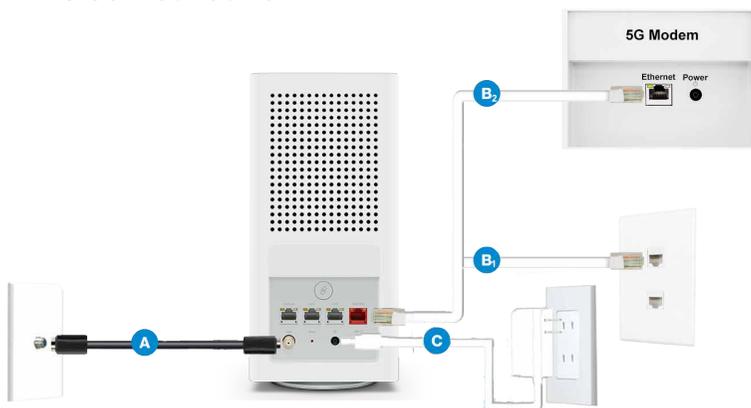
## 2.0/ SETTING UP YOUR VERIZON ROUTER

Before you begin, if you are replacing an existing router, disconnect it. Remove all old router components, including the power supply. They will not work with your new Verizon Router.

### 2.0a/ INSTALLATION INSTRUCTIONS

#### 1. CONNECT YOUR CABLES

- A. Connect the coax cable from the coax port on your router to a coax outlet. (Required for Fios TV; skip for 5G Home installation)
  - Separate subscription required for Fios TV; not available in all areas.
- B. Connect the Ethernet cable from your router's WAN port to an Ethernet outlet or ONT. For 5G Home, connect Ethernet cable from your router's WAN port to an Ethernet port on 5G Modem.
- C. Connect the power cord to your router then to an electrical outlet.



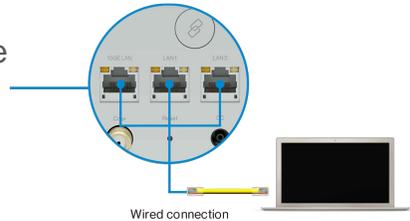
- D. Router will take up to 10 minutes to update completely. Move on when the front light is solid white.

## 2. CONNECT YOUR DEVICES

Wired or Wi-Fi? Your choice.

### Wired

- A. Connect the Ethernet cable to any LAN port on your router.
- B. Connect the other end to your computer.



### Wi-Fi

- A. Get the Wi-Fi name and password off the label on your router.
- B. On your device, choose your Wi-Fi name when it appears.
- C. Enter the Wi-Fi password exactly as it is on your router label.



Router label

# SETTING UP YOUR VERIZON ROUTER

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## Wi-Fi Network

The Verizon Router has one Wi-Fi name supporting 2.4 and 5 GHz signals. 6 GHz can be enabled and included as well with heightened security, WPA3. The Self-Organizing Network (SON) feature lets your devices move between these signals automatically for an optimized Wi-Fi connection.

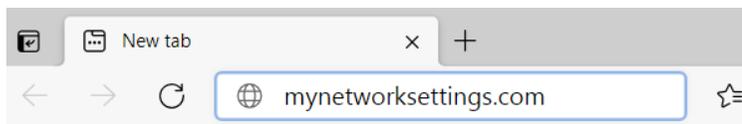
### 3. COMPLETE ACTIVATION

Activate your service by opening a web browser on your computer and following the prompts. (Skip for 5G Home installation)

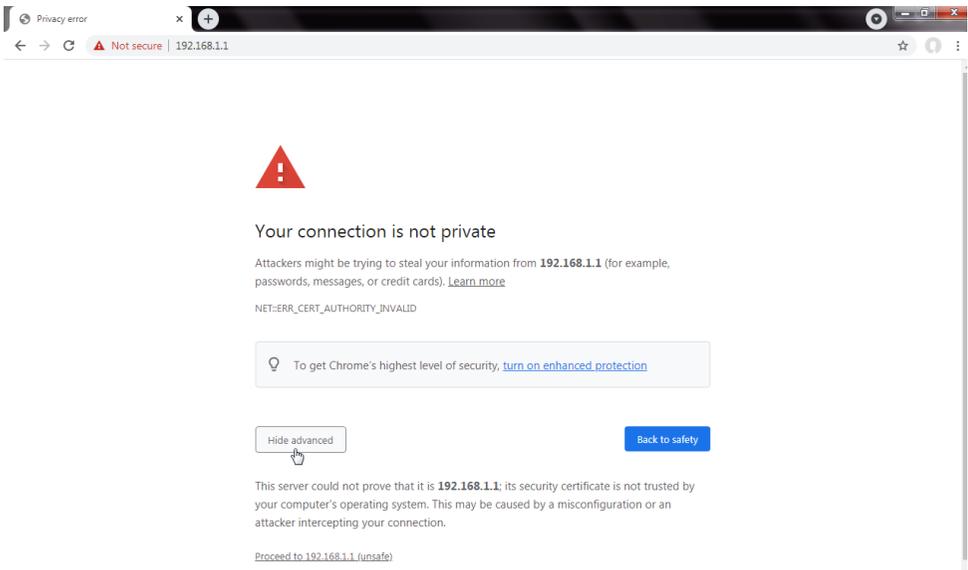
## 2.0b/ CONFIGURE YOUR VERIZON ROUTER

1. Open a web browser on the device connected to your Verizon Router network.
2. In the browser address field (URL), enter: [mynetworksettings.com](https://mynetworksettings.com), then press the **Enter** key on your keyboard.

Alternately, you can enter: <https://192.168.1.1>

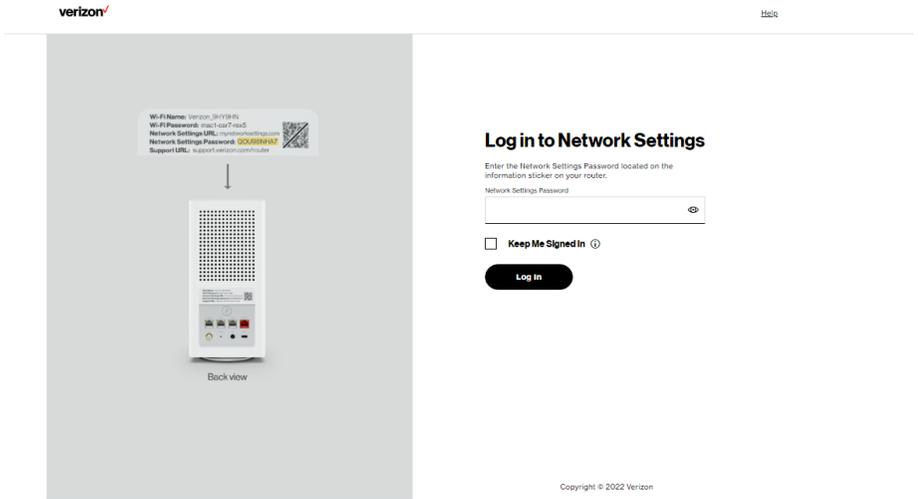


3. You may see a security message warning that **Your connection is not private** when you visit [mynetworksettings.com \(https://192.168.1.1\)](https://192.168.1.1) for GUI management. To get to the login screen, click the **ADVANCED** button, then on **Proceed to 192.168.1.1 (unsafe)** link.

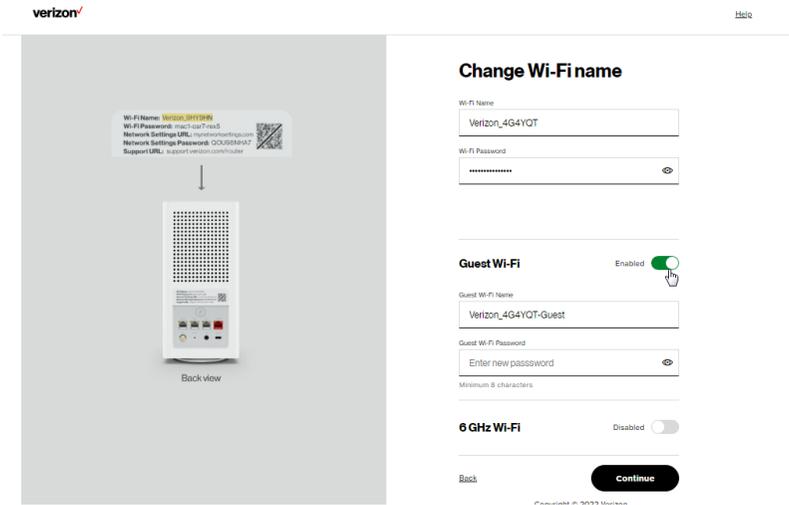


4. The login screen will appear.  
The first time you access your Verizon Router, an Easy Setup Wizard displays to help step you through the setup process.
5. On the **Log in to Network Settings** screen, enter the password that is printed next to the Network Settings Password on the label on the rear of your router. Click **Continue**.

# SETTING UP YOUR VERIZON ROUTER



6. The **Change Wi-Fi name** screen displays. You can continue with the default settings or customize them as needed. For your protection, your Verizon Router is pre-set at the factory to use WPA2 (Wi-Fi Protected Access II) encryption for your Wi-Fi network. This is the best setting for most users and allows the most devices to securely connect.

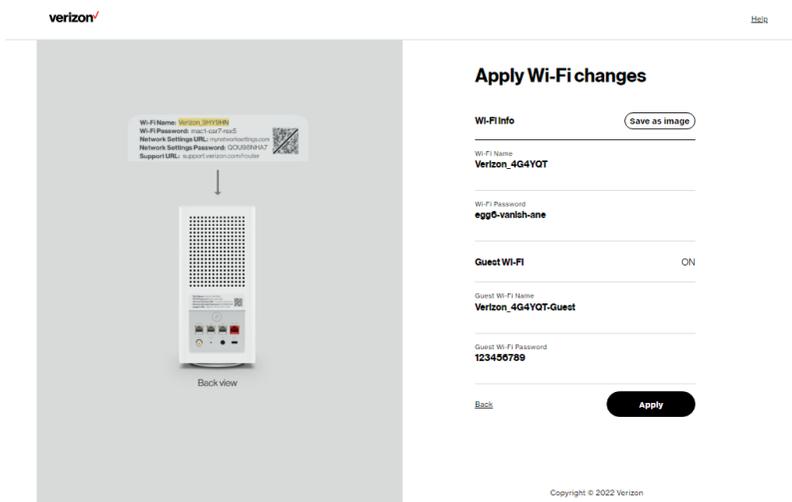


7. You can optionally set up the **Guest Wi-Fi** network by toggling the selection to **On**. You can continue with the default settings or customize them as needed.
8. You can optionally enable the **6 GHz Wi-Fi** band by toggling the selection to **On**. Review the notification that enabling 6 GHz will modify the existing 2.4 & 5 GHz security from WPA2 to WPA2/WPA3 and 6 GHz will be enabled using WPA3. You can continue to use one Wi-Fi Name and Password across all Wi-Fi bands.

The IoT Wi-Fi will also be enabled for any devices that do not support WPA3, and this will use a unique Wi-Fi name and password based on the default SSID & Password. Devices on this Wi-Fi will be able to communicate with other devices on the Primary network with no firewall restrictions separating them.

# SETTING UP YOUR VERIZON ROUTER

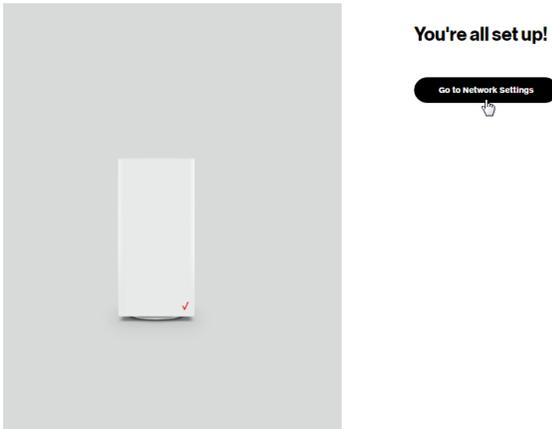
9. Click **Continue** to review your settings.
10. The **Apply Wi-Fi changes** screen is displayed. Review your current settings. You may optionally save your settings as an image on your device by selecting the button, **Save as Image**. Click **Apply** to save the Wi-Fi changes to your Verizon Router.



**Note:** If you select **Save as image**, the image file is saved to your web browser's download folder.

**Important:** If you are on a Wi-Fi device when setting up your Verizon Router and changes are made to the Wi-Fi name or password, then you will be disconnected from the Wi-Fi network. When this occurs, review the Wi-Fi networks available and choose the network name when it appears. Enter the Wi-Fi password you have applied, and your device will reconnect to the Verizon Router.

The **You're all set up!** screen displays once your Verizon Router verifies the final settings and has successfully connected to the internet and is ready for use. You can click on **Go to Network Settings** to access the main screen of the Verizon Router.



If your Verizon Router is subsequently reset to the factory default settings, the settings printed on the label will again be in effect.

If your Verizon Router fails to connect, follow the troubleshooting steps in the Troubleshooting section of this guide.

## **2.1/ EXPANDING WI-FI COVERAGE**

Connecting one or more of Verizon's Wi-Fi Extender Minis or Fios Extenders to the Verizon Router allows you to extend the Verizon Router's Wi-Fi signal range and to eliminate Wi-Fi dead zones on your Wi-Fi network.

# EXPANDING WI-FI COVERAGE

## 2.1a/ WI-FI INSTALLATION WITH WI-FI EXTENDER MINI

1. Plug the Wi-Fi Extender Mini into a power outlet next to the Verizon Router.



2. When the light on front is solid yellow, press the  pair button on the Verizon Router and the Extender Mini. Both devices will blink blue while pairing.



Front  
Panel  
Status  
LED



3. Wait until you see a blinking yellow light then unplug the Wi-Fi Extender Mini.
4. Move it to an area between the Router and the weak Wi-Fi coverage, then plug it in.

*Note: When plugging in the Wi-Fi Extender Mini, ensure there is proper ventilation to all sides and in front of the extender. Do not plug in the unit behind furniture, curtains, or anything that obstructs its air flow.*

5. Once the light turns solid white, your setup is complete.

You're all set! Your Wi-Fi Extender Mini will automatically connect to your Wi-Fi network, there is nothing more to do.

*Note: If there is an error during the WPS pairing process, the Status LED slowly flashes red for two minutes after the error occurs.*

## **2.1b/ WIRED INSTALLATION WITH FIOS EXTENDER**

1. Connect the Verizon Router to a coax outlet. (If the coax outlet is already in use, use a coax splitter.)
2. Connect the extender to a coax outlet – ideally in an area with spotty Wi-Fi coverage.
3. Connect the power cords to your router and extender then to an electrical outlet.
4. After 10 minutes, the light on the extender should turn solid white, indicating the connection is complete.

# COMPUTER NETWORK CONFIGURATION

---

*Note: If using Ethernet wiring, follow the same steps as above with an Ethernet cable instead of a coax cable.*

You're all set! Your devices will connect automatically with the same Wi-Fi network name and password as your Verizon Router.

## **2.2/ COMPUTER NETWORK CONFIGURATION**

Each network interface on your computer should either automatically obtain an IP address from the upstream Network DHCP server (default configuration) or be manually configured with a statically defined IP address and DNS address. We recommend leaving this setting as it is.

### **2.2a/ CONFIGURING DYNAMIC IP ADDRESSING**

*To configure a computer to use dynamic IP addressing:*

#### **WINDOWS 7/8**

1. In the Control Panel, locate **Network and Internet**, then select **View Network Status and Tasks**.
2. In the **View your active networks – Connect or disconnect** section, click **Local Area Connection** in the **Connections** field. The Local Area Connection Status window displays.
3. Click **Properties**. The Local Area Connection Properties window displays.

4. Select **Internet Protocol Version 4 (TCP/IPv4)**, then click **Properties**. The Internet Protocol Version 4 (TCP/IPv4) Properties window displays.
5. Click the **Obtain an IP address automatically** radio button.
6. Click the **Obtain DNS server address automatically** radio button, then click **OK**.
7. In the Local Area Connection Properties window, click **OK** to save the settings.
8. To configure Internet Protocol Version 6 (TCP/IPv6) to use dynamic IP addressing, repeat steps 1 to 7. However for step 4, select **Internet Protocol Version 6 (TCP/IPv6)** in the **Properties** option (refer to IPv6 section for Verizon Router configuration).

## WINDOWS 10

1. On the Windows desktop, click on the **Start** icon. Select **Settings** and click **Network & Internet**.
2. In the Network & Internet, click **Ethernet**.
3. Select **Network and Sharing Center**. The **View your basic network information and set up connections** window displays.
4. In the **View your active networks**, click **Ethernet** in the **Connections** field. The **Ethernet Status** window displays.
5. Click **Properties**. The **Ethernet Properties** window displays.

# COMPUTER NETWORK CONFIGURATION

---

6. Select **Internet Protocol Version 4 (TCP/IPv4)**, then click **Properties**. The **Internet Protocol Version 4 (TCP/IPv4) Properties** window displays.
7. Click the **Obtain an IP address automatically** radio button.
8. Click the **Obtain DNS server address automatically** radio button, then click **OK**.
9. In the **Local Area Connection Properties** window, click **OK** to save the settings.
10. To configure Internet Protocol Version 6 (TCP/IPv6) to use dynamic IP addressing, repeat steps 1 to 9. However for step 6, select **Internet Protocol Version 6 (TCP/IPv6)** in the **Properties** option (refer to IPv6 section for Verizon Router configuration).

## MACINTOSH OS X

1. Click the **Apple** icon in the top left corner of the desktop. A menu displays.
2. Select **System Preferences**. The System Preferences window displays.
3. Click **Network**.
4. Verify that **Ethernet**, located in the list on the left, is highlighted and displays **Connected**.
5. Click **Assist Me**.
6. Follow the instructions in the Network Diagnostics Assistant.

---

## **2.2b/ CONNECTING OTHER COMPUTERS AND NETWORK DEVICES**

You can connect your Verizon Router to other computers or set top boxes using an Ethernet cable, Wi-Fi connection (Wi-Fi), or coaxial cable.

### **ETHERNET**

1. Plug one end of an Ethernet cable into one of the open Ethernet ports on the back of your Verizon Router.
2. Plug the other end of the Ethernet cable into an Ethernet port on the computer.
3. Repeat these steps for each computer to be connected to your Verizon Router using Ethernet. You can connect up to three.

### **CONNECTING A WI-FI DEVICE USING WPS**

Wi-Fi Protected Setup (WPS) is an easier way for many devices to set up a secure Wi-Fi network connection. Instead of manually entering passwords or multiple keys on each Wi-Fi client, such as a laptop, printer, or external hard drive, your Verizon Router creates a secure Wi-Fi network connection.

In most cases, this only requires the pressing of two buttons – one on your Verizon Router and one on the Wi-Fi client. This could be either a built-in button or one on a compatible Wi-Fi adapter/card, or a virtual button in software. Once completed, this allows Wi-Fi clients to join your Wi-Fi network.

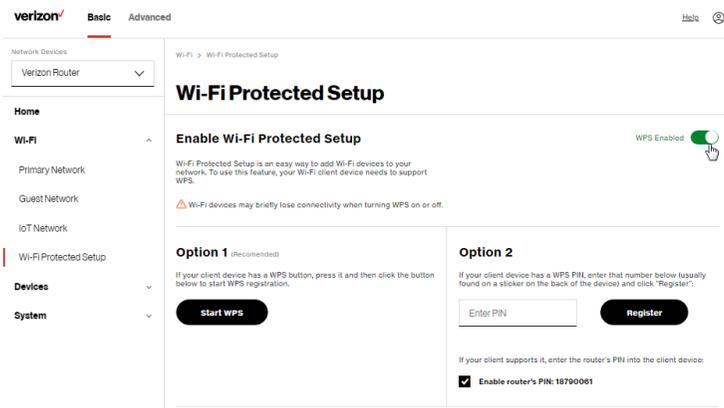
# COMPUTER NETWORK CONFIGURATION

To initialize the WPS process, you can either press and hold the WPS button located on the rear of your Verizon Router for more than two seconds or use the UI and press the on-screen button.

You can easily add Wi-Fi devices to your Wi-Fi network using the WPS option if your Wi-Fi device supports the WPS feature.

*To access WPS using the user interface:*

1. From the **Basic** menu, select **Wi-Fi** settings, then click **Wi-Fi Protected Setup**.



2. Enable the protected setup by moving the selector to **on**.
3. Use one of the following methods:
  - If your Wi-Fi client device has a WPS button, press the WPS button on your Router for more than two seconds, then click the **start WPS** button in **Option 1** to start the WPS registration process.

- If your client device has a WPS PIN, locate the PIN printed on the client's label or in the client documentation. Enter the PIN number in the **Enter PIN** field. The **Client WPS PIN** field is located in **Option 2** on the user interface.
  - Click **Register**.
  - Alternatively, you can enter the Router's PIN shown on this screen into the WPS user interface of your device, if this PIN mode is supported by your Wi-Fi device.
4. After pressing the WPS button on your Router, you have two minutes to press the WPS button on the client device before the WPS session times out.

When the WPS button on your Router is pressed, the Router Status LED on the front of your Router begins flashing blue. The flashing continues until WPS pairing to the client device completes successfully. At this time, the Router Status LED turns solid white.

If WPS fails to establish a connection to a Wi-Fi client device within two minutes, the Router Status LED on your Router flashes red for two minutes to indicate the WPS pairing process was unsuccessful. After flashing red, the light returns to solid white to indicate that Wi-Fi is on.

**Note:** *Wi-Fi Protected Setup (WPS) cannot be used if WPA3 security is enabled or SSID broadcast is disabled or if MAC address authentication is enabled with an empty white list.*

# COMPUTER NETWORK CONFIGURATION

---

## CONNECTING A WI-FI DEVICE USING A PASSWORD

1. Verify each device that you are connecting with Wi-Fi has built-in Wi-Fi or an external Wi-Fi adapter.
2. Open the device's Wi-Fi settings application.
3. Select your Verizon Router's Wi-Fi network name (SSID) from the device's list of discovered Wi-Fi networks.
4. When prompted, enter your Verizon Router's Wi-Fi password (WPA2 or WPA3 key) into the device's Wi-Fi settings. Your Router's default Wi-Fi network name and password are located on the sticker on the rear panel of your Verizon Router.



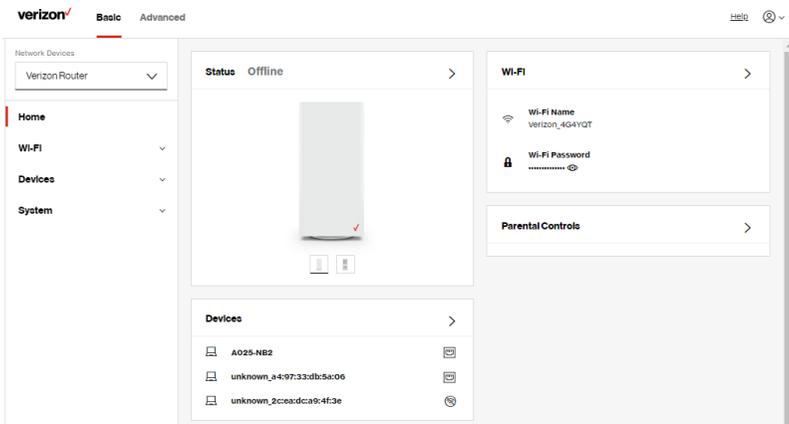
5. Verify the changes were implemented by using the device's web browser to access a site on the internet.
6. Repeat these steps for every device that you are connecting with Wi-Fi to your router.

## COAX

1. Verify all coax devices are turned off.
2. Disconnect any adapter currently connected to the coaxial wall jack in the room where your router is located.
3. Connect one end of the coaxial cable to the coaxial wall jack and the other end to the coax port on your network device.
4. Power up the network device.

## 2.3/ MAIN SCREEN

When you log into your router, the dashboard main page displays the navigation menus of Basic and Advanced settings, Wi-Fi settings, Devices, Parental Controls, and connection status, and Basic quick links.



The configuration options available via the left-hand main menu are described in the following chapters:

- Basic Settings
  - System - this chapter
  - Wi-Fi - Chapter 3
  - Devices - Chapter 4
- Advanced Settings - Chapter 5

# MAIN SCREEN

## 2.3c/ SYSTEM

### SYSTEM STATUS

To view the status:

1. Access the dashboard **Home** page.
2. You can quickly view your Router's status by clicking **System\System Status** on the screen. This section displays the status of your Router's local network (LAN) and internet connection (WAN), firmware and hardware version numbers, MAC Address, IP settings of Verizon Router and Wi-Fi extender(s) (if connected).

The screenshot shows the Verizon Router's System Status page. The interface includes a top navigation bar with the Verizon logo, 'Basic' (selected), and 'Advanced' tabs. A 'Home' button and a 'Refresh' button are visible. The main content area is titled 'System Status' and is divided into two columns: 'Broadband IPv4' and 'Broadband IPv6'. Both columns show a status of 'Disconnected'. The IPv4 section lists fields for IP address (from DHCP), Subnet Mask, and IPv4 Default Gateway. The IPv6 section lists fields for IP address (from DHCP-Pv6-PD), Delegated Prefix, Link-Local Address, and IPv6 Default Gateway. A 'Router' section is partially visible at the bottom.

Broadband IPv4	Broadband IPv6
Status: Disconnected	Status: Disconnected
IPv4 address is from: DHCP	IPv6 address is from: DHCP-Pv6-PD
IPv4 address	Delegated Prefix
Subnet Mask	IPv6 Address
IPv4 Default Gateway	Link-Local Address
IPv4 DNS Address 1	IPv6 Default Gateway
IPv4 DNS Address 2	IPv6 DNS Address 1
NATs Supported (used / max) 0 / 30000	IPv6 DNS Address 2

verizon Basic Advanced [Help](#)

Network Devices  
Verizon Router

System > System Status

### System Status

Auto-refresh  Refresh

**Router**

Firmware Version  
3.2.0.8-eng0

Hardware Version  
0.0.4

Model Name  
CR1000A

Serial Number  
AAK11300274

LAN IP4 Address  
192.168.1.1

Broadband MAC address  
88:5A:85:FE:C5:65

Broadband Physical Connection  
Disconnected

Router has been active for  
0 day(s) 2 hours 6 minutes 11 seconds

LED Status  
No internet connection

verizon Basic Advanced [Help](#)

Network Devices  
Verizon Router

System > System Status

### System Status

Auto-refresh  Refresh

**Extender**

Device Name  
NCQ1338

Model Name  
ASK-NCQ1338FA

Firmware Version  
3.2.0.5-eng0

Hardware Version  
ROA

Serial Number  
ABB21200200

MAC Address  
2C:EA:DC:A9:4F:3D

System Up Time  
0 day(s) 0 hours 55 minutes 27 seconds

LED Status

Backhaul Type  
0

Bit Rate

# MAIN SCREEN

The screenshot shows the Verizon router's main screen. At the top left is the Verizon logo, followed by 'Basic' (underlined) and 'Advanced' tabs. In the top right corner, there is a 'Help' link and a user profile icon. The left sidebar contains a 'Network Devices' dropdown menu set to 'Verizon Router', and a list of menu items: Home, Wi-Fi, Devices, System (expanded), System Status (selected), and Open Source Software. The main content area is titled 'System > System Status'. It features an 'Auto-refresh' toggle switch and a 'Refresh' button. Below this, a timer shows '0 day(s) 0 hours 55 minutes 27 seconds'. A table lists system status items: LED Status, Backhaul Type (0), Bit Rate, IP4 Address (192.168.0.1), IP6 Address, Subnet Mask (255.255.255.0), and Default Gateway (192.168.1.1).

## OPEN SOURCE SOFTWARE

The screenshot shows the Verizon router's main screen with the 'Open Source Software' page selected. The layout is identical to the previous screenshot, but the 'System Status' menu item is no longer selected. The main content area is titled 'System > Open Source Software'. It features a heading 'Open Source Software' followed by two paragraphs of text. The first paragraph states that the product includes software made available under open source licenses and provides a link to <https://verizon.com/opensource/>. The second paragraph states that all open source software contained in the product is distributed WITHOUT ANY WARRANTY and is subject to the copyrights of the authors and the terms of the applicable licenses included in the download. The third paragraph states that this information is provided for those who wish to edit or otherwise change such programs and that a copy of any such open source software source code is not needed to install or operate the device.

*To view:* From the **Basic** menu, select **System** from the left pane and then click **Open Source Software**.

---

03 /

# WI-FI SETTINGS

- 3.0** Overview
- 3.1** Basic Settings
- 3.2** Advanced Settings

---

Wi-Fi networking enables you to free yourself from wires, making your devices more accessible and easier to use.

You can create a Wi-Fi network, including accessing and configuring Wi-Fi security options.

# OVERVIEW

---

## **3.0/ OVERVIEW**

Your Verizon Router provides you with Wi-Fi connectivity using the 802.11a, b, g, n, ac or ax standards. These are the most common Wi-Fi standards.

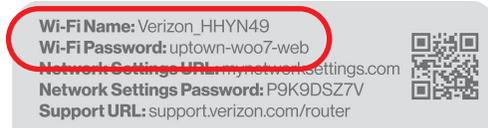
The Verizon Router supports 2.4 GHz, 5 GHz and 6 GHz Wi-Fi bands, and the operation modes and speeds are listed as follows:

- 2.4 GHz
  - Legacy operation mode: supports IEEE 802.11b/g/n with maximum theoretical rate of 600 Mbps
  - Compatibility mode: supports IEEE 802.11ax
    - backward compatible with IEEE 802.11b/g/n/ac
    - maximum theoretical rate up to 1.1 Gbps
- 5 GHz
  - Legacy operation mode: supports IEEE 802.11a/n/ac with maximum theoretical rate of 2.2 Gbps
  - Compatibility mode: supports IEEE 802.11ax
    - backward compatible with IEEE 802.11a/n/ac
    - maximum theoretical rate up to 2.4 Gbps
- 6 GHz
  - Operation mode: supports IEEE 802.11ax
  - Maximum rate up to 4.8 Gbps

The Wi-Fi service and Wi-Fi security are activated by default. The level of security is preset to WPA2 encryption using a unique

default WPA2 key (also referred to as a passphrase or password) pre-configured at the factory. This information is displayed on a sticker located on the rear of your router.

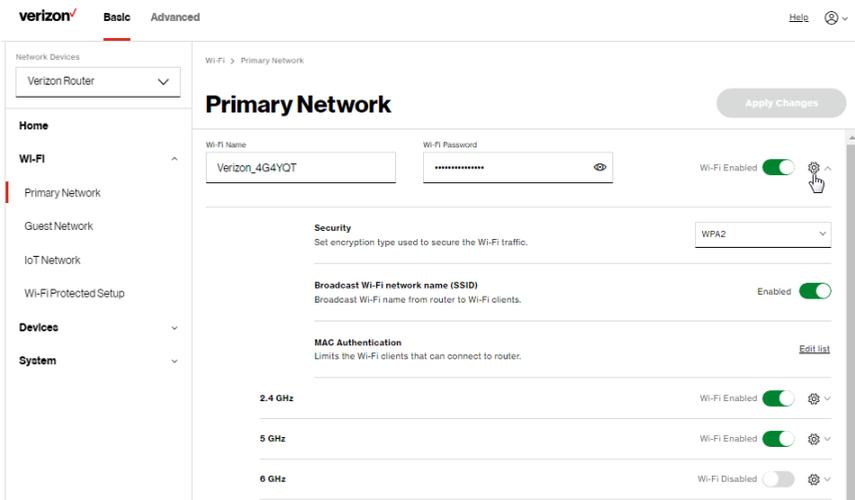
Your router integrates multiple layers of security. These include Wi-Fi Protected Access, and firewall.



## 3.1/ BASIC SETTINGS

### 3.1a/ PRIMARY NETWORK

You can configure the basic security settings for 2.4 GHz, 5 GHz or 6 GHz of your Wi-Fi network.



# BASIC SETTINGS

---

To configure the basic security radio, SSID and security settings:

1. From the **Basic** menu, select **Wi-Fi** from the left pane and then click **Primary Network**.
2. To activate the Wi-Fi radio, move the selector to **on**. If the radio is not enabled, no Wi-Fi devices will be able to connect to the office network.
3. If desired, enter a new name and password for the Wi-Fi network or leave the default name and password that displays automatically.

***Note:** The SSID is the network name. All devices must use the same SSID.*

4. To configure the Wi-Fi **Security**, click the setup  button and select **WPA2** or **WPA3**.

You can optionally enable the 6 GHz Wi-Fi band by toggling the selection to **On**. Enabling 6 GHz will modify the existing 2.4 & 5 GHz security from WPA2 to WPA2/WPA3 and 6 GHz will be enabled using WPA3.

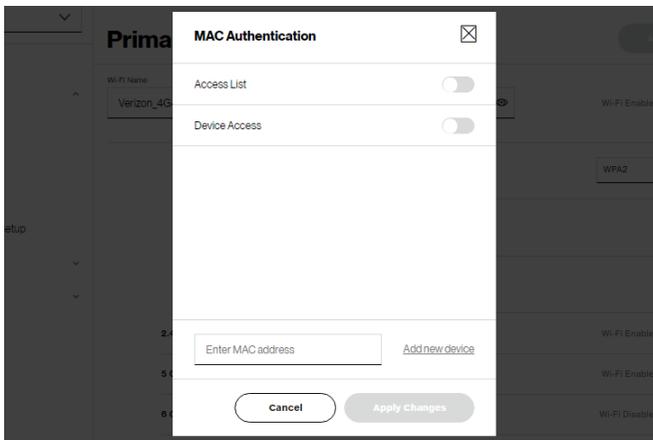
***Caution:** These settings should only be configured by experienced network technicians. Changing the settings could adversely affect the operation of your router and your local network.*

- **Broadcast Wi-Fi network name (SSID)**

You can configure the Verizon Router's SSID broadcast capabilities to allow or disallow Wi-Fi devices from automatically using a broadcast SSID name to detect your router Wi-Fi network.

- To enable SSID broadcasting, move the selector to **on**. SSID broadcast is enabled by default. The SSID of the Wi-Fi network will be broadcast to all Wi-Fi devices.
  - To disable SSID broadcasting, move the selector to **off**. The public SSID broadcast will be hidden from all Wi-Fi devices. You will need to manually configure additional Wi-Fi devices to join the Wi-Fi network.
- **MAC Authentication**

You can configure your router to limit access to your Wi-Fi network to only those devices with specific MAC addresses.



# BASIC SETTINGS

---

To set Wi-Fi MAC authentication:

1. To setup access control, click on the **Edit List**.
2. Select either:
  - **Access List** – allows the listed devices to access the Wi-Fi network.

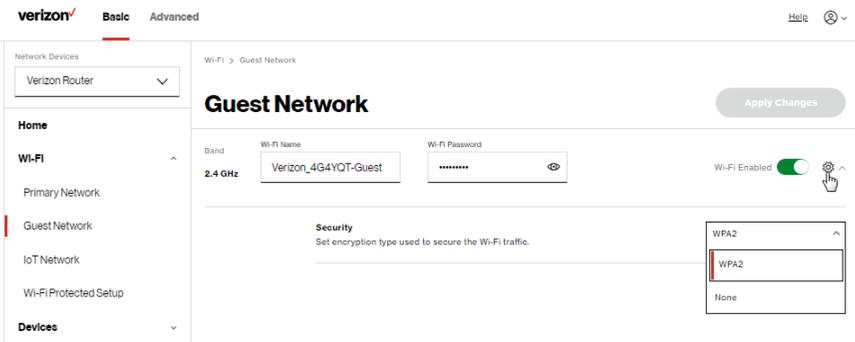
*Warning: This will block Wi-Fi network access for all devices not in the list. Only devices in the list will be able to connect to the Wi-Fi network.*

- **Device Access** – Wi-Fi devices will be able to access the Wi-Fi network if they use the correct Wi-Fi password.
3. Enter the MAC address of a device and click **Add new device**.
  4. Repeat step 2 and step 3 to add additional devices, as needed.
  5. When all changes are complete, click **Apply changes** to save the changes.

## 3.1b/ GUEST NETWORK

The **Guest Network** is designed to provide internet connectivity to your guests while restricting access to your primary network and shared files. The primary network and the guest network are separated from each other through firewalls. You create one Guest Wi-Fi SSID and one password, and use it for all guests. The guest network SSID does not change when you make a change to your primary network SSID.

The Verizon Router is shipped from the factory with Guest Wi-Fi turned off. The default SSID for Guest Wi-Fi is preconfigured at the factory to the default Wi-Fi network name (SSID) which is displayed on a sticker located at the rear of the router followed by hyphen guest (-Guest). For example, if the router is shipped with a default SSID of “Verizon-ABCDE” then the default SSID for Guest Wi-Fi is “Verizon-ABCDE-Guest”.



*To configure the security settings for your guest network:*

1. From the **Basic** menu, select **Wi-Fi** and then click **Guest Network**.
2. Move the selector to **on**.
3. If desired, enter a new name and password for the Wi-Fi network or leave the default name and password that displays automatically.
4. Press **Apply changes** to save the changes.

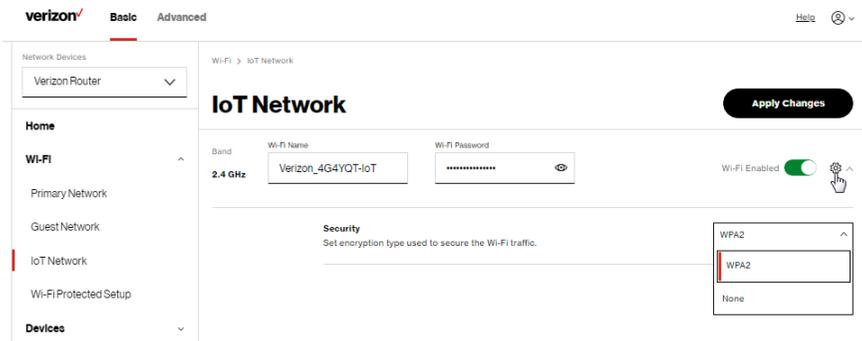
**Important:** *It is not recommended to create a guest network without a password.*

# BASIC SETTINGS

## 3.1c/ IOT NETWORK

The router supports connection of multiple IoT devices on a separate WiFi SSID. The IoT Network is designed to provide an easier setup experience for your Internet of Things (IoT) devices which benefit from connecting to the 2.4 GHz band while keeping your Primary Network settings unchanged. IoT devices and Primary devices can communicate with no firewall restrictions separating them.

The Verizon Router is shipped from the factory with IoT Wi-Fi turned off. The default SSID for IoT Wi-Fi is preconfigured at the factory to the default Wi-Fi network name (SSID) which is displayed on a sticker located at the rear of the router followed by hyphen IoT (-IoT). For example, if the router is shipped with a default SSID of “Verizon-ABCDE” then the default SSID for IoT Wi-Fi is “Verizon-ABCDE-IoT”.



To enable IoT Wi-Fi link:

1. From the **Basic** menu, select **Wi-Fi** and then click **IoT Network**.

2. Move the selector to **on**.
3. If desired, enter a new name and password for the Wi-Fi network or leave the default name and password that displays automatically.
4. Press **Apply changes** to save the changes.

### **3.1d/ WI-FI PROTECTED SETUP (WPS)**

Wi-Fi Protected Setup (WPS) is an easier way for many devices to set up a secure Wi-Fi network connection. Instead of manually entering passwords or multiple keys on each Wi-Fi client, such as a laptop, printer, or external hard drive, your Verizon Router creates a secure Wi-Fi network connection.

In most cases, this only requires the pressing of two buttons – one on your Verizon Router and one on the Wi-Fi client. This could be either a built-in button or one on a compatible Wi-Fi adapter/card, or a virtual button in software. Once completed, this allows Wi-Fi clients to join your Wi-Fi network.

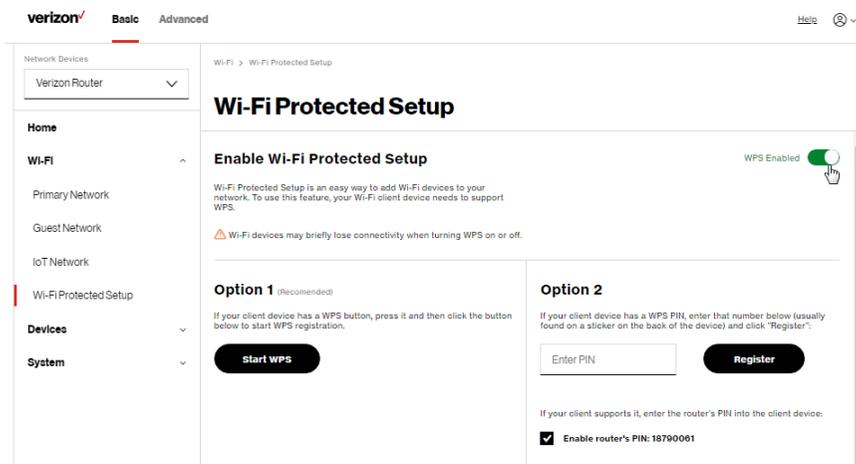
To initialize the WPS process, you can either press and hold the WPS button located on the front of your Verizon Router for more than two seconds or use the UI and press the on-screen button.

You can easily add Wi-Fi devices to your Wi-Fi network using the WPS option if your Wi-Fi device supports the WPS feature.

*To access WPS using the user interface:*

1. From the **Basic** menu, select **Wi-Fi** and then click **Wi-Fi Protected Setup (WPS)**.

# BASIC SETTINGS



2. Enable the protected setup by moving the selector to on.
3. Use one of the following methods:
  - If your Wi-Fi client device has a WPS button, press the WPS button on your router for more than two seconds, then click the **Start WPS** button in **Option 1** to start the WPS registration process.
  - If your client device has a WPS PIN, locate the PIN printed on the client's label or in the client documentation. Enter the PIN number in **Option 2** on the user interface.
  - Click **Register**.
  - Alternatively, you can enter the router's PIN shown on this screen into the WPS user interface of your device, if this PIN mode is supported by your Wi-Fi device.

4. After pressing the WPS button on your router, you have two minutes to press the WPS button on the client device before the WPS session times out.

When the WPS button on your router is pressed, the Status LED on the front of your router begins flashing blue. The flashing continues until WPS pairing to the client device completes successfully. At this time, the Status LED turns solid white.

If WPS fails to establish a connection to a Wi-Fi client device within two minutes, the Status LED on your router flashes red for two minutes to indicate the WPS pairing process was unsuccessful. After flashing red, the light returns to solid white to indicate that Wi-Fi is on.

*Note: Wi-Fi Protected Setup (WPS) cannot be used if WPA3 security is enabled or SSID broadcast is disabled or if MAC address authentication is enabled with an empty white list.*

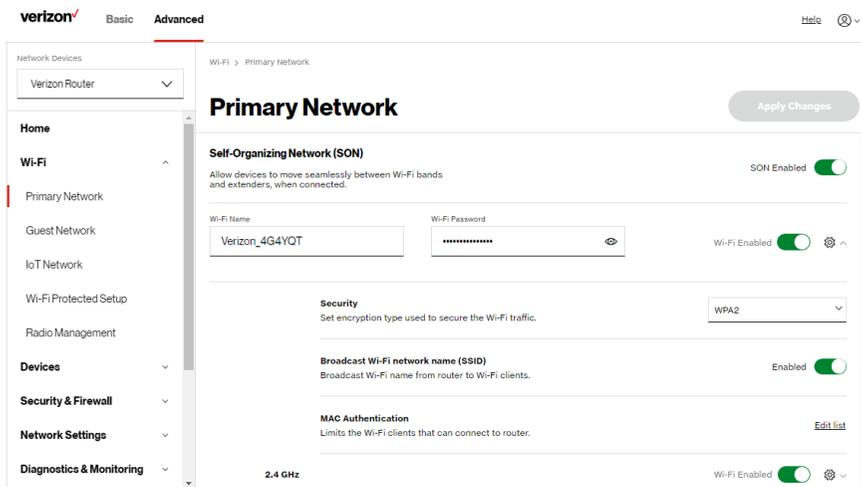
## **3.2/ ADVANCED SETTINGS**

### **3.2a/ PRIMARY NETWORK**

#### **Self-Organizing Network (SON)**

The Verizon Router supports 2.4 GHz, 5 GHz and 6 GHz signals. The Self-Organizing Network (SON) feature lets your devices move between these signals automatically for an optimized Wi-Fi connection.

# ADVANCED SETTINGS

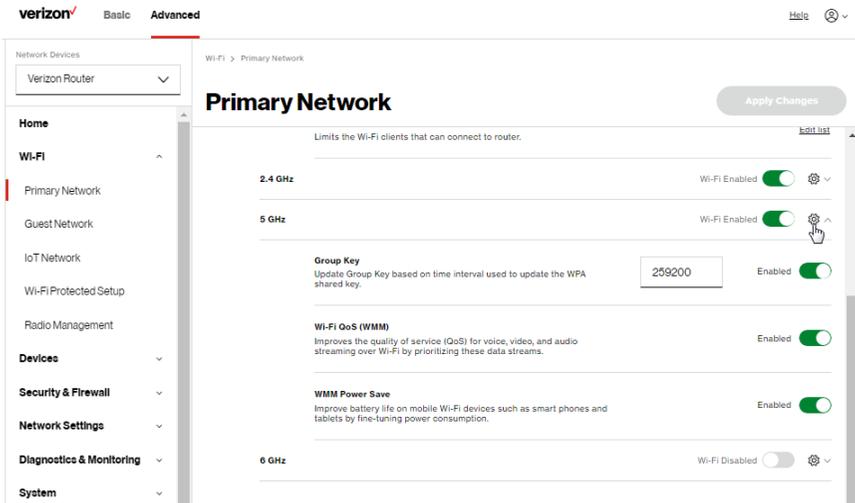


To configure SON, Wi-Fi radio, SSID and security settings:

1. From the **Advanced** menu, select **Wi-Fi** from the left pane and then click **Primary Network**.
2. To enable SON, move the selector to **on**.
3. To activate the Wi-Fi radio, move the selector to **on**. If the radio is not enabled, no Wi-Fi devices will be able to connect to the primary network.
4. If desired, enter a new name and password for the Wi-Fi network or leave the default name and password that displays automatically.

**Note:** The SSID is the network name. All devices must use the same SSID.

5. To configure the Wi-Fi security, click the setup  button.



The screenshot shows the Verizon router's web interface. At the top, there are tabs for 'Basic' and 'Advanced', with 'Advanced' selected. Below the tabs is a navigation menu with categories like 'Home', 'Wi-Fi', 'Devices', 'Security & Firewall', 'Network Settings', 'Diagnostics & Monitoring', and 'System'. The 'Wi-Fi' section is expanded, showing 'Primary Network' as the selected option. The main content area is titled 'Primary Network' and contains several settings:

- 2.4 GHz:** Wi-Fi Enabled (toggle on), with a gear icon for configuration.
- 5 GHz:** Wi-Fi Enabled (toggle on), with a gear icon for configuration.
- Group Key:** Update Group Key based on time interval used to update the WPA shared key. The value is set to 259200, and the toggle is on.
- Wi-Fi QoS (WMM):** Improves the quality of service (QoS) for voice, video, and audio streaming over Wi-Fi by prioritizing these data streams. The toggle is on.
- WMM Power Save:** Improve battery life on mobile Wi-Fi devices such as smart phones and tablets by fine-tuning power consumption. The toggle is on.
- 6 GHz:** Wi-Fi Disabled (toggle off), with a gear icon for configuration.

**Caution:** These settings should only be configured by experienced network technicians. Changing the settings could adversely affect the operation of your router and your local network.

- **Group key** - to update the WPA shared key, move the selector to on.
- **Wi-Fi QoS (WMM)** - improves the quality of service (QoS) for voice, video, and audio streaming over Wi-Fi by prioritizing these data streams.
- **WMM Power Save** - improves battery life on mobile Wi-Fi devices such as smart phones and tablets by fine-tuning power consumption.

# ADVANCED SETTINGS

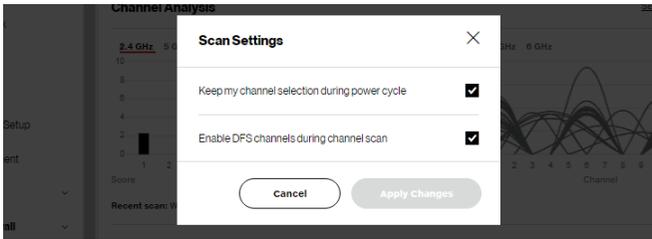
## 3.2b/ RADIO MANAGEMENT

You can configure the channel settings for the 2.4 GHz, 5 GHz and 6 GHz band(s) of your Wi-Fi network.

The screenshot displays the Verizon Wi-Fi management interface. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' (which is selected). A 'Hello' button and a settings icon are on the right. The left sidebar shows a navigation menu with categories: Network Devices (Verizon Router), Home, Wi-Fi (selected), Primary Network, Guest Network, IoT Network, Wi-Fi Protected Setup, Radio Management (highlighted), Devices, Security & Firewall, Network Settings, Diagnostics & Monitoring, and System. The main content area is titled 'Radio Management' and includes an 'Apply Changes' button. Below this, there are tabs for 'Settings' and 'History'. The 'Channel Analysis' section features two graphs: a bar chart for 2.4 GHz (Channels 1-11) and a line graph for 5 GHz (Channels 1-14). The 2.4 GHz graph shows scores for channels 1, 6, and 11. The 5 GHz graph shows signal strength across channels 1-14. Below the graphs, a note states 'Recent scan: Wait for NTP server to synchronize'. The 'Channel Settings' section has two rows: one for 2.4 GHz (Channel: Ch. 11 (Auto), Width: 20/40MHz, Health: 2.19, Radio Enabled: ON) and one for 5 GHz (Channel: Ch. 144 (Auto), Width: 80MHz, Health: 7.56, Radio Enabled: ON).

To view and configure the channel settings:

1. From the **Advanced** menu, select **Wi-Fi** and then click **Radio Management**.
2. Click on **Settings** on the top right-hand side of the **Radio Management** page to configure the channel scan settings:



- Select the **Keep my channel selection during power cycle** check box to save your channel selection when your Verizon Router is rebooted.
- **Enable DFS channels during channel scan:** DFS channels are enabled by default during channel scans.

***Note:** DFS channels are a subset of the 5 GHz network that is shared with radar systems. Some consumer devices do not support these channels and cannot connect to routers using them. Examples include some media streaming devices. Disabling this feature will allow the router to select the best available channel to broadcast on and allow these devices to connect.*

- Press **Apply changes** to save the changes.
3. Click **Scan** to perform a channel availability scan for the Verizon Router to identify the radio channels providing the best Wi-Fi performance.
  4. On the **Radio Management** page for 2.4 GHz, 5 GHz or 6 GHz, the following information displays and can be configured:

# ADVANCED SETTINGS

---

- **Channel Analysis** - scans and displays channel bandwidth and signal strength of available APs. **Channel Score** displays a network congestion score of zero to ten in each Wi-Fi channel. It can be used to determine which channels to use or to avoid. Higher score indicates less congestion in a channel.
- **Channel Settings** - this is the radio channel used by the Wi-Fi router and its clients to communicate with each other. The channel must be the same on the Gateway and all of its Wi-Fi clients. Select the channel you want the Wi-Fi radio to use to communicate, or accept the default (**Auto**) channel selection. Then the Gateway will automatically assign itself a radio channel.
- **Width** - displays the bandwidth available to the Wi-Fi channel currently in use on each band. Users can select from available channels.
- **802.11 Mode**

You can limit the Wi-Fi access to your network by selecting the 2.4 GHz and 5 GHz Wi-Fi communication standard best suited for the devices you allow to access your Wi-Fi network.

Select the Wi-Fi mode as follows:

- **Compatibility** – This is the default mode setting on 5 GHz, providing a good balance of performance and interoperability with existing Wi-Fi devices. 802.11a,n,ac and ax devices can connect.

- Legacy – This is the default mode setting on 2.4 GHz, providing broad connection support for old and new Wi-Fi devices. 802.11a,b,g,n and ac devices can connect.

### Notes:

*802.11n is available on both 2.4 GHz and 5 GHz frequencies.*

*Connecting 802.11a, b or g devices will cause your Wi-Fi network to slow on that radio and is not recommended.*

To view the channel settings history:

1. From the **Advanced** menu, select **Wi-Fi** and then click **Channel Settings**.
2. Click on **History** to display the channel settings history.

The screenshot shows the Verizon router's interface. At the top, there are tabs for 'Basic' and 'Advanced'. The 'Advanced' tab is selected. Below the tabs, there is a 'Network Devices' dropdown menu showing 'Verizon Router'. The main content area is titled 'Radio Management' and has two sub-tabs: 'Settings' and 'History'. The 'History' tab is active, displaying a table of channel settings history.

Band	Channel	Time	Date
2.4 GHz	Ch. 1	N/A	N/A
6 GHz	Ch. 197	N/A	N/A
5 GHz	Ch. 60	N/A	N/A
5 GHz	Ch. 144	N/A	N/A
5 GHz	Ch. 161	N/A	N/A
2.4 GHz	Ch. 11	N/A	N/A
2.4 GHz	Ch. 6	N/A	N/A
6 GHz	Ch. 165	N/A	N/A
5 GHz	Ch. 140	N/A	N/A
6 GHz	Ch. 37	N/A	N/A

---

# 04 /

## CONNECTED DEVICES

- 4.0** Device Settings
- 4.1** Setting Parental Controls
- 4.2** Universal Plug & Play

You can view the settings of the network devices connected to your Verizon Router's network.

The abundance of harmful information on the internet poses a serious challenge for employers and parents alike as they ask "How can I regulate what my employee or child does on the internet?"

With that question in mind, your Verizon Router's Parental Controls were designed to allow control of internet access on all locally networked devices.

# DEVICE SETTINGS

## 4.0/ DEVICE SETTINGS

To view and manage the connected devices on your network:

1. From the **Basic** menu, select **Devices** from the left pane.
2. The screen displays information about connected devices including **Device Name** and identifiers, **Parental Controls**, the type of network connection, and settings that you can view and configure.

verizon Basic Advanced

Network Devices  
Verizon Router

Home  
Wi-Fi  
Devices  
Parental Controls  
System

Devices > Devices > All

### Devices

All (1) Primary (1) Guest (0) IoT (0)

**Online**

Name	Connection	Connected to	MAC address	Parental Controls
A025-NB2	Ethernet	CR1000A	48:5b:39:4f:56:08	None

**Offline**

unknown_2ceadc9-4f3e	Offline	CR1000A	2ceadc9-4f3e	None
unknown_849733db5a06	Offline	CR1000A	849733db5a06	None

Add Device

verizon Basic Advanced

Network Devices  
Verizon Router

Home  
Wi-Fi  
Devices  
Parental Controls  
System

Devices > Devices > All

### Devices

All (1) Primary (1) Guest (0) IoT (0)

**Online**

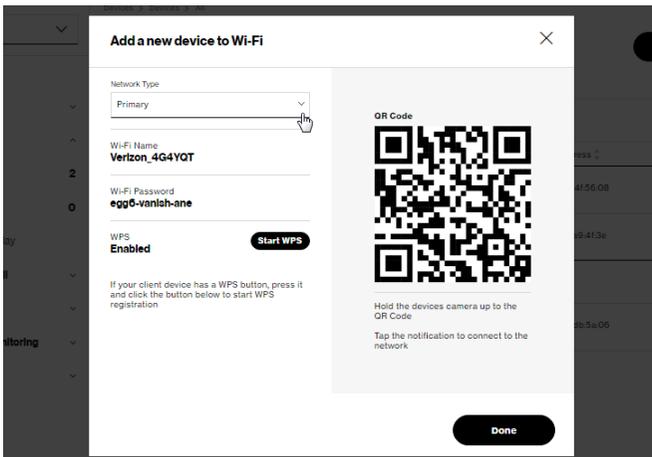
Connection	Connected to	MAC address	Parental Controls	Block/Allow	
Ethernet	CR1000A	48:5b:39:4f:56:08	None	<input checked="" type="checkbox"/>	

**Offline**

Offline	CR1000A	2ceadc9-4f3e	None	<input type="checkbox"/>	
Offline	CR1000A	849733db5a06	None	<input type="checkbox"/>	

Clear list

3. To easily add a new device to the network:
  - i. Click **Add Device** button on the screen.
  - ii. Select the preferred **Network Type** from the dropdown list (**Primary**, **Guest** or **IoT**).
  - iii. Scan the provided QR code with the new device's camera.
  - iv. Tap the push notification to connect the device to your network.



- v. You can add the new device to your Wi-Fi network by clicking the **Start WPS** button if your Wi-Fi device supports the WPS feature. Refer to “3.1d/ Wi-Fi Protected Setup (WPS)” on page 51 for detailed information.
- vi. Click **Done** to save the changes.

# DEVICE SETTINGS

4. Click and drag the horizontal scrolling bar to the right on the screen for device configuration.
5. Click the **Block/Allow** option to quickly disable/enable a device from having internet access.

For additional information about blocking websites, refer to “Setting Parental Controls” on page 67.

6. Click the Settings icon to access the **Device Settings** page for that device:

The screenshot shows the Verizon Device Settings interface. At the top left is the Verizon logo, followed by 'Basic' and 'Advanced' tabs. A 'Home' button and a 'Help' icon are in the top right. The left sidebar contains a 'Network Devices' dropdown menu with 'Verizon Router' selected, and a list of categories: Home, Wi-Fi, Devices (with a red bar next to it), Parental Controls, and System. The main content area is titled 'Device Settings' and includes a 'Save' button. Below this is the 'Device Information' section with a 'Cancel' button and a 'Reset to Default' button. The 'Device Information' section contains a 'Device' dropdown menu with 'Desktop/Laptop' selected and an 'Online' status indicator. Other fields include 'Name' (NW1), 'Host Name' (unknown\_2c:ea:dc:a9:4f3e), 'Location' (a dropdown menu with 'Select' and an empty text box), and 'Mobility' (Portable). Below this is the 'Device Add-Ons' section with a table of settings:

Device Add-Ons	
Port Forwarding N/A	DMZ host N/A
Access Control N/A	DNS Server N/A

At the bottom of the page is the 'Device Connection' section.

verizon **Basic** Advanced Help

Network Devices  
Verizon Router

Devices > Devices > Device Settings

## Device Settings

**Save**

N/A

---

**Device Connection**

---

**Connection Info**

Connection: Ethernet

Phy Rate / Modulation Rate: 1000 Mbps

**Network Info**

Mac Address: 2c:ea:dc:a9:4f:3e

Connected to: CR1000A

IPv4 Address: 192.168.0.1

Subnet Mask: 255.255.255.0

IPv4 DNS: 192.168.1.1

IPv4 Address Allocation: Static

Lease Type: Static

DHCP lease time remaining: Never

IPv6 LAN Prefix: 0/0

verizon **Basic** Advanced Help

Network Devices  
Verizon Router

Devices > Devices > Device Settings

## Device Settings

**Save**

---

IPv6 LAN Prefix: 0/0

IPv6 Global: -

IPv6 Type / Address Allocation: Stateless

IPv6 link-local: -

IPv6 DNS: -

Network Connection: Bridge

Ping Test: [Test Connectivity](#)

Time on the network: 2 hour(s) 55 minutes 55 seconds

# DEVICE SETTINGS

---

- **Device Information:**
  - **Device Type, Name/Host Name, Location, and Mobility**  
- Displays the current known information of the device. These can be updated or corrected as needed. Click **Edit** and **Save** to apply any changes.
  - This section also provides the device MAC Address, Access Point information the device is connected to as well as the IPv4 Address of the device.
- **Device Add-Ons**

**Port Forwarding** - Port Forwarding allows your network to be exposed to the internet in specific limited and controlled ways. For example, you could allow specific applications, such as gaming, voice, and chat, to access servers in the local network. To access the Port Forwarding page, click the setup button.

For additional information, refer to the Port Forwarding section in Chapter 5 Configuring Advanced Settings.

**Access Control** - Access Control restricts access from the local network to the internet. To access the Access Control page, click the setup button.

For additional information, refer to the Access Control section in Chapter 5 Configuring Advanced Settings.

**DMZ host** - DMZ host allows a single device on your primary network to be fully exposed to the internet for special purposes such as internet gaming. To access the DMZ host page, click the setup button.

For additional information, refer to the DMZ Host section in Chapter 5 Configuring Advanced Settings.

**DNS Server** - DNS Server manages the DNS server host name and IP address. To access the DNS Server page, click the setup button.

For additional information, refer to the DNS Server section in Chapter 5 Configuring Advanced Settings.

#### – **Device Connection**

This section displays Connection information of how and how well the device is connected to the Access Point. It also displays the Network related information, including IPv6 addresses and a **Ping Test** option.

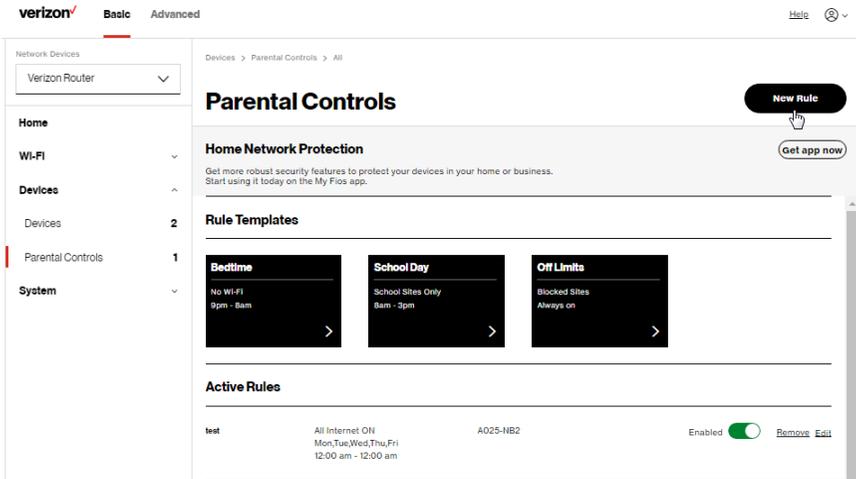
## **4.1/ SETTING PARENTAL CONTROLS**

### **4.1a/ ACTIVATING PARENTAL CONTROLS**

You can create a basic access policy by using the provided **Rule Templates** for any computer or device on your Gateway network. Content Controls limit internet access to specific websites based on a schedule that you create.

Access can be limited on specific websites or keywords embedded in a website. For example, you can block access to the 'www.anysite.com' as well as block any website that has the word 'any' in its site name.

# SETTING PARENTAL CONTROLS



*To limit device access:*

1. From the **Basic** menu, select **Devices** from the left pane and then click **Parental Controls**.
2. To use the default **Rule Templates**, select one of the pre-defined rules as shown on screen to quickly setup access policy for devices on your network.
3. To create a new access policy, click on the **New Rule** and the configuration page displays.

The screenshot shows the Verizon parental controls interface. On the left is a navigation menu with 'Parental Controls' selected. The main area is titled 'Create New Rule' and contains the following fields:

- Name:** A text input field containing 'test'.
- Schedule:** A dropdown menu with 'User defined' selected.
- Condition:** A list of three options: 'Internet is always on', 'Internet is always off', and 'Internet is always on'. The second option is highlighted.
- Devices:** A dropdown menu with 'User defined' selected.
- Action:** A dropdown menu with 'A025-NB2' selected.

Buttons include 'Apply Changes' (top right), 'Update Schedule' (below Schedule), 'Add Exceptions' (bottom left), and 'Add Devices' (bottom right). A 'Remove' link is also present under the Action field.

4. Create a rule name.
5. Create a **Schedule** by selecting **User defined** from the dropdown list.

The dialog box is titled 'Assign schedule to this rule' and contains the following elements:

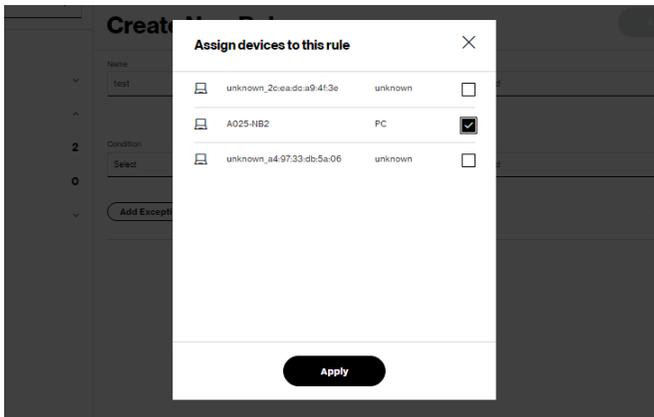
- Days:** A row of seven buttons for 'Sun', 'Mon', 'Tue', 'Wed', 'Thu', 'Fri', and 'Sat'. The 'Mon', 'Tue', 'Wed', and 'Thu' buttons are highlighted in red.
- Start Time:** A dropdown menu with '12:00 am' selected.
- End Time:** A dropdown menu with '12:00 am' selected.
- Apply:** A black button at the bottom.

6. Select the days of the week when the rule will be active or inactive.
7. Set the time when the rule will be active or inactive, then specify the start time and end time.
8. Click **Apply** to save changes.

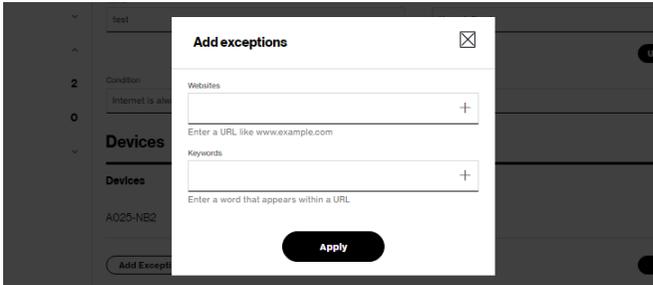
# SETTING PARENTAL CONTROLS

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9. Select the **Condition** rule of **Internet is always off/Internet is always on** to block/allow the access to all internet websites.
10. Create the **Devices** rule by selecting **User defined** from the dropdown list and select the computers or clicking **Add Devices** to add a device where you are limiting access.



11. Click **Apply** to save changes.
12. To remove a device from the list, click **Remove** for the assigned device.
13. Click **Add Exceptions** for the following exception options:
  - Enter the name of the website or keywords within a URL to block/allow the specified websites and websites with names containing the specified keyword.



14. Click **Apply** to save changes.

## 4.1b/ ACTIVE RULES

You can view the rules created for your Verizon Router shown on the **Parental Controls** page.

verizon Basic Advanced

Network Devices  
Verizon Router

Home

Wi-Fi

Devices

Devices 2

Parental Controls 1

System

Devices > Parental Controls > All

## Parental Controls

**New Rule**

**Home Network Protection**

Get more robust security features to protect your devices in your home or business. Start using it today on the My Fios app.

**Rule Templates**

- Bedtime**  
No Wi-Fi  
9pm - 8am
- School Day**  
School Sites Only  
8am - 3pm
- Off Limits**  
Blocked Sites  
Always on

**Active Rules**

Rule Name	Condition	Device	Status	Actions
test	All Internet ON Mon,Tue,Wed,Thu,Fri 12:00 am - 12:00 am	A025-NB2	Enabled	Remove Edit

# UNIVERSAL PLUG & PLAY

## 4.2/ UNIVERSAL PLUG & PLAY

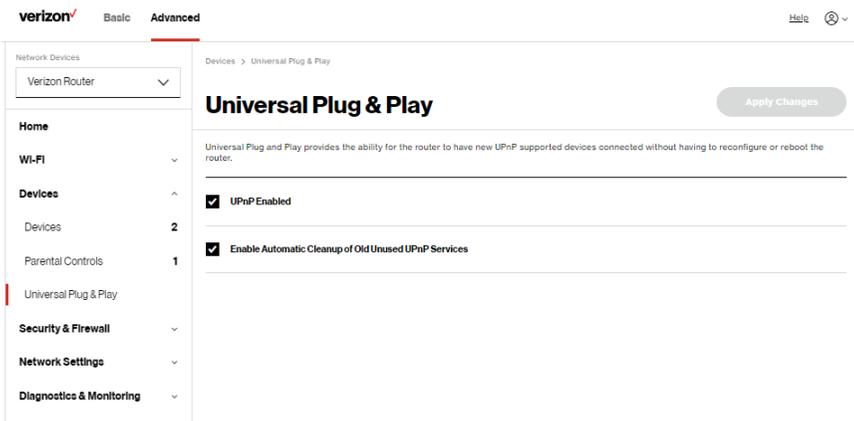
You can use Universal Plug and Play (UPnP) to support new devices without configuring or rebooting your Verizon Router.

In addition, you can enable the automatic cleanup of invalid rules. When enabled, this functionality verifies the validity of all UPnP services and rules every five minutes. Old and unused UPnP defined services are removed, unless a user-defined rule depends on it.

UPnP services are not deleted when disconnecting a computer without proper shutdown of the UPnP applications, such as messenger. Services may often not be deleted and eventually this leads to the exhaustion of rules and services. No new services can be defined. The cleanup feature locates the invalid services and removes them, preventing services exhaustion.

*To access this setting:*

1. From the **Advanced** menu, select **Devices** from the left pane and then click **Universal Plug & Play**.



2. To enable UPnP and allow UPnP services to be defined on any network hosts, select the **UPnP Enabled** check box.
3. To enable automatic cleanup of invalid rules, select **Enable Automatic Cleanup of Old Unused UPnP Services** check box.
4. Click **Apply Changes** to save changes.

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05 /

# CONFIGURING ADVANCED SETTINGS

- 5.0** Security & Firewall
- 5.1** Network Settings
- 5.2** Diagnostics & Monitoring
- 5.3** System

Advanced settings cover a wide range of sophisticated configurations for your Verizon Router's firmware, security setup and network.

Verizon Router's security suite includes comprehensive and robust security services, such as stateful packet inspection, firewall security, user authentication protocols, and password protection mechanisms.

These and other features help protect your computers from security threats on the internet.

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*This chapter covers the following advanced features:*

## **Security & Firewall**

- General Firewall - manages the security level for the firewall.
- Access Control - restricts access from the local network to the internet.
- DMZ Host - allows a single device on your primary network to be fully exposed to the internet for special purposes such as internet gaming.
- IPv6 Pinholes - provides access tunnel to a service on a host for a particular application.
- Port Forwarding - enables access from the internet to specified services provided by computers on the local network.
- Port Forwarding Rules – displays port forwarding rules.
- Port Triggering - defines port triggering entries to dynamically open the firewall for some protocols or ports.
- Scheduler Rules Settings – limits the activation of firewall rules to specific time periods.
- SIP ALG - supports the Application Layer Gateway for Session Initiation Protocol.

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## Network Settings

- ARP Table – displays active devices with their IP and MAC addresses.
- DNS Server - manages the DNS server host name and IP address.
- Dynamic DNS - allows a static domain name to be mapped to the dynamic IP address.
- IPv4/IPv6 Address Distribution - adds computers configured as DHCP clients to the network.
- IPv6 – enables IPv6 support.
- MAC Cloning – clones the MAC address.
- NDP (Neighbor Discovery Protocol) Table – displays active devices with their IPv6 and MAC addresses of DHCP connection.
- Network Connections – displays and manages the details of a specific network connection.
- Network Objects – defines a group, such as a group of computers.
- Port Configuration – sets up the Ethernet ports as either full- or half-duplex ports, at either 10 Mbps, 100 Mbps, or 1000 Mbps.
- Routing – manages the routing and IP address distribution rules.
- Static NAT - allows multiple static NAT IP addresses to be designated to devices on the network.

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**Diagnostics & Monitoring** - performs diagnostic tests and displays the details and status of:

- Bandwidth Monitoring
- System Logging
- Full Status/System wide Monitoring of Connections/Traffic Monitoring
- Backhaul Logging

### **Advanced System Settings**

- Date & Time Settings – sets the time zone and enables automatic time updates.
- Factory Reset – resets your Verizon Router to its default settings.
- LED Brightness - controls the Status LED light to either dim or brighten.
- Reboot Router – restarts your Verizon Router.
- Remote Administration – enables remote configuration of your Verizon Router from any internet-accessible computer.
- System Settings - sets up various system and management parameters.

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## **5.0/ SECURITY & FIREWALL**

The firewall is the cornerstone of the security suite for your Verizon Router. It has been exclusively tailored to the needs of the residential or office user and is pre-configured to provide optimum security.

The firewall provides both the security and flexibility that home and office users seek. It provides a managed, professional level of network security while enabling the safe use of interactive applications, such as internet gaming and video conferencing.

Additional features, including surfing restrictions and access control, can also be configured locally through the user interface or remotely by a service provider.

The firewall regulates the flow of data between the local network and the internet. Both incoming and outgoing data are inspected, then either accepted and allowed to pass through your Verizon Router or rejected and barred from passing through your Verizon Router, according to a flexible and configurable set of rules. These rules are designed to prevent unwanted intrusions from the outside, while allowing local network users access to internet services.

The firewall rules specify the type of services on the internet that are accessible from the local network and types of services in the local network that are accessible from the internet.

# SECURITY & FIREWALL

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Each request for a service that the firewall receives is checked against the firewall rules to determine whether the request should be allowed to pass through the firewall. If the request is permitted to pass, all subsequent data associated with this request or session is also allowed to pass, regardless of its direction.

For example, when accessing a website on the internet, a request is sent to the internet for this site. When the request reaches your Verizon Router, the firewall identifies the request type and origin, such as HTTP and a specific computer in the local network. Unless your Verizon Router is configured to block requests of this type from this computer, the firewall allows this type of request to pass to the internet.

When the website is returned from the web server, the firewall associates the website with this session and allows it to pass; regardless HTTP access from the internet to the local network is blocked or permitted. It is the origin of the request, not subsequent responses to this request, which determines whether a session can be established.

## **5.0a/** SETTING FIREWALL CONFIGURATION

You can select a normal, high, or low security level to limit, block, or permit all traffic. The following table shows request access for each security level.

Security Level	Internet Requests Incoming Traffic	Local Network Requests Outgoing Traffic
High	Blocked	Limited
Normal	Blocked	Unrestricted
Low	Unrestricted	Unrestricted

*The request access is defined as:*

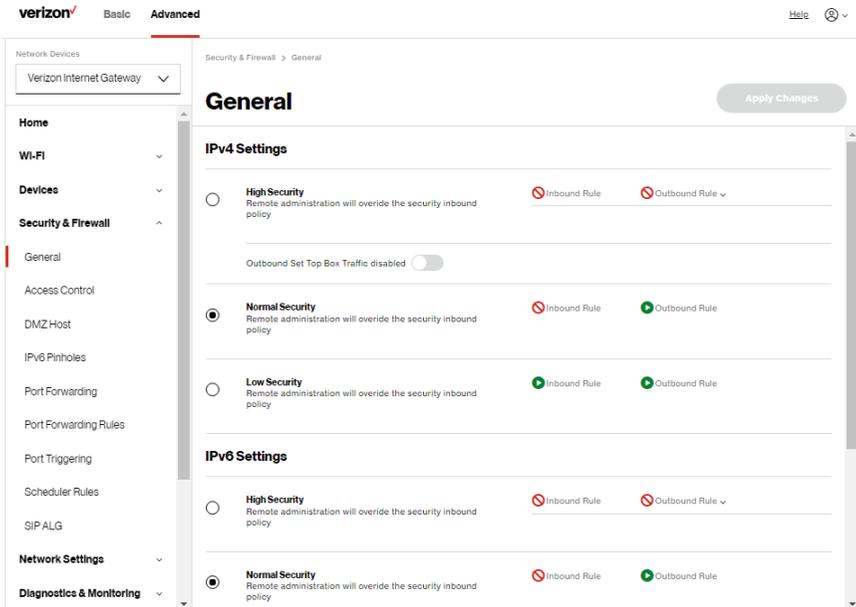
- Blocked traffic - no access allowed, except as configured in Port Forwarding and Remote Access
- Limited - permits only commonly used services, such as email and web browsing
- Unrestricted - permits full access of incoming traffic from the internet and allows all outgoing traffic, except as configured in Access Control

## **SPECIFYING GENERAL SETTINGS FOR IPV4 OR IPV6**

*To set your firewall configuration:*

1. From the **Security & Firewall General** settings page, click on desired **IPv4 settings/IPv6 settings** option to configure IPv4/IPv6 security.

# SECURITY & FIREWALL



2. Select a security level by clicking one of the radio buttons. Using the **Low Security** setting may expose the local network to significant security risks, and should only be used for short periods of time to allow temporary network access.
3. Click **Apply Changes** to save changes.

## 5.0b/ ACCESS CONTROL

You can block individual computers on your local network from accessing specific services on the internet. For example, you could block one computer from accessing the internet, then block a second computer from transferring files using FTP as well as prohibit the computer from receiving incoming email.

Access control incorporates a list of preset services, such as applications and common port settings.

## ALLOW OR RESTRICT SERVICES

*To allow or restrict services:*

1. From the **Advanced** menu, select **Security & Firewall** from the left pane and then click **Access Control**. The **Access Control** page opens with the allowed and blocked status displayed. The allowed section only displays when the firewall is set to maximum security.

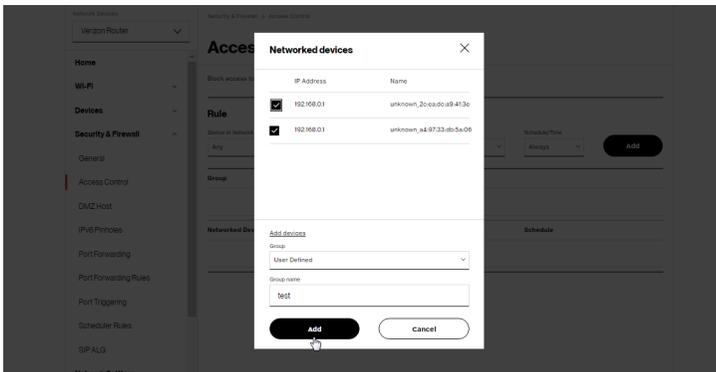
The screenshot shows the Verizon router's configuration interface. The left sidebar is expanded to 'Security & Firewall', with 'Access Control' selected. The main area is titled 'Access Control' and shows a rule configuration form. The 'Device or Network Group' is set to 'Any', and the 'Schedule/Time' is set to 'Always'. An 'Add' button is visible. Below the form is a table of existing rules:

Networked Device	Protocols	Schedule
Any	Any	Always
192.168.0.1 - unknown_2c:ea:dca9:4f:3e	FTP	Always
192.168.0.1 - unknown_2c:ea:dca9:4f:3e	HTTPS	Always

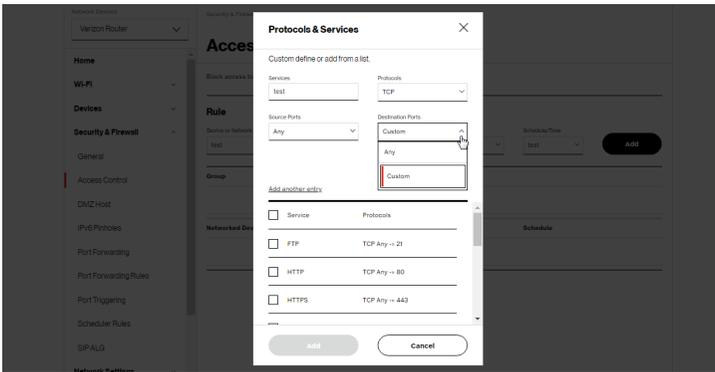
2. To apply the rule to:
  - Networked Device or Network Group - select **Any**.
  - Specific devices only - select networked device or **User Defined**.

# SECURITY & FIREWALL

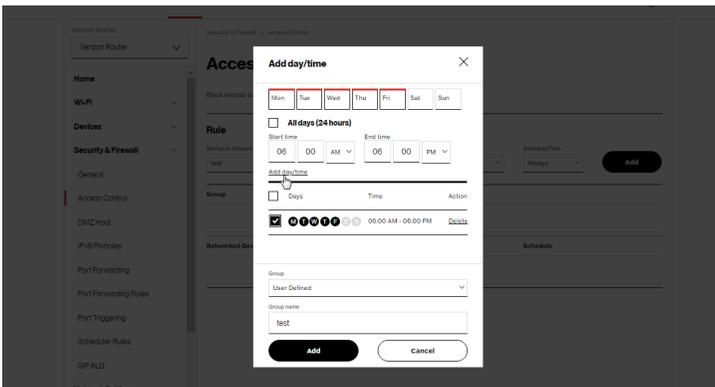
3. Select the networked device to be allowed or blocked in the list.
4. In the **Add devices**, enter the group name, then click **Add**. The new network group is automatically added to the **Access Control** section.



5. To block a service, select the internet protocol to be blocked in the **Protocol** field.
6. If the service is not included in the list, select **User Defined**, define the service, then click **Add another entry**.
7. Click **Add**. The service is automatically added to the **Access Control** section.



- Specify when the rule is active as **Always** or **User Defined**.
- Specify days of the week, and set the start time and end time when the rule will be active or inactive.



- Click **Add** to create the schedule time.
- Click **Add** to apply the changes.
- The **Access Control** page displays a summary of the new access control rule.

# SECURITY & FIREWALL

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13. To modify the current settings, click the edit icon in the action column and then the **Apply** button.
14. To remove an access restriction, click the trash icon. The rule is removed from the Access Control table.

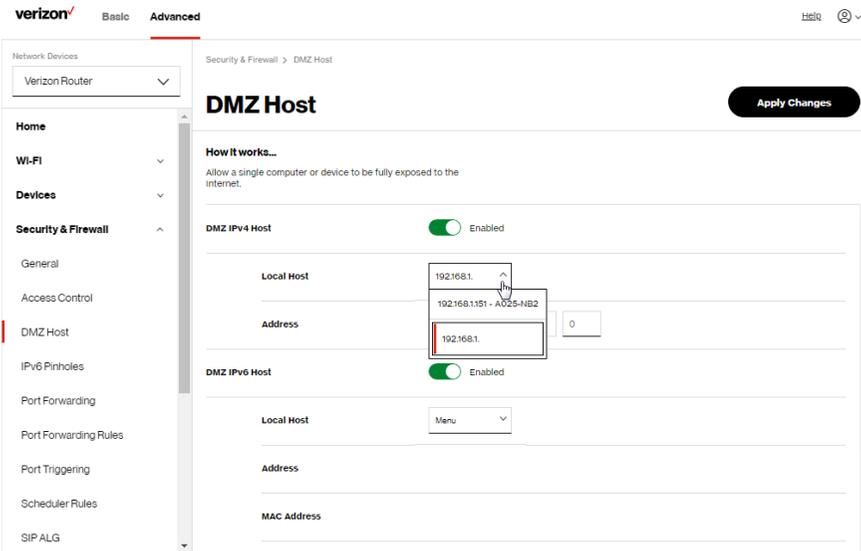
## 5.0c/ DMZ HOST

DMZ Host allows a single device on your primary network to be fully exposed to the internet for special purposes like internet gaming.

*Warning: Enabling DMZ Host is a security risk. When a device on your network is a DMZ Host, it is directly exposed to the internet and loses much of the protection of the firewall. If it is compromised, it can also be used to attack other devices on your primary network.*

Follow these steps to designate a device on your primary network as a DMZ Host:

1. From the **Advanced** menu, select **Security & Firewall** and then click **DMZ Host**.
2. Select **Enable** for the DMZ Host.
3. Enter the IP address or select the MAC address of the device you want to designate as the DMZ Host.



4. Click **Apply Changes** to save changes.

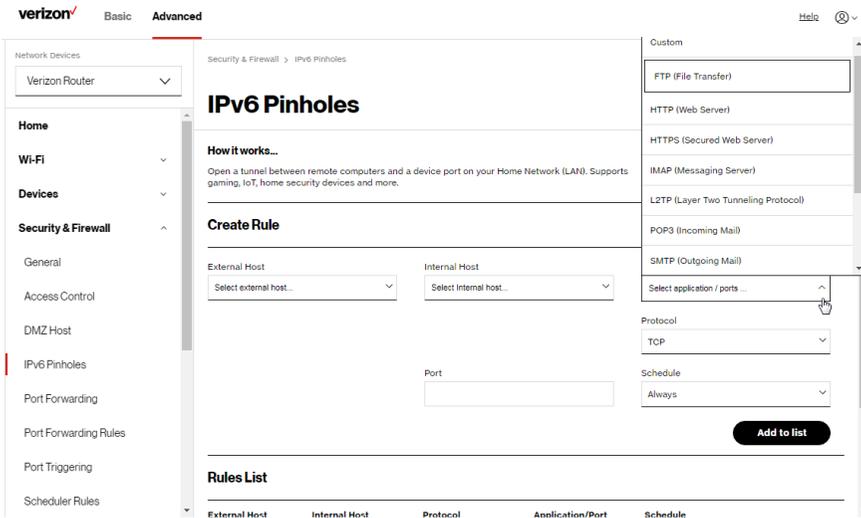
## 5.0d/ IPV6 PINHOLES

The IPv6 Pinhole feature of the Verizon Router allows an application to send incoming packets for a certain port number to the destination computer by setting up the rule of authorization.

*To configure the rules:*

1. From the **Advanced** menu, select **Security & Firewall** and then click **IPv6 Pinhole**.

# SECURITY & FIREWALL



2. Select external and internal host, protocol and the application port type.
3. To schedule the rule, select either **Always** or **User Defined** in the **Schedule** list box.
4. Click **Add to list**. The screen displays opened pinhole port and its status. It shows the IP addresses of remote device and connected device on your network.
5. Click **Apply Changes** to save changes.

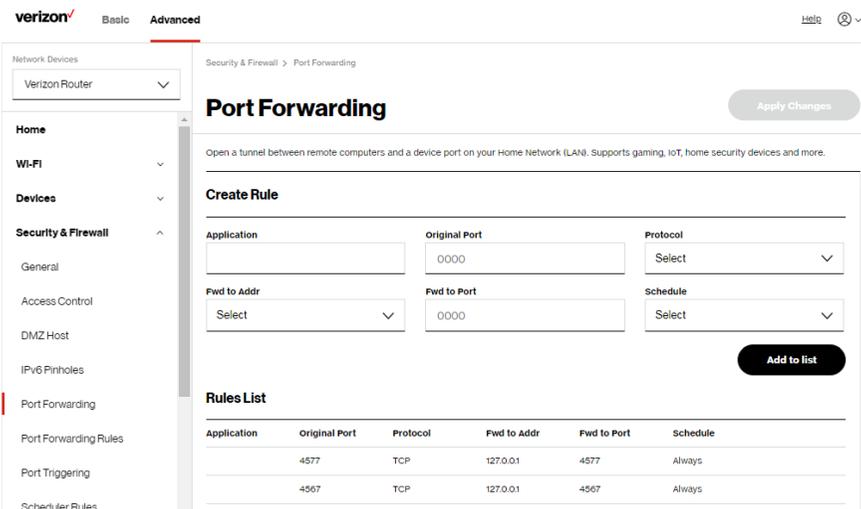
## 5.0e/ PORT FORWARDING

You can activate port forwarding to expose the network to the internet in a limited and controlled manner. For example, enabling applications, such as gaming and voice, to work from the local

network as well as allowing internet access to servers within the local network.

*To create port forwarding rules:*

1. From the **Advanced** menu, select **Security & Firewall** from the left pane and then click **Port Forwarding**. The **Port Forwarding** page opens with the current rules displayed.



The screenshot shows the Verizon router's web interface for Port Forwarding. The left sidebar is set to 'Advanced' and 'Security & Firewall' is selected. The main content area is titled 'Port Forwarding' and includes an 'Apply Changes' button. Below the title is a description: 'Open a tunnel between remote computers and a device port on your Home Network (LAN). Supports gaming, IoT, home security devices and more.' The 'Create Rule' section has the following fields:

- Application: [Empty text box]
- Original Port: [0000]
- Protocol: [Select dropdown]
- Fwd to Addr: [Select dropdown]
- Fwd to Port: [0000]
- Schedule: [Select dropdown]

An 'Add to list' button is located below the form. The 'Rules List' section contains the following table:

Application	Original Port	Protocol	Fwd to Addr	Fwd to Port	Schedule
	4577	TCP	127.0.0.1	4577	Always
	4567	TCP	127.0.0.1	4567	Always

2. To create a new rule, enter the application name, configure its inbound and outbound port numbers, forwarding destination address, then select the protocol.
3. To schedule the rule, select either **Always** or **User Defined** in the **Schedule** list box.
4. Click **Add to list**. The rule displays in the **Rules List** section.
5. Click **Apply Changes** to save changes.

# SECURITY & FIREWALL

## 5.0f/ PORT FORWARDING RULES

You can view, modify, and delete port forwarding rules.

To access the rules:

1. Select **Port Forwarding Rules** in the **Security & Firewall** section.

The screenshot shows the Verizon router's management interface. The top navigation bar includes the Verizon logo, 'Basic' and 'Advanced' tabs, and a 'Help' icon. The left sidebar contains a menu with categories like 'Home', 'Wi-Fi', 'Devices', 'Security & Firewall', and 'Network Settings'. The 'Security & Firewall' section is expanded, showing 'Port Forwarding Rules' as the selected option. The main content area displays the title 'Port Forwarding Rules' and a table of currently configured protocols. Below the table, an 'Add new' button is highlighted with a red circle and a mouse cursor.

Protocols	Ports	
FTP	TCP Any → 21	<a href="#">Edit</a> <a href="#">Remove</a>
HTTP	TCP Any → 80	<a href="#">Edit</a> <a href="#">Remove</a>
HTTPS	TCP Any → 443	<a href="#">Edit</a> <a href="#">Remove</a>
IMAP	TCP Any → 143	<a href="#">Edit</a> <a href="#">Remove</a>
L2TP	UDP Any → 1701	<a href="#">Edit</a> <a href="#">Remove</a>
Ping	ICMP Echo Request	<a href="#">Edit</a> <a href="#">Remove</a>
POP3	TCP Any → 110	<a href="#">Edit</a> <a href="#">Remove</a>
SMTP	TCP Any → 25	<a href="#">Edit</a> <a href="#">Remove</a>
SNMP	UDP Any → 161	<a href="#">Edit</a> <a href="#">Remove</a>
Telnet	TCP Any → 23	<a href="#">Edit</a> <a href="#">Remove</a>
YFTP	UDP 1024 - 65535 → 69	<a href="#">Edit</a> <a href="#">Remove</a>
Traceroute	UDP 32769 - 65535 → 33434 - 33523	<a href="#">Edit</a> <a href="#">Remove</a>

2. To create or edit a protocol rule, click the **Add new** or **Edit** icon in the action column. The **Edit Service** page displays.

The screenshot shows the Verizon router configuration interface. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' tabs. The left sidebar lists various settings under 'Security & Firewall', with 'Port Forwarding Rules' selected. The main content area is titled 'Edit Service' and contains the following fields:

- Edit Service**
- Service Name**: A text input field.
- Service Description**: A text input field.
- Service Ports**
- Protocols**: A table with one column labeled 'Protocols' and one column labeled 'Ports'. Below the table is an 'Add' button.
- Buttons**: 'Cancel' and 'Apply' buttons at the bottom.

3. Modify the **Service Name** and **Service Description**, as needed.
4. To add server ports, click **Add**.
5. To modify the current protocol, click the **Edit** icon in the action column. The **Edit Service Server Ports** page displays.

The screenshot shows the Verizon router configuration interface, specifically the 'Edit Service Server Ports' page. The top navigation bar and left sidebar are the same as in the previous screenshot. The main content area is titled 'Edit Service' and contains the following fields:

- Edit Service Server Ports**
- Protocol**: A dropdown menu with 'TCP' selected.
- Source Ports**: A dropdown menu with 'Any' selected.
- Destination Ports**: A dropdown menu with 'Any' selected.
- Buttons**: 'Cancel' and 'Apply' buttons at the bottom.

# SECURITY & FIREWALL

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6. Enter the **Protocol**, **Source Ports** and **Destination Ports**, as needed.
7. Click **Apply** to save changes.

## 5.0g/ PORT TRIGGERING

Port triggering can be described as dynamic port forwarding. By setting port triggering rules, inbound traffic arrives at a specific network host using ports that are different than those used for outbound traffic. The outbound traffic triggers the ports where the inbound traffic is directed.

For example, a gaming server is accessed using UDP protocol on port 2222. The gaming server then responds by connecting the user using UDP on port 3333, when a gaming session is initiated.

In this case, port triggering must be used since it conflicts with the following default firewall settings:

- Firewall blocks inbound traffic by default.
- Server replies to your Verizon Router IP, and the connection is not sent back to the host since it is not part of a session.

To resolve the conflict, a port triggering entry must be defined, which allows inbound traffic on UDP port 3333 only after a network host generated traffic to UDP port 2222. This results in your Verizon Router accepting the inbound traffic from the gaming server and sending it back to the network host which originated the outgoing traffic to UDP port 2222.

To configure port triggering:

1. From the **Advanced** menu, select **Security & Firewall** and then click **Port Triggering**.

The screenshot shows the Verizon Router configuration page for Port Triggering. The interface includes a navigation menu on the left with categories like Network Devices, Security & Firewall, Network Settings, and System. The main content area is titled "Port Triggering" and contains a "Create Rule" section with input fields for Application (test), Trig Port Range (11-22), Fwd Port Range (33-44), Protocol (TCP), and Schedule (Always). Below this is a "Rules List" table showing the configured rule.

Application	Trig port range	Protocol	Fwd port range	Schedule
test	11 - 22	TCP	33 - 44	Always

2. To add a service as an active protocol, enter the application name, configure its inbound and outbound (triggered/forwarded) port range, then select the protocol.
3. To schedule the rule, select either **Always** or **User Defined** in the **Schedule** list box.
4. Click **Add to list**. The rule displays in the **Rules List** section.
5. Click **Apply Changes** to save changes.

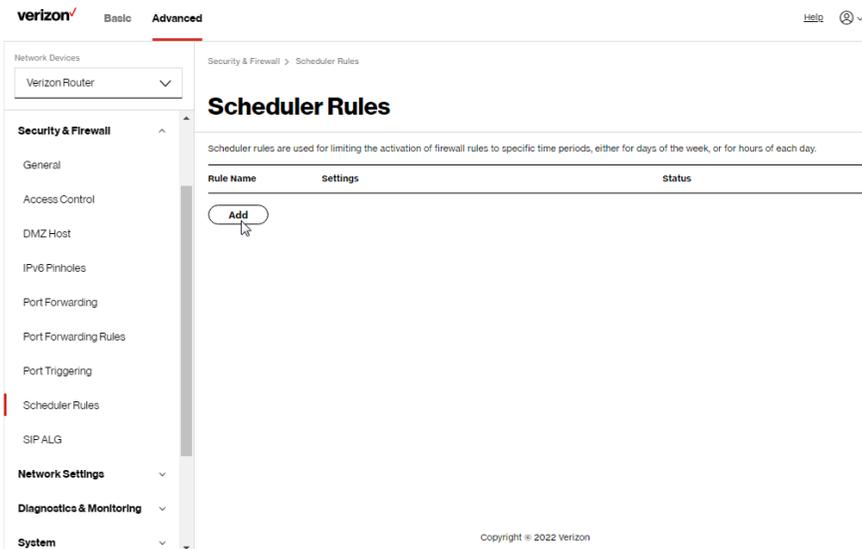
# SECURITY & FIREWALL

## 5.0h/ SCHEDULER RULES

**Scheduler Rules** are used for limiting the activation of firewall rules to specific time periods. The time periods are either for days of the week or for hours of each day based on activity or inactivity.

*To define a rule:*

1. Verify that the date and time of your Verizon Router is correct.
2. Select **Scheduler Rules** in the **Security & Firewall** section.



3. Click **Add**. The **Rule Scheduler** page displays.

The screenshot shows the Verizon Router web interface. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' tabs. A 'Hello' button with a user icon is in the top right. The left sidebar lists various settings categories: Network Devices (Verizon Router), Security & Firewall (General, Access Control, DMZ Host, IPv6 Pinholes, Port Forwarding, Port Forwarding Rules, Port Triggering, Scheduler Rules, SIP ALG), Network Settings, Diagnostics & Monitoring, and System. The main content area is titled 'Rule Scheduler' and contains the following fields: 'Rule name' (test), 'Rule days' (Sun, Mon, Tue, Wed, Thu, Fri, Sat), 'Rule time' (Start Time: 6:00 am, End Time: 12:00 am), and two radio buttons for 'Rule will be active during schedule' (selected) and 'Rule will be inactive during schedule'. An 'Apply Changes' button is in the top right. A dropdown menu for the End Time is open, showing options from 12:00 am to 7:00 am. Copyright © 2022 Verizon is at the bottom.

4. Enter the name of the rule, select the active or inactive days of the week and the start and end time range.
5. Specify if the rule is **active** or **inactive** at the scheduled time.
6. Click **Apply Changes** to save changes.

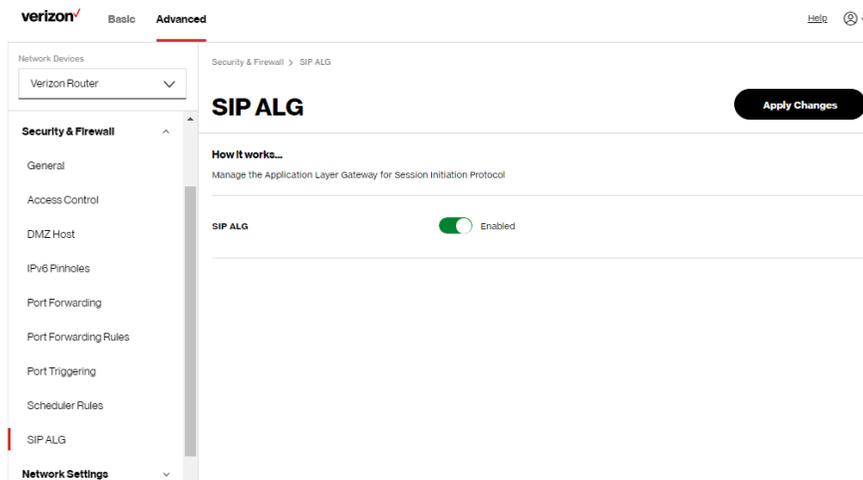
## 5.0i/ SIP ALG

SIP ALG (Application Level Gateway) - supports various multiple application protocols by allowing dynamic ephemeral TCP/ UDP ports to communicate with the known ports which a particular client application (such as FTP, VoIP service, net meeting or streaming media) requires.

# NETWORK SETTINGS

To enable the SIP ALG settings:

1. From the **Advanced** menu, select **Security & Firewall** and then click **SIP ALG**.
2. Select **Enabled** for the SIP ALG.



3. Click **Apply Changes** to save changes.

## 5.1/ NETWORK SETTINGS

### 5.1a/ ARP TABLE

You can view the IPv4 and MAC addresses of each DHCP connection.

To view the IPv4 and MAC addresses for each device: From the **Advanced** menu, select **Network Settings** and then click **ARP Table**.

The screenshot shows the Verizon router's web interface. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' tabs. The left sidebar shows 'Network Settings' expanded, with 'ARP Table' selected. The main content area is titled 'ARP Table' and contains a table of DHCP connections. A 'Refresh' button is visible in the top right corner of the table area.

IP4 Address	MAC Address	State	Device
192.168.1.151	48:8b:39:4f:56:08	REACHABLE	Network (Home/Office)
192.168.0.1	a4-97:33:db:5a:06	REACHABLE	Network (Home/Office)

## 5.1b/ DNS SERVER

You can edit the host name and/or IP address, if the host was manually added to the DNS table. If not, you can only modify the host name.

*To access the DNS server:*

1. From the **Advanced** menu, select **Network Settings** and then click **DNS Server**.

The screenshot shows the Verizon router's web interface for the DNS Server settings. The left sidebar shows 'Network Settings' expanded, with 'DNS Server' selected. The main content area is titled 'DNS Server' and contains a table of DNS entries. There is an 'Add DNS Entry' button, a checkbox for 'Enable DNS Rebind Protection', and a section for 'Exceptions to DNS Rebind Protection' with an 'Add Exceptions Entry' dropdown. An 'Apply Changes' button is at the bottom.

Host Name	IP Address	Source
A040025-NB2	192.168.1.151	DHCP

# NETWORK SETTINGS

2. To disable DNS rebind protection for all devices connected to the Router, untick the check box of **Enable DNS Rebind Protection**.

*Warning: Disabling this protection may create a risk of cyber security attack to devices connected to this Router.*

3. To add a computer stored in the **DNS** table, click **Add DNS Entry**. The **DNS Entry** page displays.

The screenshot shows the Verizon Router's web interface. At the top, there are tabs for 'Basic' and 'Advanced', with 'Advanced' selected. Below the tabs, there is a breadcrumb trail: 'Network Settings > DNS Server > DNS Server Setting'. The main heading is 'DNS Server'. Underneath, there is a section titled 'DNS Entry'. This section contains two input fields: 'Host Name' and 'IP Address'. The 'IP Address' field is divided into four individual boxes for each digit. At the bottom of the form, there is an 'Apply' button. On the left side of the interface, there is a sidebar menu with 'Network Settings' expanded, showing options like 'ARP Table', 'DNS Server', 'Dynamic DNS', 'IPv4 Address Distribution', and 'IPv6'. The 'DNS Server' option is currently selected.

4. In the **Host Name** field, enter the name of the computer, then enter the **IP address** and click **Apply** to save changes.
5. Then the **DNS Server** page displays.
6. To add a new IP address entry, select the **Add Exceptions Entry** in the **Exceptions to DNS Rebind Protection** section. The **Add Exceptions List** page displays. Edit the IP address.
7. To remove a host from the DNS table, click the **Remove** icon on the screen.
8. Click **Apply Changes** to save changes.

## 5.1c/ DYNAMIC DNS

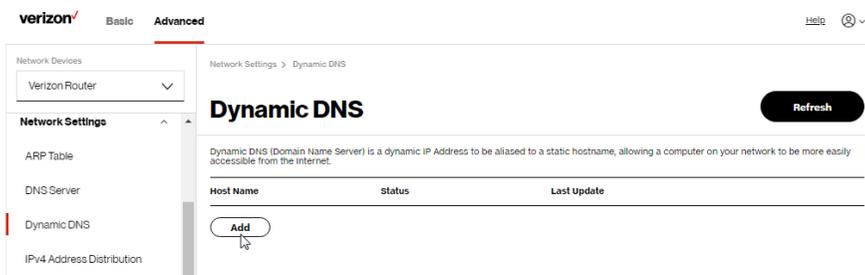
Typically, when connecting to the internet, your Router is assigned an unused public IP address from a pool, and this address changes periodically.

Dynamic DNS allows a static domain name to be mapped to the dynamic IP address, allowing a computer within your network to be more easily accessible from the internet.

When using Dynamic DNS, each time the public IP address changes, the DNS database is automatically updated with the new IP address. In this way, even though the IP address changes often, the domain name remains constant and accessible.

*To set up dynamic DNS:*

1. Select **Dynamic DNS** in the **Network Settings** section.



2. To set up a new entry, click the **Add** button.

# NETWORK SETTINGS

The screenshot shows the Verizon Network Settings interface. At the top, there are tabs for 'Basic' and 'Advanced', with 'Advanced' selected. A 'Help' icon is visible in the top right. The main content area is titled 'Dynamic DNS' and includes a breadcrumb trail: 'Network Settings > Dynamic DNS > Setup Dynamic DNS'. Below the title, there is a descriptive paragraph: 'Dynamic DNS (Domain Name Server) is a dynamic IP Address to be aliased to a static hostname, allowing a computer on your network to be more easily accessible from the internet.' The main section is 'Setup Dynamic DNS (Domain Name Server)'. It contains several fields: 'Host name' (empty text input), 'Provider' (a dropdown menu with 'changeip.com' selected and a list of other providers including 'changeip.com', 'dyndns.com', 'easymdns.com', and 'no-ip.com'), 'User name' (empty text input), and 'Password' (empty text input). There is a checkbox for 'SSL Mode' which is checked. At the bottom, there are two buttons: 'Cancel' and 'Apply'.

3. Configure the following parameters:
  - **Host Name** – enter the full domain name for your Dynamic DNS domain.
  - **Provider** – select the Dynamic DNS account provider from the menu.
  - **User Name** – enter your user name for your Dynamic DNS account.
  - **Password** – enter the password for your Dynamic DNS account.
  - **SSL Mode** – select if your Dynamic DNS service supports SSL.
4. Click **Apply** to save your changes.

---

## 5.1d/ IPV4 ADDRESS DISTRIBUTION

You can easily add computers configured as DHCP clients to the network. The DHCP server provides a mechanism for allocating IP addresses to these hosts and for delivering network configuration parameters to the hosts.

For example, a client (host) sends a broadcast message on the network requesting an IP address for itself. The DHCP server then checks its list of available addresses and leases a local IP address to the host for a specific period of time and simultaneously designates this IP address as taken. At this point, the host is configured with an IP address for the duration of the lease.

The host can renew an expiring lease or let it expire. If it renews a lease, the host receives current information about network services, as it did during the original lease, allowing it to update its network configurations to reflect any changes that occurred since the first connection to the network.

If the host wishes to terminate a lease before its expiration, it sends a release message to the DHCP server. This makes the IP address available for use by other hosts.

*The DHCP server performs the following functions:*

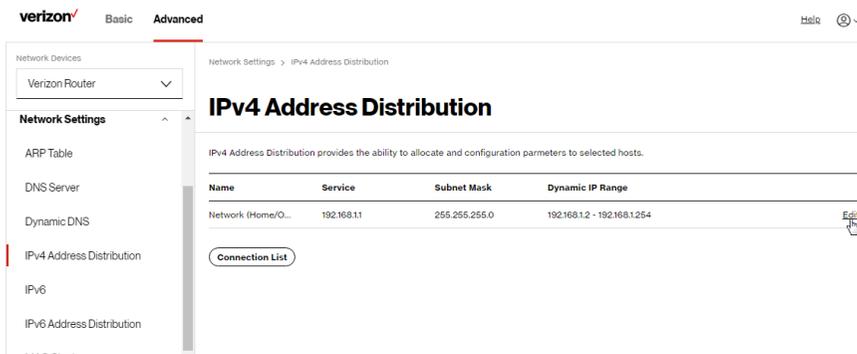
- Displays a list of all DHCP host devices connected to your Verizon Router
- Defines the range of IP addresses that can be allocated in the network
- Defines the length of time the dynamic IP addresses are allocated

# NETWORK SETTINGS

- Provides the above configurations for each network device and can be configured and enabled or disabled separately for each network device
- Assigns a static lease to a network computer to receive the same IP address each time it connects to the network, even if this IP address is within the range of addresses that the DHCP server may assign to other computer
- Provides the DNS server with the host name and IP address of each computer connected to the network

To view a summary of the services provided by the DHCP server:

1. Select **IPv4 Address Distribution** in the **Network Settings** section.



2. You can edit the DHCP server settings for a device. On the **IPv4 Address Distribution** page, click the **Edit** icon on the screen. The DHCP Settings page opens with the device information displayed.
3. To enable the DHCP server, select **DHCP Server** in the **IPv4 Address Distribution** field.

4. Once enabled, the DHCP server provides automatic IP assignments (IP leases) based on the preset IP range defined below.

Network Settings > IPv4 Address Distribution > DHCP Settings

### DHCP Settings for Network (Home/Office)

**Service**

IPv4 Address Distribution: DHCP Server

**DHCP Server**

Start IP Address: 192.168.1.2

End IP Address: 192.168.1.254

WINS Server: 0.0.0.0

Lease Time in Minutes: 1440

**IPv4 Address Distribution According to DHCP Option 60 (Vendor Class Identifier)**

Vendor Class Id	IP Address	MAC Address	QoS
MSFT 5.0	192.168.1.151	48:5B:39:4F:56:08	
Verizon BHRx1 DHCP Detect	0.0.0.0	B8:F8:53:84:E6:68	

5. To configure the DHCP server, complete the following fields:
- **Start IP Address** – enter the first IP address that your Verizon Router will automatically begin assigning IP addresses from. Since your Verizon Router’s default IP address is 192.168.1.1, the default start IP address should be 192.168.1.2.
  - **End IP Address** – enter the last IP address that your Verizon Router will stop at for the IP address allocation. The maximum end IP address range that can be entered is 192.168.1.254.

# NETWORK SETTINGS

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- **WINS Server** – determines the IP address associated with a network device.
- **Lease Time in Minutes** – assigns the amount of time in minutes that each device is assigned an IP address by the DHCP server when it connects to the network.

When the lease expires, the server determines if the computer has disconnected from the network. If it has, the server may reassign this IP address to a newly connected computer.

6. Click **Apply** to save changes.

## **IPv4 Address Distribution According to DHCP option 60 (Vendor Class Identifier)**

DHCP vendor class is related to DHCP option 60 configuration within the Router. User can add option 60 configurations such that particular vendor can get lease from a specified pool of address. The existing vendor class ID, IP address, MAC address and QoS are shown on the screen above.

## **DHCP Connection List**

You can view a list of the connections currently assigned and recognized by the DHCP server.

*To view a list of computers:*

1. On the **IPv4 Address Distribution** page, click **Connection List**.

The screenshot shows the Verizon Network Settings interface. The left sidebar has 'Advanced' selected, and 'IPv4 Address Distribution' is highlighted. The main content area is titled 'DHCP Connections'. Below the title, there is a table with the following data:

Host Name	IP Address	Physical Address	Lease Type	Connection Name	Status	Expired in
A025-1B2	192.168.1.151	48:5B:39:4F:56:08	Dynamic	Network (Home/O...	Active	1187

Below the table is a button labeled 'Add static connection' with a mouse cursor pointing to it.

- To define a new static connection with a fixed IP address, click **Add static connection**.

The screenshot shows the Verizon Network Settings interface for 'DHCP Connection Settings'. The left sidebar is the same as in the previous screenshot. The main content area has the following fields:

- Host name:
- IP Address:
- MAC Address:

At the bottom of the form is a black button labeled 'Apply'.

- Enter the host name.
- Enter the fixed IP address to be assigned.
- Enter the MAC address of the network interface of the computer used with this DHCP static connection.
- Click **Apply** to save changes.

# NETWORK SETTINGS

## 5.1e/ IPV6

Use the IPv6 feature settings to enable, disable, or configure an IPv6 Internet connection and IPv6 LAN settings.

1. To configure your network to use the IPv6 Internet connection type, select **IPv6** in the **Network Settings** section to display the IPv6 service options:

The screenshot shows the Verizon Network Settings interface for IPv6 Configuration Controls. The interface is divided into a left sidebar and a main content area. The sidebar lists various network settings, with 'IPv6' highlighted. The main content area is titled 'IPv6 Configuration Controls' and includes an 'Apply Changes' button. The configuration is organized into three sections:

- 1. Enable IPv6 Support:** A toggle switch is set to 'Enabled'.
- 2. Specify the method to be used to obtain your WAN IPv6 Address:** This section includes several fields: 'IPv6 WAN Configuration' (set to 'DHCPv6-PD'), 'Delegated Prefix' (set to 'None'), 'Expires In' (set to 'DHCPv6-PD'), 'Prefix Lifetime' (set to 'Static (Auto-Configure)'), and 'WAN Link-Local Address' (set to 'Static (Manually Configure)'). Below these fields are two radio button options: 'Obtain IPv6 DNS Server address automatically' (selected) and 'Use the following IPv6 DNS Server addresses'.
- 3. Specify the method to be used to assign LAN IPv6 addresses:** This section includes 'IPv6 LAN Configuration' (set to 'Stateless') and 'LAN Prefix'.

2. Select **Enabled** in the **Enable IPv6 Support** field.
3. Click **Apply Changes** to have changes take effect.

**Note:** The Internet IPv6 service is required for this feature to work over the internet.

4. To disable the IPv6 service, move the selector to **off** in the **Enable IPv6 Support** field.
5. Click **Apply Changes** to have changes take effect.

Once configured using valid IPv6 WAN and LAN configurations, you should not see any errors when you click on the **Apply Changes** button and the **Basic/System/System Status** page will reflect the Router's new IPv6 address.

You should also see the IPv6 address for all IPv6 supported devices on your local network displayed on the **Basic/Devices/Devices** page by selecting the Settings icon to access the **Device Settings** page for that device.

The screenshot displays the Verizon router's web interface. The top navigation bar includes the Verizon logo, 'Basic' (selected), and 'Advanced' tabs. A sidebar on the left lists navigation options: Home, Wi-Fi, Devices (selected), Parental Controls, and System. The main content area is titled 'Devices' and shows a summary of device counts: All (1), Primary (1), Guest (0), and IoT (0). An 'Add Device' button is visible in the top right. Below the summary, there are two sections: 'Online' and 'Offline'. The 'Online' section contains a table with one device:

Name	Connection	Connected to	MAC address	Parental Controls
A025-NB2	Ethernet	CR1000A	48:5b:39:4f:56:08	None

The 'Offline' section contains a table with two devices:

Name	Connection	Connected to	MAC address	Parental Controls
unknown_2c:ea:dc:a9:4f:3e	Offline	CR1000A	2c:ea:dc:a9:4f:3e	None
unknown_a4:97:33:db:5a:06	Offline	CR1000A	a4:97:33:db:5a:06	None

## Static - WAN IPv6 Address Connection

The IPv6 WAN Static configurations are IPv6 settings that you enter manually. These specific IPv6 addresses and settings are not expected to change frequently.

# NETWORK SETTINGS

1. To configure IPv6 WAN Static mode, select the **Static** option on the **IPv6 Configuration Control** page as shown below:

The screenshot shows the Verizon Network Settings interface. The left sidebar lists various settings, with 'IPv6' highlighted. The main content area is titled 'IPv6 Configuration Controls' and includes an 'Apply Changes' button. The configuration is divided into three sections:

- 1. Enable IPv6 Support:** A toggle switch is turned on (Enabled).
- 2. Specify the method to be used to obtain your WAN IPv6 Address:**
  - IPv6 WAN Configuration: Static (Auto-Configure)
  - Assigned Prefix: [Empty field]
  - IPv6 WAN Address: [Empty field] / [Empty field]
  - Default Gateway: [Empty field]
  - WAN Link-Local Address: 0
  - IPv6 DNS Address 1: [Empty field]
  - IPv6 DNS Address 2: [Empty field]
- 3. Specify the method to be used to assign LAN IPv6 addresses:**
  - IPv6 LAN Configuration: Stateless
  - LAN Prefix: 0:0

2. Specify the **Static** method to be used to obtain your WAN IPv6 Address by entering:
  - **IPv6 WAN Configuration** (select Static)
  - **Assigned Prefix** (A numeric value between 16 and 128)
  - **IPv6 WAN Address**
  - **Default Gateway:** Verizon Router
  - **IPv6 (Primary) DNS Address 1**
  - **IPv6 (Secondary) DNS Address 2**

3. After entering all appropriate IPv6 settings, click **Apply changes** to have changes take effect.

## DHCPv6 PD - WAN IPv6 Address Connection

The IPv6 WAN DHCPv6 configurations are IPv6 settings that you enter that will allow your IPv6 connection to be updated by the ISP as needed.

1. To configure IPv6 WAN Stateful (DHCPv6) mode, select the **DHCPv6-PD** option on the **IPv6 Configuration Control** page as shown below:

The screenshot shows the Verizon network settings interface for IPv6 Configuration Controls. The page is titled "IPv6 Configuration Controls" and has an "Apply Changes" button in the top right. The left sidebar lists various network settings, with "IPv6" selected. The main content area is divided into three sections:

- 1. Enable IPv6 Support:** A toggle switch is turned on (Enabled).
- 2. Specify the method to be used to obtain your WAN IPv6 Address:** This section contains several fields:
  - IPv6 WAN Configuration:** A dropdown menu is open, showing "DHCPv6-PD" selected. Other options include "None", "Static (Auto-Configure)", and "Static (Manually Configure)".
  - Delegated Prefix:** A dropdown menu showing "DHCPv6-PD".
  - Expires In:** A dropdown menu showing "Static (Auto-Configure)".
  - Prefix Lifetime:** A dropdown menu showing "Static (Manually Configure)".
  - WAN Link-Local Address:** A dropdown menu showing "Stateless".
- 3. Specify the method to be used to assign LAN IPv6 addresses:** A radio button is selected for "Obtain IPv6 DNS Server address automatically".

2. Check to either **Obtain IPv6 DNS Server address automatically**, or **Use the following IPv6 DNS Server addresses**

# NETWORK SETTINGS

3. After entering all appropriate IPv6 settings, click **Apply changes** to have changes take effect.

## IPv6 WAN with LAN IPv6 Stateless Settings

1. To configure IPv6 LAN Stateless mode with DHCPv6 WAN, select the **Stateless** option on the **IPv6 Configuration Controls** page as shown below:

verizon Basic **Advanced** Help

Network Devices  
Verizon Router

Network Settings  
ARP Table  
DNS Server  
Dynamic DNS  
IPv4 Address Distribution  
**IPv6**  
IPv6 Address Distribution  
MAC Cloning  
NDP Table  
Network Connections  
Network Objects

Network Settings > IPv6 Configuration Controls

### IPv6 Configuration Controls

**Apply Changes**

**3. Specify the method to be used to assign LAN IPv6 addresses**

IPv6 LAN Configuration: Stateless  
Stateless  
Stateful (DHCPv6)

LAN Prefix: \_\_\_\_\_

IPv6 LAN Address: \_\_\_\_\_

LAN Link-Local Address: \_\_\_\_\_

Router Advertisement Lifetime: 15 minutes (0-150)

**Option**

Allow ICMPv6 Echo Requests for LAN devices using their Global IPv6 Address from WAN side

2. Specify the settings to be used to assign LAN IPv6 addresses by entering the following details:
  - **IPv6 LAN Configuration** (select **Stateless** from the dropdown list)
  - **LAN Prefix** (automatically populated)
  - **IPv6 LAN Address** (automatically populated)
  - **LAN Link Local Address** (automatically populated)
  - **Router Advertisement Lifetime** (minutes between 0-150)

- **Option: Allow ICMPv6 Echo Request for LAN devices using their Global IPv6 Address from WAN side** - requesting an IPv6 address from any available DHCPv6 servers available on the ISP
3. After entering all appropriate IPv6 settings, click **Apply Changes** to have changes take effect.

## IPv6 WAN with LAN IPv6 Stateful (DHCPv6) Settings

1. Specify the **Stateful (DHCPv6)** settings to be used to assign LAN IPv6 addresses by entering the following details:

verizon Basic **Advanced** Help

Network Devices  
Verizon Router

Network Settings  
ARP Table  
DNS Server  
Dynamic DNS  
IPv4 Address Distribution  
IPv6  
IPv6 Address Distribution  
MAC Cloning  
NDP Table  
Network Connections  
Network Objects  
Port Configuration  
Routing

Network Settings > IPv6 Configuration Controls

### IPv6 Configuration Controls

Apply Changes

#### 3. Specify the method to be used to assign LAN IPv6 addresses

IPv6 LAN Configuration: Stateful (DHCPv6)  
Stateless

LAN Prefix: [ ]

IPv6 LAN Address: [ ] [ ]

DHCPv6 Client Address Range: 1000 - 2000

LAN Link-Local Address: [ ]

Router Advertisement Lifetime: 15 minutes (0-150)

IPv6 Address Lifetime: 60 minutes (3-150)

#### Option

Allow ICMPv6 Echo Requests for LAN devices using their Global IPv6 Address from WAN side

- **IPv6 LAN Configuration** (select **Stateful** from the dropdown list)
- **LAN Prefix** (automatically populated)
- **IPv6 LAN Address** (automatically populated)

# NETWORK SETTINGS

- **DHCPv6 Client Address Range** (start and end)
- **LAN Link Local Address** (automatically populated)
- **Router Advertisement Lifetime** (minutes between 0-150)
- **IPv6 Address Lifetime** (minutes between 3-150)
- **Option: Allow ICMPv6 Echo Request for LAN devices using their Global IPv6 Address from WAN side** - requesting an IPv6 address from any available DHCPv6 servers available on the ISP

2. After entering all appropriate IPv6 settings, click **Apply Changes** to have changes take effect.

## 5.1f/ IPV6 ADDRESS DISTRIBUTION

To view a summary of the services provided by the DHCP server:

1. Select **IPv6 Address Distribution** in the **Network Settings** section.

The screenshot shows the Verizon Network Settings interface. At the top, there are tabs for 'Basic' and 'Advanced', with 'Advanced' selected. Below the tabs, there is a 'Network Devices' dropdown menu set to 'Verizon Router'. The main content area is titled 'IPv6 Address Distribution' and includes a description: 'IPv6 Address Distribution provides the ability to allocate and configuration parameters to selected hosts.' Below this is a table with columns for 'Name', 'Service', 'Prefix', and 'IP Range'. The table contains one entry: 'Network (Home/Office)' with 'Stateless' service, '0/0' prefix, and '--' IP Range. A 'Connection List' button is located below the table. On the left side, there is a 'Network Settings' sidebar with various options, including 'IPv6 Address Distribution' which is highlighted.

Name	Service	Prefix	IP Range
Network (Home/Office)	Stateless	0/0	--

2. You can edit the DHCP server settings for a device. On the **IPv6 Address Distribution** page, click the **Edit** icon on the screen column. The DHCP Settings page opens with the device information displayed.
3. To configure the DHCP server complete the following fields:
  - **Start IPv6 Address** – the starting IPv6 address in the consecutive list of addresses that makes up this LAN pool for the DHCPv6 server.
  - **End IPv6 Address** – the ending IPv6 address in the consecutive list of addresses that makes up this LAN pool for the DHCPv6 server.
  - **Lease Time in Minutes** – assigns the amount of time in minutes that each device is assigned an IP address by the DHCP server when it connects to the network.

When the lease expires, the server determines if the computer has disconnected from the network. If it has, the server may reassign this IP address to a newly connected computer.
4. Click **Apply** to save changes.

## DHCP Connection List

You can view a list of the connections currently assigned and recognized by the DHCP server.

*To view a list of computers:*

1. On the **IPv6 Address Distribution** page, click **Connection List**.

# NETWORK SETTINGS

2. To define a new static connection with a fixed IP address, click **Add static connection**.
3. Enter the host name.
4. Enter the fixed IP address to be assigned.
5. Enter the MAC address of the network interface of the computer used with this DHCP static connection.
6. Click **Apply** to save changes.

## 5.1g/ MAC CLONING

A MAC address is a hexadecimal code that identifies a device on a network. All networkable devices have a unique MAC address.

When replacing a network device on your Verizon Router, you can simplify the installation process by copying the MAC address of the existing device to your Verizon Router.

*To copy the MAC address of the existing device:*

1. Select **MAC Cloning** in the **Network Settings** section.

The screenshot shows the Verizon Router's web interface. At the top, there is a navigation bar with the Verizon logo, 'Basic', and 'Advanced' tabs. The 'Advanced' tab is selected. On the right side of the navigation bar, there are links for 'Help' and a refresh icon. The main content area is titled 'Network Settings > MAC Cloning'. On the left, there is a sidebar menu with 'Network Devices' (set to 'Verizon Router') and 'Network Settings' (expanded to show 'ARP Table', 'DNS Server', 'Dynamic DNS', 'IPv4 Address Distribution', 'IPv6', 'IPv6 Address Distribution', 'MAC Cloning' (highlighted with a red bar), 'NDP Table', and 'Network Connections'). The main content area is titled 'MAC Cloning' and includes a 'How it works...' section explaining that MAC Address Cloning emulates the router's MAC address. Below this is a 'Set MAC of Device' section with a 'Broadband Connection (Ethernet)' dropdown and a text input field for the physical address, currently showing '88 : 54 : 85 : FE : C3 : 85'. There is an 'Apply' button to the right of the input field. A link for 'Restore factory MAC address' is located below the input field.

2. In the **To physical address** field, enter the MAC address of your new device.
3. To locate the MAC address, refer to the documentation from the device manufacturer.
4. Click **Apply** to save changes.

## 5.1h/ NDP TABLE

You can view the IPv6 and MAC addresses of each DHCP connection.

*To view the IPv6 and MAC addresses for each device:* select **NDP** (Neighbor Discovery Protocol) **Table** in the **Network Settings** section.

The screenshot shows the Verizon Network Settings interface. The top navigation bar includes the Verizon logo, 'Basic' and 'Advanced' tabs, and a 'Help' icon. The left sidebar lists 'Network Settings' with options: ARP Table, DNS Server, Dynamic DNS, IPv4 Address Distribution, IPv6, IPv6 Address Distribution, MAC Cloning, NDP Table (highlighted), Network Connections, and Network Objects. The main content area is titled 'NDP Table' and includes a 'Refresh' button. Below the title, a text box states: 'The NDP Table below displays the IPv6 and MAC address of each DHCP connection'. A table follows with the following data:

IPv6 Address	MAC Address	State	Rtr	Device
fe80::11f5:b290:b49:91d7	48:5b:39:4f:56:08	REACHABLE	No	Network (Home/Office)

# NETWORK SETTINGS

## 5.1i/ NETWORK CONNECTIONS

**Caution:** The settings described in this chapter should only be configured by experienced network technicians. Changes could adversely affect the operation of your Router and your local network.

To view the network connections:

1. From the **Advanced** menu, select **Network Settings** from the left pane and then click **Network Connections**.

The screenshot shows the Verizon router's web interface. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' tabs. The left sidebar is expanded to 'Network Settings', which includes options like ARP Table, DNS Server, Dynamic DNS, IPv4 Address Distribution, IPv6, IPv6 Address Distribution, MAC Cloning, NDP Table, Network Connections (selected), Network Objects, and Port Configuration. The main content area is titled 'Network Connections' and displays a table of network connections. Below the table is a 'Full Status' button.

Network name	Status	
<a href="#">Network (Home/Office)</a>	Connected	<a href="#">Edit</a>
<a href="#">5 GHz Wi-Fi Access Point</a>	Disconnected	<a href="#">Edit</a>
<a href="#">6 GHz Wi-Fi Access Point</a>	Disconnected	<a href="#">Edit</a>
<a href="#">2.4 GHz Wi-Fi Access Point</a>	Disconnected	<a href="#">Edit</a>
<a href="#">Ethernet</a>	Connected	<a href="#">Edit</a>
<a href="#">Coax</a>	Cable Disconnected	<a href="#">Edit</a>
<a href="#">Broadband Connection (Ethernet)</a>	Disconnected	<a href="#">Edit</a>

[Full Status](#)

2. To view and edit the details of a specific network connection, click the hyperlinked name or the action icon. The following sections detail the types of network connections that you can view.

## NETWORK (HOME/OFFICE) CONNECTION

You can view the properties of your local network. This connection is used to combine several network interfaces under one virtual network. For example, you can create a home/office network connection for Ethernet and other network devices.

*Note:* When a network connection is disabled, the underlying devices formerly connected to it will not be able to obtain a new DHCP address from that Verizon Router network interface.

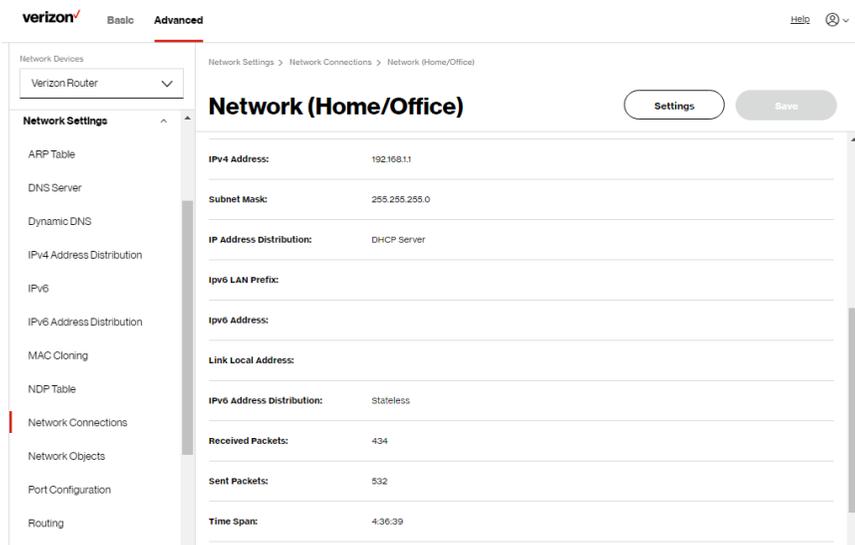
To view the connection:

1. On the **Network Connections** page, click the **Network (Home/Office)** connection link. The **Network (Home/ Office) Properties** page displays.

The screenshot shows the Verizon Router's web interface. At the top, there's a navigation bar with the Verizon logo, 'Basic' and 'Advanced' tabs, and a user profile icon. The left sidebar lists various settings categories: Network Devices (Verizon Router), Network Settings (ARP Table, DNS Server, Dynamic DNS, IPv4 Address Distribution, IPv6, IPv6 Address Distribution, MAC Cloning, NDP Table, Network Connections, Network Objects, Port Configuration, Routing), and Network Connections. The main content area is titled 'Network (Home/Office)' and includes a 'Settings' button and a 'Save' button. Below the title, there's a warning: 'Important: Only advanced technical users should use this feature.' The configuration details are as follows:

Name:	Network (Home/Office)
Status:	Connected
Network:	Network (Home/Office)
Underlying Device:	<a href="#">5 GHz Wi-Fi Access Point</a> <a href="#">6 GHz Wi-Fi Access Point</a> <a href="#">2.4 GHz Wi-Fi Access Point</a> <a href="#">Ethernet</a> <a href="#">Coax</a>
Connection Type:	Bridge
MAC Address:	88:5A:85:FE:C5:66
IPv4 Address:	192.168.1.1

# NETWORK SETTINGS



2. To rename a network connection, enter the new network name in the **Name** field.
3. Click **Save** to save the changes.

## CONFIGURING THE HOME/OFFICE NETWORK

*To configure the network connection:*

1. In the **Network (Home/Office)** properties page, click **Settings**. The configuration page displays.

verizon Basic **Advanced** Hello

Network Devices  
Verizon Router

**Network Settings**

- ARP Table
- DNS Server
- Dynamic DNS
- IPv4 Address Distribution
- IPv6
- IPv6 Address Distribution
- MAC Cloning
- NDP Table
- Network Connections**
- Network Objects
- Port Configuration
- Routing

Network Settings > Network Connections > Network (Home/Office)

## Network (Home/Office)

Save Changes

Important: Only advanced technical users should use this feature.

**General**

Status: Connected

Connection Type: Network (Home/Office)

Physical Address: 88:5A:85:FE:C5:66

MTU: Automatic 1500

IP Address: 192 168 1 1

Subnet Mask: 255 255 255 0

**Bridge**

Name	VLAN	Status
<input type="checkbox"/> Broadband Connection (Ethernet)	Disable	Disconnected

verizon Basic **Advanced** Hello

Network Devices  
Verizon Router

**Network Settings**

- ARP Table
- DNS Server
- Dynamic DNS
- IPv4 Address Distribution
- IPv6
- IPv6 Address Distribution
- MAC Cloning
- NDP Table
- Network Connections**
- Network Objects
- Port Configuration
- Routing
- Static NAT

Network Settings > Network Connections > Network (Home/Office)

## Network (Home/Office)

Save Changes

**Bridge**

Name	VLAN	Status
<input type="checkbox"/> Broadband Connection (Ethernet)	Disable	Disconnected
<input checked="" type="checkbox"/> 5 GHz Wi-Fi Access Point	Disable	Disconnected
<input checked="" type="checkbox"/> 6 GHz Wi-Fi Access Point	Disable	Disconnected
<input checked="" type="checkbox"/> 2.4 GHz Wi-Fi Access Point	Disable	Disconnected
<input checked="" type="checkbox"/> Ethernet	Disable	Connected
<input checked="" type="checkbox"/> Coax	Disable	Cable Disconnected

IP Address Distribution: DHCP Server

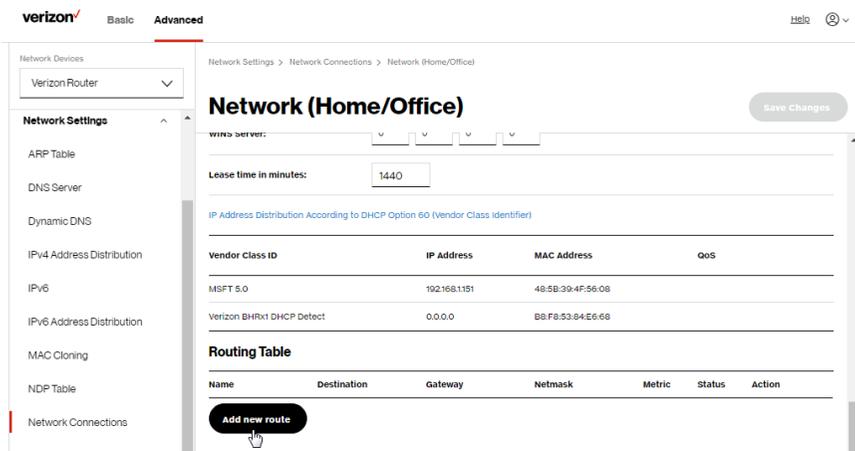
Start IP Address: 192 168 1 2

End IP Address: 192 168 1 254

WINS Server: 0 0 0 0

Lease time in minutes: 1440

# NETWORK SETTINGS



2. Configure the following sections, as needed.

## General

In the **General** section, verify the following information:

- **Status** - displays the connection status of the network.
- **Connection Type** - displays the type of connection interface.
- **Physical Address** - displays the physical address of the network card used for the network.
- **MTU** - displays the Maximum Transmission Unit (MTU) indicating the largest packet size permitted for internet transmissions:
  - **Automatic:** sets the MTU (Maximum Transmission Unit) at 1500.

- 
- **Automatic by DHCP:** sets the MTU according to the DHCP connection.
  - **Manual:** allows you to manually set the MTU.
  - **IP address and Subnet Mask:** the network connection uses a permanent or static **IP address** and **Subnet Mask** address, provided by Verizon or experienced network technician.

- **Bridge**

In the **Bridge** section of the **Network (Home/Office)** properties, you can configure the various LAN interfaces.

***Caution:** Do not change these settings unless specifically instructed to by Verizon. Changes could adversely affect the operation of your Router and your local network.*

Verify the following information:

- **Status** – displays the connection status of a specific network connection.
- **Action** – contains an **Edit** hyperlink that, when clicked, generates the next level configuration page for the specific network connection or network device.
- **IP Address Distribution**

The **IP Address Distribution** section is used to configure the Dynamic Host Configuration Protocol (DHCP) server parameters of your Verizon Router.

# NETWORK SETTINGS

---

Once enabled and configured, the DHCP server automatically assigns IP addresses to any network devices which are set to obtain their IP address dynamically.

If DHCP Server is enabled on your Verizon Router, configure the network devices as DHCP Clients. There are 2 basic options in this section: **Disabled** and **DHCP Server**.

To set up the Verizon Router's network bridge to function as a DHCP server:

1. In the **IP Address Distribution** section, select the **DHCP server**. Once enabled, the DHCP server provides automatic IP assignments (also referred to as IP leases) based on the preset IP range defined below.
  - **Start IP Address** – Enter the first IP address in the IP range that the Verizon Router will automatically begin assigning IP addresses from. Since your Verizon Router's IP address is 192.168.1.1, the default Start IP Address is 192.168.1.2.
  - **End IP Address** – Enter the last IP address in the IP range that the Verizon Router will automatically stop the IP address allocation at. The maximum end IP address range that can be entered is 192.168.1.254.

2. If Windows Internet Naming Service (WINS) is being used, enter the **WINS Server** address.
  3. In the **Lease time in minutes** field, enter the amount of time a network device is allowed to connect to the Verizon Router with its currently issued dynamic IP address.
- **IP Address Distribution According to DHCP option 60 (vendor class Identifier)**

DHCP vendor class is related to DHCP option 60 configuration within the Router. Adding option 60 configurations allows a particular vendor to get a lease from a specified pool of addresses.

## Routing Table

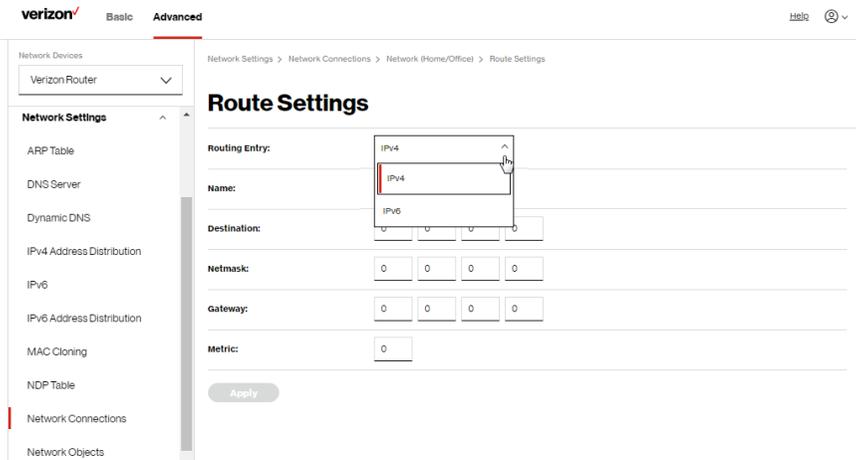
You can configure your Verizon Router to use static or dynamic routing.

- **Static routing** – specifies a fixed routing path to neighboring destinations based on predetermined metrics.
- **Dynamic routing** – automatically adjusts how packets travel on the network. The path determination is based on network/device reachability and the status of the network being traveled.

*To configure routing:*

1. In the **Routing Table** section, click **Add new route** button to display and modify the new route configuration page.

# NETWORK SETTINGS



2. To save your changes click **Apply**.

## Wi-Fi ACCESS POINT CONNECTION

A Wi-Fi Access Point network connection allows Wi-Fi devices to connect to the local area network (LAN) using the 2.4 GHz, 5 GHz or 6 GHz Wi-Fi network.

*Note: Once disabled, all Wi-Fi devices connected to that Wi-Fi network will be disconnected from the LAN network and internet.*

To view the connection settings:

1. From the **Advanced** menu, select **Network Settings** from the left pane and then click **Network Connections**.
2. To access the connection settings pages, click on the link of the Wi-Fi Access Point connections listed under **Network name** on the **Network Connections** page.

The screenshot shows the Verizon router's configuration interface. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' tabs. The left sidebar lists various settings categories: Network Devices (Verizon Router), Network Settings (ARP Table, DNS Server, Dynamic DNS, IPv4 Address Distribution, IPv6, IPv6 Address Distribution, MAC Cloning, NDP Table, Network Connections, Network Objects, Port Configuration, Routing, Static NAT), and Diagnostics & Monitoring. The main content area is titled '6 GHz Wi-Fi Access Point' and features an 'Enable Settings' toggle switch that is currently turned on. Below the toggle, a warning message states: 'Important: Only advanced technical users should use this feature.' The configuration fields are as follows:

Name:	6 GHz Wi-Fi Access Point
Status:	Disconnected
Network:	Network (Home/Office)
Connection Type:	6 GHz Wi-Fi Access Point
MAC Address:	88:5A:85:FE:C5:69
IP Address Distribution:	Disable
Received Packets:	0
Sent Packets:	27
Time Span:	4:42:26

At the bottom of the configuration area, there are two buttons: 'Apply' and 'Settings'. A mouse cursor is pointing at the 'Settings' button.

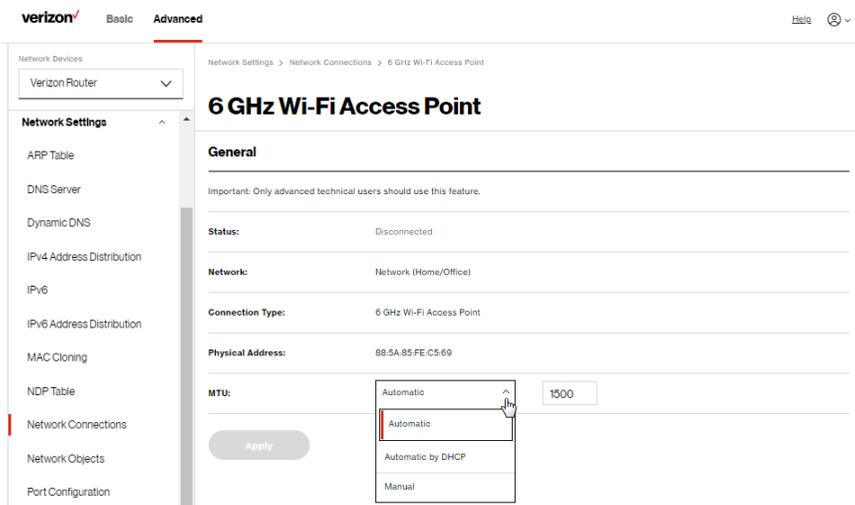
3. From the connection's **Enable Settings** page, to enable or disable the connection, move the selector to **on** or **off**.
4. To rename the connection, enter a name in the **Name** field.
5. Click **Apply** to save the changes.
6. Reboot your Verizon Router.

## CONFIGURING WI-FI ACCESS POINT PROPERTIES

*To configure the connection:*

1. On the bottom of the Access Point's specific **Enable Settings** page, click **Settings**. The configuration page displays.

# NETWORK SETTINGS



## 2. Verify the following information:

### General

- **Status** - displays the connection status of the network.
- **Network** – displays the type of network connection.
- **Connection Type** - displays the type of connection interface.
- **Physical Address** - displays the physical address of the network card used for the network.
- **MTU** - specifies the largest packet size permitted for internet transmissions:
  - **Automatic:** set the MTU (Maximum Transmission Unit) at 1500.
  - **Automatic by DHCP:** sets the MTU according to the DHCP connection.

- **Manual:** allows you to manually set the MTU.

3. Click **Apply** to save changes.

## ETHERNET CONNECTION

You can view the properties of your Ethernet LAN connection using an Ethernet cable inserted into one of your Verizon Router's Ethernet LAN ports.

*To view the connection settings:*

1. To access the **Ethernet** properties page, click the **Ethernet** link listed under **Network name** on the **Network Connections** page.

The screenshot shows the Verizon Router's web interface. At the top, there's a navigation bar with the Verizon logo, 'Basic', and 'Advanced' tabs. Below this is a breadcrumb trail: 'Network Settings > Network Connections > Ethernet'. The main content area is titled 'Ethernet' and contains a table of settings. A left sidebar lists various network settings, with 'Network Connections' highlighted. At the bottom of the settings table, there are 'Apply' and 'Settings' buttons, with a mouse cursor pointing to the 'Settings' button.

Property	Value
Name	Ethernet
Status	Connected
Network	Network (Home/Office)
Connection Type	Hardware Ethernet Switch
MAC Address	88:5A:85:FE:C5:66
IP Address Distribution	Disable
Received Packets	434
Sent Packets	497
Time Span	4:43:42

# NETWORK SETTINGS

2. To rename the network connection, enter the new name in the **Name** field.
3. Click **Apply** to save changes.

## CONFIGURING ETHERNET PROPERTIES

To configure the connection:

1. In the **Ethernet** page, click **Settings**. The configuration page displays.

The screenshot shows the Verizon Network Settings interface. At the top, there are tabs for 'Basic' and 'Advanced', with 'Advanced' selected. The breadcrumb trail reads 'Network Settings > Network Connections > Ethernet'. The main heading is 'Ethernet'. Below this, there is a 'General' section with a warning: 'Important: Only advanced technical users should use this feature.' The configuration details are as follows:

Status:	Connected
Network:	Network (Home/Office)
Connection Type:	Hardware Ethernet Switch
Physical Address:	88:5A:85:FE:C5:66
MTU:	Automatic (dropdown) 1500 (input)

Below the General section is the 'HW Switch Ports' section, which contains a table with the following data:

Port:	Status
LAN 10GE	Connected 1000 Mbps Full-Duplex
LAN Port 1	Connected 100 Mbps Full-Duplex
LAN Port 2	Disconnected

The left sidebar shows a navigation menu with categories: 'Network Settings' (expanded), 'Network Connections', 'Network Objects', 'Port Configuration', 'Routing', 'Static NAT', and 'Diagnostics & Monitoring'. Under 'Network Settings', various options like ARP Table, DNS Server, Dynamic DNS, IPv4 Address Distribution, IPv6, IPv6 Address Distribution, MAC Cloning, and NDP Table are listed. Under 'Network Connections', 'Network Connections' is highlighted.

2. Verify the following information:

### General

- **Status** - displays the connection status of the network.
  - **Network** – displays the type name of network connection.
  - **Connection Type** - displays as **Hardware Ethernet Switch**.
  - **Physical Address** - displays the physical address of the network card used for the network.
  - **MTU** - specifies the largest packet size permitted for
    - **Automatic**: sets the MTU (Maximum Transmission Unit at 1500).
    - **Automatic by DHCP**: sets the MTU according to the DHCP connection.
    - **Manual**: allows you to manually set the MTU.
  - **HW Switch Ports** - displays the status of each LAN port.
3. Click **Apply** to save the changes.

# NETWORK SETTINGS

## COAX

The screenshot shows the Verizon network settings interface. At the top, there are tabs for 'Basic' and 'Advanced', with 'Advanced' selected. The breadcrumb path is 'Network Settings > Network Connections > Coax'. The main heading is 'Coax'. Below this, there is a toggle switch for 'Enable Settings.' which is currently turned 'On'. A warning message states: 'Important: Only advanced technical users should use this feature.' The settings are as follows:

Name:	Coax
Status:	Cable Disconnected
Network:	Network (Home/Office)
Connection Type:	Hardware MoCA
MAC Address:	88:5A:85:FE:C5:6A
IP Address Distribution:	Disable
Received Packets:	0
Sent Packets:	0
Time Span:	0:00:00

At the bottom, there is an 'Apply' button and a 'Settings' link with a mouse cursor pointing to it. The left sidebar shows a navigation menu with 'Network Connections' highlighted. The bottom of the sidebar shows 'Diagnostics & Monitoring' and the URL 'network/networkconnections/coaxsettings'.

*To view the connection settings:*

1. In the **Network Connections** page, click the **Coax** link.
2. From the connection's **Enable Settings** page, to enable or disable the connection, move the selector to **on** or **off**.
3. To rename the network connection, enter the new name in the **Name** field.
4. Click **Apply** to save changes.

## CONFIGURING COAX PROPERTIES

To configure the connection:

1. In the **Coax** page, click **Settings**. The configuration page displays.

The screenshot shows the Verizon web interface for configuring Coax properties. The top navigation bar includes the Verizon logo, "Basic", and "Advanced" tabs. A "Help" icon is visible in the top right. The left sidebar lists various network settings, with "Network Connections" highlighted. The main content area is titled "Coax" and contains the following sections:

- General**:
  - Important: Only advanced technical users should use this feature.
  - Status: Cable Disconnected
  - Network: Network (Home/Office)
  - Connection Type: Hardware MoCA
  - Physical Address: 88.5a.85.fe:c5.6a
  - MTU: Automatic (dropdown) and 1500 (input field)
- Coax Link**:
  - Privacy:  Enable
  - Password: 999999999888888888 (input field)
  - Coax Connection Stats: [Go to LAN Coax Stats](#)

An "Apply" button is located at the bottom of the configuration area.

# NETWORK SETTINGS

---

2. Configure the following settings, as needed.

## General

Verify the following information:

- **Status** - displays the connection status of the network.
- **Network** – displays the type of network connection.
- **Connection Type** - displays the type of connection interface.
- **Physical Address** - displays the physical address of the network card used for the network.
- **MTU** - specifies the largest packet size permitted for internet transmissions:
  - **Automatic:** sets the MTU (Maximum Transmission Unit at 1500).

## Coax Link

- **Privacy** - to set **Privacy**, select the **Enabled** check box. This causes all devices connected to the coaxial cable to use the same password. This is recommended. To set the password, enter the Coax Link password in the **Manual entry of privacy password** field.
  - To enable or disable the Coax link, click **Enable** or **Disable**.
  - To view the devices connected using the coaxial cable, click the **Go to LAN Coax Status** link.
3. Click **Apply** to save changes.

## BROADBAND CONNECTION (ETHERNET)

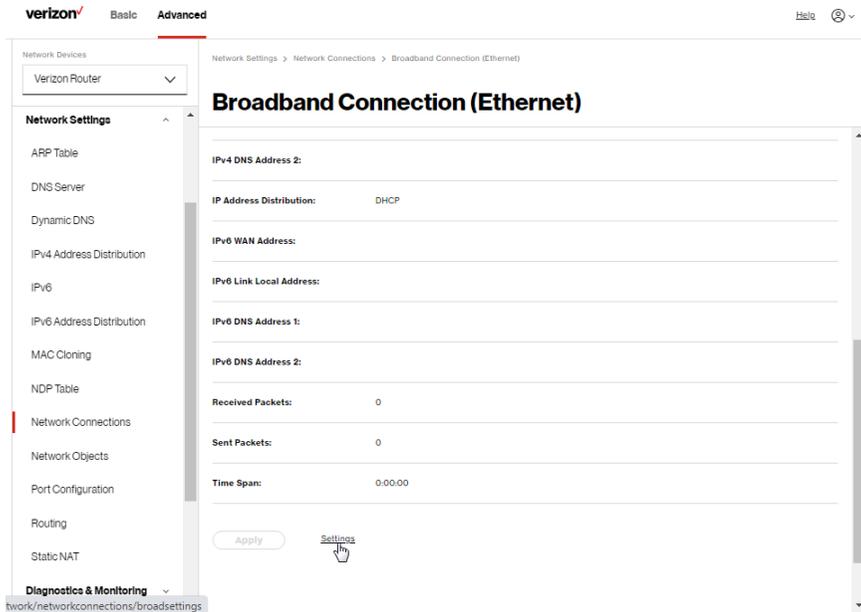
You can view the properties of your broadband connection (your connection to the internet). This connection may be via Ethernet cable.

*To view the connection settings:*

1. In the **Network Connections** page, click the **Broadband Connection (Ethernet)** link.

The screenshot shows the Verizon router's web interface. At the top, the Verizon logo is on the left, and 'Basic' and 'Advanced' tabs are in the center. On the right, there are links for 'Help' and a user profile icon. A breadcrumb trail reads 'Network Settings > Network Connections > Broadband Connection (Ethernet)'. The main heading is 'Broadband Connection (Ethernet)'. Below this is a toggle switch for 'Enable Settings', which is currently turned on. A note below the toggle states: 'Important: Only advanced technical users should use this feature.' The settings are organized into fields: 'Name' (Broadband Connection (Ethernet)), 'Status' (Disconnected), 'Network' (Broadband Connection), 'Connection Type' (Disconnected), 'MAC Address', 'IPv4 WAN Address', 'Subnet Mask', 'Default Gateway', 'IPv4 DNS Address 1', and 'IPv4 DNS Address 2'. On the left side, there is a navigation menu with categories: 'Network Devices' (Verizon Router), 'Network Settings' (ARP Table, DNS Server, Dynamic DNS, IPv4 Address Distribution, IPv6, IPv6 Address Distribution, MAC Cloning, NDP Table), 'Network Connections' (highlighted), 'Network Objects', 'Port Configuration', 'Routing', 'Static NAT', and 'Diagnostics & Monitoring'.

# NETWORK SETTINGS



## CONFIGURING BROADBAND CONNECTION

*To configure the connection:*

1. In the **Broadband Connection (Ethernet) Properties** page, click **Settings**. The configuration page displays.

verizon Basic **Advanced** Help ⓘ

Network Devices  
Verizon Router

Network Settings  
ARP Table  
DNS Server  
Dynamic DNS  
IPv4 Address Distribution  
IPv6  
IPv6 Address Distribution  
MAC Cloning  
NDP Table  
Network Connections  
Network Objects  
Port Configuration  
Routing  
Static NAT  
Diagnostics & Monitoring

Network Settings > Network Connections > Network Connection Broadband Settings

## Broadband Connection (Ethernet) Settings

**General**

Important: Only advanced technical users should use this feature.

Status: Disconnected

Network: Broadband Connection (Ethernet)

Connection Type: Disconnected

Physical Address:

MTU: Automatic 1500

**WAN IP Address**

Internet Protocol: Obtain IPv4 Address Automatically

Override Subnet Mask: 0 0 0 0

DHCP Lease: **Release** **Renew**

Expires In:

verizon Basic **Advanced** Help ⓘ

Network Devices  
Verizon Router

Network Settings  
ARP Table  
DNS Server  
Dynamic DNS  
IPv4 Address Distribution  
IPv6  
IPv6 Address Distribution  
MAC Cloning  
NDP Table  
Network Connections  
Network Objects  
Port Configuration

Network Settings > Network Connections > Network Connection Broadband Settings

## Broadband Connection (Ethernet) Settings

Connection type: Unconnected

Physical Address:

MTU: Automatic 1500

**WAN IP Address**

Internet Protocol: Obtain IPv4 Address Automatically

Override Subnet Mask:

DHCP Lease:

Expires In:

IPv4 DNS: Obtain IPv4 DNS Address Automatically

Internet Connection Firewall:  Enable This feature provides the ability to change the default firewall setting on this interface. We highly recommend that you do not change the default setting.

# NETWORK SETTINGS

---

2. Configure the following settings, as needed.

## General

Verify the following information:

- **Status** - displays the connection status of the network.
- **Network** – displays the type of network connection.
- **Connection Type** - displays the type of connection interface.
- **Physical Address** - displays the physical address of the network card used for the network.
- **MTU** - specifies the largest packet size permitted for internet transmissions:
  - **Automatic:** sets the MTU (Maximum Transmission Unit at 1500).
  - **Automatic by DHCP:** sets the MTU according to the DHCP connection.
  - **Manual:** allows you to manually set the MTU.

## 5.1j/ NETWORK OBJECTS

Network objects define a group, such as a group of computers, on your Verizon Router network by MAC address, IP address, and/ or host name. The defined group becomes a network object. You can apply settings, such as configuring system rules, to all devices defined in the network object.

For example, instead of setting the same website filtering configuration individually to five computers one at a time, you can define the computers as a network object. Website filtering can then be simultaneously applied to all the computers.

You can use network objects to apply security rules based on host names, instead of IP addresses. This is useful since IP addresses change from time to time. In addition, you can define network objects according to MAC address to make the rule application more persistent against network configuration settings.

*To define a network object:*

1. From the **Advanced** menu, select **Network Settings**.
2. Select **Network Objects** in the **Network Settings** section.

verizon Basic **Advanced** Help

Network Devices  
Verizon Router

**Network Settings**

- ARP Table
- DNS Server
- Dynamic DNS
- IPv4 Address Distribution
- IPv6
- IPv6 Address Distribution
- MAC Cloning
- NDP Table
- Network Connections
- Network Objects**
- Port Configuration

Network Settings > Network Objects

## Network Objects

Apply Changes

A Network Object is a set of host names, IP addresses, or MAC addresses. Security rules can be applied to a distinct LAN subnet using Network Objects.

**Create an Object**

Object Name: Global Object

Object Type: Select (dropdown menu open)

Object List

Object Name	IP Range	Value
test	MAC Address	192.168.0.1 192.168.1.151

test **Active** Edit Remove

3. To define a network object, enter a name for the network object in the **Objects Name** field.

# NETWORK SETTINGS

4. Select and configure the type of network object as IP address, IP subnet, IP range, MAC address, host name, or DHCP option, and click **Add**.
5. The network object displays in the **Objects List** section.
6. Repeat the above steps to create additional network objects.
7. When complete, click **Apply Changes** to save changes.

## 5.1k/ PORT CONFIGURATION

Ethernet port configuration allows you to set up the Ethernet ports as either full- or half-duplex ports, at either 10 Mbps, 100 Mbps, or 1000 Mbps.

*To configure the ports:*

1. Select **Port Configuration** in the **Network Settings** section.

The screenshot shows the Verizon Network Settings interface. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' tabs. The 'Advanced' tab is selected. On the left, there is a sidebar with 'Network Settings' expanded, showing various options like ARP Table, DNS Server, Dynamic DNS, IPv4 Address Distribution, IPv6, IPv6 Address Distribution, MAC Cloning, NDP Table, Network Connections, Network Objects, and Port Configuration. The main content area is titled 'Port Configuration' and contains a table with the following data:

Port	Service	Status
WAN Port	Auto	Disconnected
LAN 10GE	Full-Duplex 1,000 Mbps	Connected
LAN Port 1	Full-Duplex 100 Mbps	Connected
LAN Port 2		Disconnected

A dropdown menu is open for the LAN 10GE port, showing the following options: Auto, 100 Half-Duplex, 100 Full-Duplex, 1,000 Full-Duplex, 2,500 Full-Duplex, 5,000 Full-Duplex, and 10,000 Full-Duplex. The 'Apply Changes' button is located in the top right corner of the main content area.

2. To emulate the speed and duplex configuration of the port with which it's communicating, select **Auto** or select the port speed and duplicity.
3. Click **Apply Changes** to save changes.

## 5.11/ ROUTING

You can view the routing and IP address distribution rules as well as add, edit, or delete the rules.

### Routing Table

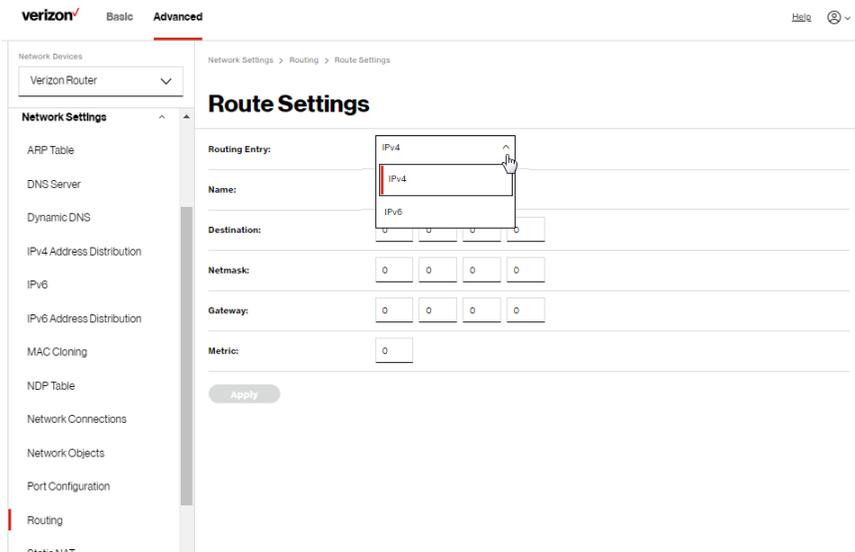
*To view the rules:*

1. Select **Routing** in the **Network Settings** section.

The screenshot shows the Verizon Network Settings interface. At the top, there are tabs for "Basic" and "Advanced", with "Advanced" selected. The "Network Devices" dropdown menu is set to "Verizon Router". The "Network Settings" sidebar on the left lists various settings, with "Routing" highlighted in red. The main content area is titled "Routing" and includes a sub-header "Routing Table". Below this, there is a table with columns for Name, Destination, Gateway, Netmask, Metric, and Status. A "New Route" button is visible in the table area. Below the table, there is a section for "Internet Group Management Protocol (IGMP)" with several checkboxes: "Enable Ethernet", "Enable MoCA - Coax", "Enable 2.4 GHz Wi-Fi", "Enable 5 GHz Wi-Fi", and "Enable 6 GHz Wi-Fi", all of which are checked. An "Apply Changes" button is located at the top right of the main content area.

# NETWORK SETTINGS

- To add a new Route, click **New Route**.



- Specify the following parameters:
  - Routing Entry** – select the IP address type.
  - Name** – the network connection type.
  - Destination** – enter the destination IP of the destination host, subnet address, network address, or default route. The destination for a default route is 0.0.0.0.
  - Netmask** – enter the network mask. This is used in conjunction with the destination to determine when a route is used.
  - Gateway** – enter the IP address of your Verizon Router.

- **Metric** – enter a measurement preference of the route. Typically, the lowest metric is the most preferred route. If multiple routes exist to a specific destination network, the route with the lowest metric is used.
4. Click **Apply** and **Apply Changes** to save changes.

## Internet Group Management Protocol (IGMP)

IGMP allows for managing a single upstream interface and multiple downstream interfaces of the IGMP/MLD (Multicast Listener Discovery)-based forwarding. This function enables the system to send IGMP host messages on behalf of hosts that the system discovers through standard IGMP interfaces. Also, IGMP snooping allows an Ethernet switch to “listen in” on the IGMP conversation between hosts and routers, while IGMP querier will send out periodic IGMP queries.

*To enable this function:*

1. Choose the IGMP interfaces by clicking on the check boxes on the screen.
2. Click **Apply Changes** to save changes.

## 5.1m/ STATIC NAT

Static NAT allows devices located behind a firewall that is configured with private IP addresses to appear to have public IP addresses to the internet. This allows an internal host, such as a web server, to have an unregistered (private) IP address and still be accessible over the internet.

# NETWORK SETTINGS

To configure static NAT:

1. From the **Advanced** menu, select **Network Settings** and then click **Static NAT**.

verizon Basic **Advanced** Help

Network Devices  
Verizon Router

IPv6  
IPv6 Address Distribution  
MAC Cloning  
NDP Table  
Network Connections  
Network Objects  
Port Configuration  
Routing  
Static NAT  
Diagnostics & Monitoring  
System

Network Settings > Static NAT

## Static NAT

Apply Changes

Trigger opening of ports for incoming data.

### Create Rule

Device

Select  
User defined  
192.168.0.1 - unknown\_2c-ea-do-a9-4f3e  
192.168.1151 - A025-11B2  
192.168.0.1 - unknown\_a4-97-33-db-5a-06

Public IP Address  
0 0 0 0

Add another entry **Add**

ID	Network Device	Public IP Address	Port Forward
----	----------------	-------------------	--------------

2. To create a static NAT, select a source address in the **Local Host** field.
3. Enter the **Public IP Address**.
4. If using port forwarding, select the **Port Fwd** check box.
5. Click **Add**. The rule displays in the **Rules List** section.
6. Click **Apply changes** to save changes.
7. Repeat these steps to add additional static IP addresses.

## 5.2/ DIAGNOSTICS & MONITORING

### 5.2a/ BANDWIDTH MONITORING

You can view and monitor the recorded bandwidth usage measured in bytes.

*To view the bandwidth:*

1. From the **Advanced** menu, select **Diagnostics & Monitoring**.
2. In the **Diagnostics & Monitoring** section, select **Bandwidth Monitoring**.

verizon Basic **Advanced** Help ⓘ

Network Devices  
Verizon Router

Diagnostics & Monitoring > Bandwidth Monitoring

### Bandwidth Monitoring

Auto-refresh  Refresh

WAN LAN

Usage	1hr	12hr	24hr	1Week	1Month
Upload	0 bytes				
Download	0 bytes				

3. To refresh the page, click **Refresh**.
4. To continuously refresh the page, click **Auto-refresh on**.

# DIAGNOSTICS & MONITORING

## 5.2b/ DIAGNOSTICS

You can use diagnostics to test network connectivity.

*To diagnose network connectivity:*

1. Select **Diagnostics** in the **Diagnostics & Monitoring** section.
2. To ping an IP address, enter the IP address or domain name in the **Destination** field and click **Go**.

The screenshot shows the Verizon router's "Diagnostics" page. The interface is divided into a left sidebar and a main content area. The sidebar includes sections for "Network Devices" (Verizon Router), "Devices", "Security & Firewall", "Network Settings", "Diagnostics & Monitoring" (highlighted), "Bandwidth Monitoring", "System Logging", "System-wide Connections", "Backhaul Logging", and "System". The main content area has a breadcrumb "Diagnostics & Monitoring > Diagnostics" and a title "Diagnostics". Below the title is a "How it works..." section explaining that diagnostics ping (ICMP echo) an IP address and display results like packets transmitted, round trip time, and success status. There are two test sections: "IPv4 Ping (ICMP Echo)" and "IPv6 Ping (ICMP Echo)". Each section has a "Destination" input field with a "Go" button, a "Number of pings" input field (set to 4), and a "Status" label.

The diagnostics will display the number of pings, status, packets sent, and round trip time.

If no diagnostic status displays, click refresh in your web browser.

## 5.2c/ SYSTEM LOGGING

System logging provides a view of the most recent activity of your Verizon Router. In addition, you can view additional logs, such as the security, advanced, firewall, WAN link and LAN DHCP.

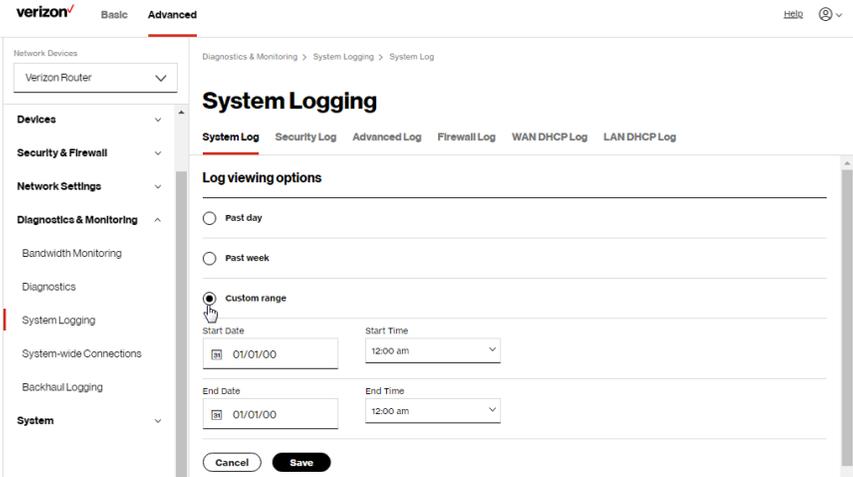
To view the system log:

1. Select **System Logging** in the **Diagnostics & Monitoring** section.

The screenshot shows the Verizon Router's System Logging interface. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' tabs. The left sidebar lists various settings categories: Network Devices (Verizon Router), Devices, Security & Firewall, Network Settings, Diagnostics & Monitoring (expanded), and System. Under Diagnostics & Monitoring, 'System Logging' is selected. The main content area shows the breadcrumb 'Diagnostics & Monitoring > System Logging > System Log' and the title 'System Logging'. There are 'Options', 'Refresh', and 'Save' buttons. Below the title are tabs for 'System Log', 'Security Log', 'Advanced Log', 'Firewall Log', 'WAN DHCP Log', and 'LAN DHCP Log'. A table with columns 'Time', 'Event type', 'Log Level', and 'Details' is visible, with a 'Clear' button at the end of the header row.

2. To view a specific time of log event, click on the **Options** button.

# DIAGNOSTICS & MONITORING



3. Select your preferred logging time.
4. Click **Save** to save changes.
5. To view a specific type of log event such as Security Log, WAN Log, etc., click the appropriate link in the menu on the top.
6. To update the data, click **Refresh**.

## 5.2d/ SYSTEM-WIDE CONNECTIONS

You can view a summary of the monitored data collected for your Verizon Router.

*To view your Verizon Router's full system status and traffic monitoring data:*

1. Select **System-wide Connections** in the **Diagnostics & Monitoring** section.

verizon Basic **Advanced** Help

Network Devices  
Verizon Router

Devices  
Security & Firewall  
Network Settings  
Diagnostics & Monitoring  
Bandwidth Monitoring  
Diagnostics  
System Logging  
System-wide Connections  
Backhaul Logging  
System

Diagnostics & Monitoring > System-wide Connections

## System-wide Connections

Auto-refresh

Name	Network (Home/Office)	Broadband Connection (Ethernet)	5 GHz Wi-Fi Access Point	6 GHz Wi-Fi Access Point	2.4 GHz Wi-Fi Access Point
Status	Connected	Disconnected	Disconnected	Disconnected	Disconnected
Underlying Device	Network (Home/Office)	Broadband Connection (Ethernet)	Network (Home/Office)	Network (Home/Office)	Network (Home/Office)
Connection Type	<a href="#">5 GHz Wi-Fi Access Point</a> <a href="#">6 GHz Wi-Fi Access Point</a> <a href="#">2.4 GHz Wi-Fi Access Point</a> <a href="#">Ethernet</a> <a href="#">Coax</a>	Broadband Connection (Ethernet)	5 GHz Wi-Fi Access Point	6 GHz Wi-Fi Access Point	2.4 GHz Wi-Fi Access Point
MAC Address	88:5A:85:FE:C5:66	--	88:5A:85:FE:C5:68	88:5A:85:FE:C5:69	88:5A:85:FE:C5:67
IPv4 Address	192.168.1.1	--	--	--	--
Subnet Mask	255.255.255.0	--	--	--	--

verizon Basic **Advanced** Help

Network Devices  
Verizon Router

Devices  
Security & Firewall  
Network Settings  
Diagnostics & Monitoring  
Bandwidth Monitoring  
Diagnostics  
System Logging  
System-wide Connections  
Backhaul Logging  
System

Diagnostics & Monitoring > System-wide Connections

## System-wide Connections

Auto-refresh

Subnet Mask	255.255.255.0	--	--	--	--
IPv4 Default Gateway	192.168.1.1	--	--	--	--
IPv4 DNS Address 1	--	--	--	--	--
IPv4 DNS Address 2	--	--	--	--	--
IPv4 Address Distrib.	DHCP Server	Disable	Disable	Disable	Disable
IPv6 Prefix	--	--	--	--	--
IPv6 Address	--	--	--	--	--
IPv6 Link-Local Address	--	--	--	--	--
IPv6 DNS Address 1	--	--	--	--	--
IPv6 DNS Address 2	--	--	--	--	--

# DIAGNOSTICS & MONITORING

The screenshot shows the Verizon router's diagnostics interface. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' tabs. The left sidebar lists various diagnostic categories: Network Devices (Verizon Router), Devices, Security & Firewall, Network Settings, Diagnostics & Monitoring (expanded), Bandwidth Monitoring, Diagnostics, System Logging, System-wide Connections (selected), Backhaul Logging, and System. The main content area is titled 'System-wide Connections' and features an 'Auto-refresh' toggle switch. Below the title is a table with the following data:

Category	Value 1	Value 2	Value 3	Value 4	Value 5
IPv6 DNS Address 2	--	--	--	--	--
IPv6 Address Distribn.	Stateless	Disable	Disable	Disable	Disable
Rec'd Packets	434	0	0	0	0
Sent Packets	532	0	0	27	8
Rec'd Bytes	66283	0	0	0	0
Sent Bytes	76112	0	0	2864	744
Rec'd Errors	12285	0	4095	4095	4095
Rec'd Drops	0	0	0	0	0
Time Span	6:00:50	0:00:00	6:00:50	6:00:50	6:00:50

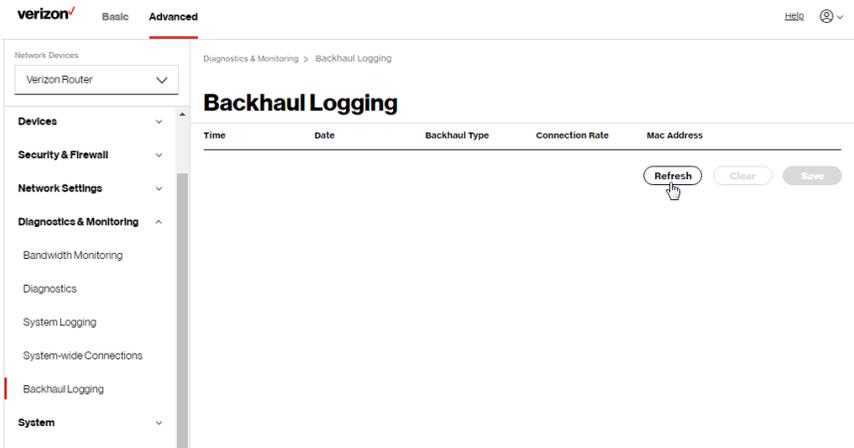
2. To modify the connection properties, click the individual connection links.
3. To continuously refresh the page, click **Auto-refresh on**.

## 5.2e/ BACKHAUL LOGGING

You can view a summary of the BHM (backhaul modes: Ethernet and Wi-Fi) status of your network.

*To view the backhaul modes log:*

1. Select **Backhaul Logging** in the **Diagnostics & Monitoring** section.



2. To refresh the page, click **Refresh**.
3. To delete the log information, click **Clear**.
4. To save the log information, click **Save**.

## 5.3/ SYSTEM

### 5.3a/ SYSTEM STATUS

*To view the status:*

1. From the **Advanced** menu, select **System**.
2. You can quickly view your Router's status by selecting **System Status** in the **System** section.
3. To refresh the page, click **Refresh**.
4. To continuously refresh the page, click **Auto-refresh on**.

# SYSTEM

This section displays the status of your Router's local network (LAN) and internet connection (WAN), firmware and hardware version numbers, MAC Address, IP settings of Verizon Router and extender(s) (if connected).

The screenshot displays the Verizon Router's System Status page. The interface includes a top navigation bar with 'Basic' and 'Advanced' tabs, and a sidebar on the left with 'System' settings. The main content area is titled 'System Status' and features an 'Auto-refresh' toggle (currently on) and a 'Refresh' button. The status is divided into two columns: 'Broadband IPv4' and 'Broadband IPv6'. Both show a 'Status: Disconnected'. The IPv4 section lists fields for address source (DHCP), address, subnet mask, and default gateway, along with two DNS addresses and NATs supported (0 / 30000). The IPv6 section lists fields for address source (DHCPv6-PP), delegated prefix, IPv6 address, link-local address, default gateway, and two DNS addresses.

Section	Status	IPv4 Address	IPv6 Address
Broadband IPv4	Disconnected	IPv4 address is from: DHCP	IPv6 address is from: DHCPv6-PP
Broadband IPv6	Disconnected	IPv4 address	Delegated Prefix
		Subnet Mask	IPv6 Address
		IPv4 Default Gateway	Link-Local Address
		IPv4 DNS Address 1	IPv6 Default Gateway
		IPv4 DNS Address 2	IPv6 DNS Address 1
		NATs Supported (used / max) 0 / 30000	IPv6 DNS Address 2

verizon Basic **Advanced** Help ⓘ

Network Devices  
Verizon Router

**System**

- System Status
- Date & Time
- Factory Reset
- LED Brightness
- Open Source Software
- Reboot Router
- Remote Administration
- System Settings

System > System Status

## System Status

Auto-refresh  **Refresh**

**Router**

Firmware Version  
3.2.0.8-eng00

Hardware Version  
0.0.4

Model Name  
CR1000A

Serial Number  
AAK11300274

LAN IP Address  
192.168.1.1

Broadband MAC address  
88:5A:85:FE:C5:65

Broadband Physical Connection  
Disconnected

Router has been active for  
0 day(s) 6 hours 34 minutes 38 seconds

LED Status  
No internet connection

verizon Basic **Advanced** Help ⓘ

Network Devices  
Verizon Router

**System**

- System Status
- Date & Time
- Factory Reset
- LED Brightness
- Open Source Software
- Reboot Router
- Remote Administration
- System Settings

System > System Status

## System Status

Auto-refresh  **Refresh**

**Extender**

Device Name  
NCQ1338

Model Name  
ASK-NCQ1338

Firmware Version  
3.2.0.11

Hardware Version  
1

Serial Number  
AAM2803358

MAC Address  
A4:97:33:DB:5A:05

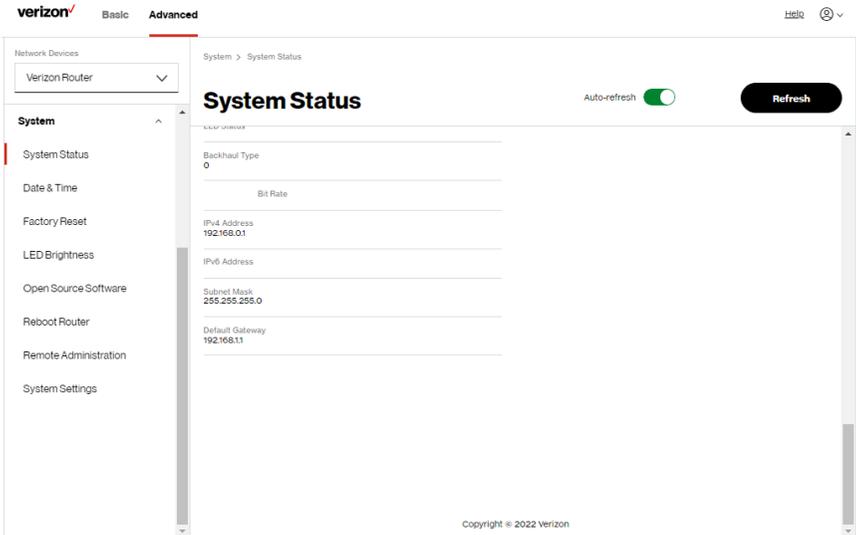
System Up Time  
0 day(s) 6 hours 35 minutes 3 seconds

LED Status

Backhaul Type  
0

Bit Rate

# SYSTEM



## 5.3b/ DATE & TIME SETTINGS

You can set the time zone and enable automatic time updates.

*To configure the settings:*

1. From the **Advanced** menu, select **System**.
2. Select **Date & Time** in the **System** section.

The screenshot shows the Verizon Router's Advanced Settings page for Date & Time configuration. The page is titled "Date & Time" and includes a "Refresh" button. The "Localization" section shows the local time as "Jan 01, 1970 01:36:10am" and the time zone as "Eastern\_Time (Default)". The "Automatic Time Update" section is enabled, with the "Enable" checkbox checked. The "Time Server" section shows three entries: "cpe-ntpvr.verizon.com", "cpe-ntpb.verizon.com", and "cpe-ntpa.verizon.com". An "Apply" button is located at the bottom right of the Time Server section. The left sidebar shows the "System" menu with "Date & Time" selected.

3. Select the local time zone. Your Verizon Router automatically detects daylight saving times for selected time zone.
4. In the **Automatic Time Update** section, select the **Enable** check box to perform an automatic time update.
5. Enter the IP address or domain name of the **Time Server**, then click **Apply** to save changes.
6. To refresh the page, click **Refresh**.

# SYSTEM

---

## 5.3c/ FACTORY RESET

You can use this functionality to save and load configuration files. These files are used to backup and restore the current configuration of your Verizon Router.

Only configuration files saved on a specific Verizon Router can be applied to that Verizon Router. You cannot transfer configuration files between Routers.

*Warning: Manually editing a configuration file can cause your Verizon Router to malfunction or become completely inoperable.*

### Restore Options

You can restore your configuration settings to your Router factory default settings. Restoring the default settings erases the current configuration, including user defined settings and network connections. All connected DHCP clients must request new IP addresses. Your Verizon Router must restart.

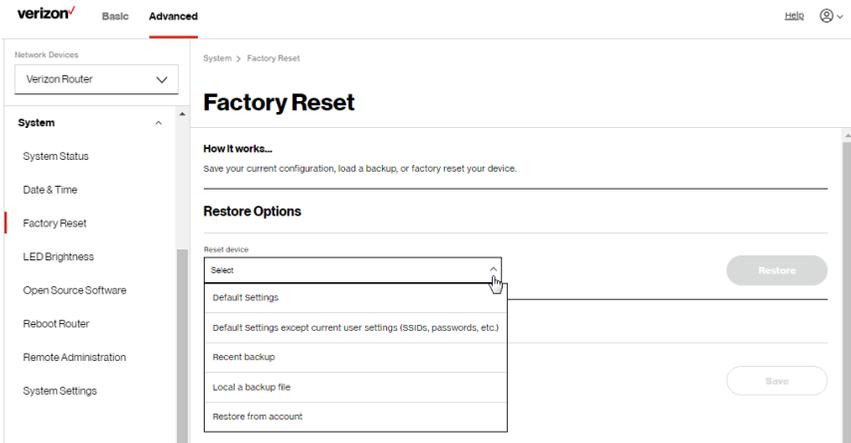
Prior to restoring the factory defaults, you may want to save your current configuration to a file. This allows you to reapply your current settings and parameters to the default settings, as needed.

*Note: When restoring defaults, the setting and parameters of your Verizon Router are restored to their default values. This includes the administrator password. A user-specified password will no longer be valid.*

*To restore your Verizon Router' factory default settings:*

1. Click **Factory Reset** in the **System** section.

2. Select **Default Settings** or **Default Settings except current user settings**.
  - **Default Settings** – will erase all router settings including user settings for SSID and Passwords.
  - **Default Settings except current user settings** – will erase all router settings but will retain the user settings for SSID and passwords.



3. Click the **Restore** button. The factory default settings are applied and your Verizon Router restarts. Once complete, the Login page for the First Time Easy Setup Wizard displays.

*To load the configuration file:*

1. Select **Factory Reset** in the **System** section.
2. To load a previously saved configuration file, select **Recent backup** or **Load a backup file** then click **choose file**.

# SYSTEM

3. Browse to the location of the file, and click the **Restore** button to begin the configuration uploading process.
4. Accessing the **My Fios App** or the **My Verizon** account also allows you to restore the previously saved settings. Select **Restore from account** and use **My Fios App** or **My Verizon** account to restore the saved settings to the Router.
5. Click the **Restore** button. Your Verizon Router will automatically restart with that configuration.

## Save Options

*To save the configuration file:*

1. From the **Advanced** menu, select **System**.
2. Select **Factory Reset** in the **System** section.

The screenshot displays the Verizon router configuration interface. At the top, the Verizon logo is on the left, and 'Basic' and 'Advanced' tabs are in the center. On the right, there are links for 'Help' and a user profile icon. A left sidebar shows a 'Network Devices' dropdown set to 'Verizon Router' and a 'System' section with a list of options: System Status, Date & Time, Factory Reset (highlighted in red), LED Brightness, Open Source Software, Reboot Router, Remote Administration, and System Settings. The main content area is titled 'System > Factory Reset' and features a 'Factory Reset' heading. Below this, a 'How it works...' section explains that users can save current configuration, load a backup, or factory reset. The 'Restore Options' section includes a 'Reset device' dropdown menu and a 'Restore' button. The 'Save Options' section shows a 'Saved configurations' list with a 'Select' dropdown and a 'Save' button. The list contains 'Router and Verizon account' and 'Backup file'. A mouse cursor is pointing at the 'Save' button. At the bottom, a copyright notice reads 'Copyright © 2022 Verizon'.

3. Select **Router and Verizon account** or **Backup file** to save the current configuration, then click **Save** button.
4. If you select **Backup file**, the configuration file is saved to you web browser's download folder.
5. Click **Save** button to begin the configuration backup process.

### 5.3d/ LED BRIGHTNESS

The Verizon Router allows you to set the LED brightness to turn Off (0%) or stay bright (50% or 100%) using the user interface.

*To control the LED brightness:*

1. Select **LED Brightness** in the **System** section.

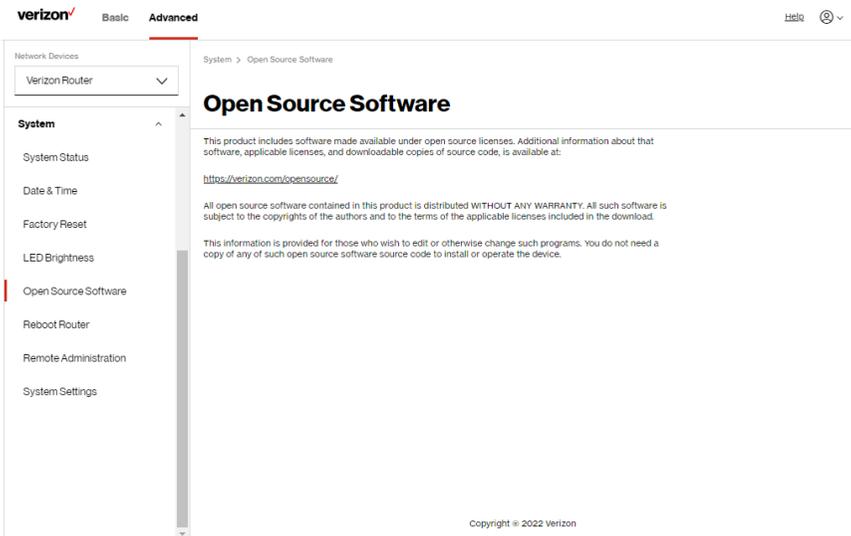
The screenshot shows the Verizon Router's advanced settings interface. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' tabs. A 'Help' icon is visible in the top right. The left sidebar shows a 'System' section with various options, with 'LED Brightness' highlighted. The main content area is titled 'LED Brightness' and includes an 'Apply Changes' button. Below the title, there is a descriptive text: 'Set the LED brightness to turn Off or stay bright when everything is normal. The light will activate again on status changes like WPS pairing or loss of connection.' A slider for 'LED Brightness' is shown with a marker at 20%, and a scale from 0% to 100%. Below the slider, the 'LED Timeout' dropdown menu is open, showing options: 5 Min (highlighted with a red box), 1 Min, 10 Min, 15 Min, 20 Min, 30 Min, and Never.

# SYSTEM

2. Slide the bar to adjust the brightness of the LED.
3. Select your preferred timeout period (in minutes) from the dropdown list for the LED dimming setting. The Status LED will automatically turn off after the timeout period.
4. Click **Apply Changes** to save changes.

*Note: The light will activate again on status changes like WPS pairing or loss of connection.*

## 5.3e/ OPEN SOURCE SOFTWARE



*To view:* From the **Advanced** menu, select **System** from the left pane and then click **Open Source Software**.

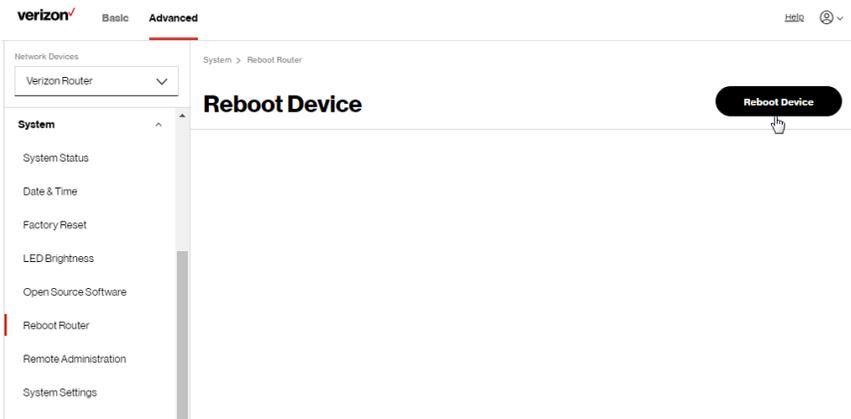
## 5.3f/ REBOOT VERIZON ROUTER

**Warning:** Only select Reboot Router if instructed to do so by Verizon support.

You can reboot your Verizon Router using the Reboot Router feature. Refer to 1.3b/ REAR PANEL for factory reset function.

To reboot your Verizon Router using the user interface:

1. Select **Reboot Router** in the **System** section.



2. To reboot, click **Reboot Device**. Your Router will reboot. This may take up to a minute.
3. To access your Verizon Router user interface, refresh your web browser.
4. After the Status LED on the front panel turns solid white, you will automatically be sent to the web browser login page.

# SYSTEM

---

## 5.3g/ REMOTE ADMINISTRATION

*Caution: Enabling Remote Administration places your Verizon Router network at risk from outside attacks.*

You can access and control your Verizon Router not only from within the local network, but also from the internet using **Remote Administration**.

*You can allow incoming access to the following:*

- **Allow Incoming WAN Access to Web-Management** - used to obtain access to your Verizon Router's UI and gain access to all settings and parameters through a web browser.
- **Diagnostic Tools** - used for troubleshooting and remote system management by a user or Verizon.

Web Management remote administration access may be used to modify or disable firewall settings. Web Management services should be activated only when absolutely necessary.

*To enable remote administration:*

1. Select **Remote Administration** in the **System** section.

The screenshot shows the Verizon Router's Advanced Settings page for Remote Administration. The page is titled "Remote Administration" and includes a navigation menu on the left with options like System Status, Date & Time, Factory Reset, LED Brightness, Open Source Software, Reboot Router, Remote Administration (selected), and System Settings. The main content area is titled "Remote Administration" and contains the following sections:

- Configure Remote Administration to the router**: A heading with an "Apply Changes" button.
- Attention**: A warning message: "With Remote Administration enabled, your local network will be at risk from outside attacks".
- Allow Incoming WAN Access to Web-Management**: A section with a "System Settings" button and a checkbox labeled "Using Primary HTTPS Port (443)".
- Diagnostic Tools**: A section with two checkboxes: "Allow Incoming WAN ICMP Echo Requests (e.g. pings and ICMP traceroute queries)" (checked) and "Allow Incoming WAN UDP Traceroute Queries" (unchecked).

2. To enable access, select the check box.
3. To remove access, clear the check box.
4. Click **Apply Changes** to save changes.

# SYSTEM

## 5.3h/ SYSTEM SETTINGS

You can configure various system and management parameters.

*To configure system settings:*

1. Select **System Settings** in the **System** section.

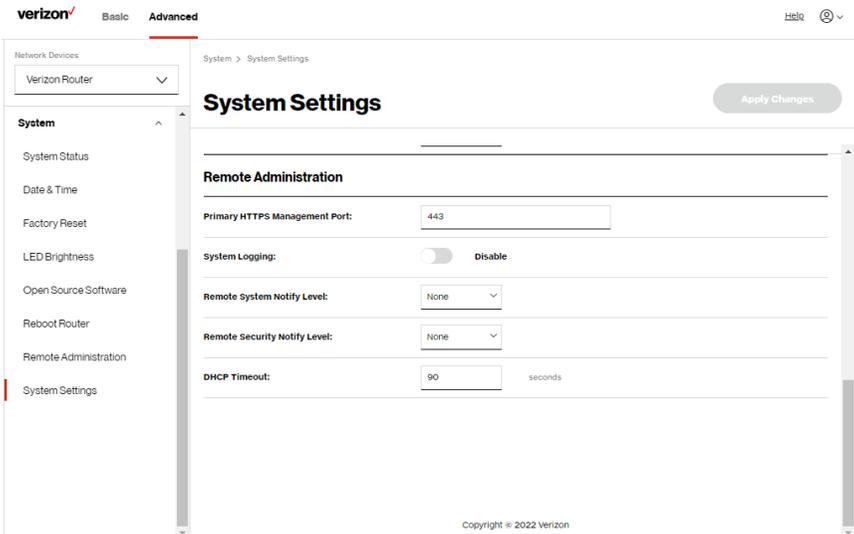
The image displays two screenshots of the Verizon System Settings interface, showing the configuration options for the System and Router sections.

**Top Screenshot: System Settings**

- Navigation:** Verizon logo, Basic, **Advanced**, Hello, and a help icon.
- Left Sidebar:** Network Devices (Verizon Router), System (System Status, Date & Time, Factory Reset, LED Brightness, Open Source Software, Reboot Router, Remote Administration, **System Settings**), Router.
- System Settings Page:**
  - Router Status:**
    - Router's Hostname: CR1000A
    - Local Domain: mynetworksettings.com
    - Location: Other
  - User Settings:**
    - User name: Admin
    - Set new password: [Field] (minimum 8 characters)
    - Retype new password: [Field]
    - Unsuccessful Login Attempts: 10 (maximum attempts)

**Bottom Screenshot: Router Settings**

- Navigation:** Verizon logo, Basic, **Advanced**, Hello, and a help icon.
- Left Sidebar:** Network Devices (Verizon Router), System (System Status, Date & Time, Factory Reset, LED Brightness, Open Source Software, Reboot Router, Remote Administration, System Settings), Router.
- Router Settings Page:**
  - Router:**
    - Automatic Refresh of System Monitoring Web Pages
    - Prompt for Password When Accessing via LAN
    - Warn User Before Configuration Changes
    - Session lifetime: 7200 (seconds)
    - Number of concurrent sessions that can be logged into the router: 10
  - Remote Administration:**



2. In the **Router Status** section, configure the following:
  - **Router's Hostname** – enter the host name of your Verizon Router.
  - **Local Domain** – view the local domain of the network.
  - **Location** – select your current location of the Router from the dropdown list.
3. In the **User Settings** section, you can view the administration user that can currently access your network. In addition, you can modify the login password and manage the number of unsuccessful login attempts the administration user can enter before your Verizon Router temporarily denies all further login attempts by the user.

# SYSTEM

---

4. In the **Router** section, configure the following by selecting the check box:
  - **Automatic Refresh of System Monitoring Web Pages** – activates the automatic refresh of system monitoring web pages.
  - **Prompt for Password when Accessing via LAN** – causes your Router to ask for a password when trying to connect to the network.
  - **Warn User Before Configuration Changes** – activates user warnings before network configuration changes take effect.
  - In the **Session Lifetime** field, specify the length of time required before re-entering the login password after your Verizon Router has been inactive.
  - In the **Number of concurrent sessions that can be logged into the router** field, select the number of users that can access your Verizon Router at the same time.
5. In the **Remote Administration** section, configure the following:
  - Enter the **Primary HTTP Management Port**.  
Refer to 5.3g Remote Administration for using this feature.
  - In the **System Logging** section move the selector to **on** to activate system logging.
  - **Remote System Notify Level** – specify the type of information, such as none, error, warning, and information, received for remote system logging.

- **Remote Security Notify Level** – specify the type of information, such as none, error, warning, and information, received for remote network security logging.
  - In the **DHCP Timeout** section, specify the DHCP timeout.
6. Click **Apply Changes** to save changes.

---

06 /

# TROUBLE SHOOTING

**6.0** Troubleshooting Tips

**6.1** Frequently Asked Questions

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This chapter lists solutions for issues that may be encountered while using your Verizon Router as well as frequently asked questions.

Although the majority of the Verizon Router's internet connectivity is automatic and transparent, if an issue does occur accessing the internet (e.g. complete loss of connectivity, inability to access services, etc.), you may need to take additional steps to resolve the problem.

# TROUBLESHOOTING TIPS

---

*Note: The advanced settings should only be configured by experienced network technicians to avoid adversely affecting the operation of your Verizon Router and your local network.*

## **6.0/ TROUBLESHOOTING TIPS**

### **6.0a/ IF YOU ARE UNABLE TO CONNECT TO THE INTERNET:**

- The first thing to check is whether your Verizon Router is powered on and is connected to the internet. Check the Status LED on the front of the Verizon Router. Be sure to refer to the “1.3a/ FRONT PANEL” on page 9 to determine status of the Verizon Router.
- If the prior tips do not resolve your connection issue, try power cycling the Verizon Router by unplugging the power cord from the power supply and wait 2 minutes. During the 2 min. wait period, also power cycle the network device (e.g. the computer, tablet, etc.) and then plug the power cable back into the Verizon Router. After 3-5 minutes, recheck the Status LED and try again to access the internet.
- If rebooting your Router does not resolve your connection issue, try resetting the the Verizon Router back to its factory default state by manually pressing the reset button on the rear panel of the Verizon Router for 3+ seconds (the Status LED should go off) to begin resetting your Verizon Router. Your Router will perform a factory reset and return the Gateway to default settings. The Verizon Router will return to service in 3-5 minutes depending on your network connection. Check Status LED and if it is solid white, try again to access the internet.

---

## **6.0b/ IF YOU ARE UNABLE TO CONNECT TO YOUR VERIZON ROUTER USING WI-FI:**

- Be sure your Wi-Fi device is within range of your Verizon Router; move it closer to see if your connection improves.
- Check your network device's Wi-Fi settings to be sure your device's Wi-Fi is on (enabled) and that you have the correct Wi-Fi network and password (if using a Wi-Fi password) as configured on your Verizon Router.
- Be sure you are connecting to the correct Wi-Fi network; check to be sure you are using your Verizon Router's SSID. In some cases, if using a Wi-Fi password, you may need to enter the Wi-Fi password into your network device again to be sure your device accepts the password.
- Check to be sure you are running the latest software for your network device.
- Try turning your network device's Wi-Fi off and on, and try to connect.
- If you have made any changes in your network settings and turning your network device's Wi-Fi off and on does not help, try to restart your network device.
- You may need to turn the Wi-Fi settings from on to off, and back to on again and apply the changes.
- If you are still unable to access your Verizon Router, you may need to try connecting to the Verizon Router using another network device. If the issue goes away with another network device, the issue is likely with that individual network device's configuration.

# TROUBLESHOOTING TIPS

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## **6.0c/ ACCESSING YOUR VERIZON ROUTER IF YOU ARE LOCKED OUT**

- If your Verizon Router connection is lost while making configuration changes, a setting that locks access to your Verizon Router's UI may have inadvertently been activated.

*The common ways to lock access to your Verizon Router are:*

- Scheduler - If a schedule has been created that applies to the computer over the connection being used, your Verizon Router will not be accessible during the times set in the schedule.
- Access Control - If the access control setting for the computer is set to block the computer, access to your Verizon Router is denied.

To gain access, restore the default settings to your Verizon Router.

## **6.0d/ RESTORING YOUR VERIZON ROUTER'S DEFAULT SETTINGS**

There are two ways to restore your Verizon Router's default settings. It is important to note that after performing either procedure, all previously save settings on your Router will be lost.

For additional information regarding the Restore Defaults feature, refer to section 5.3c/ Factory Reset/Restore Options.

- Using the tip of a paperclip or similar object, press and hold the Reset button on the rear of your Verizon Router for over three seconds.

- Access the UI and navigate to the Advanced Settings page. Select the 5.3c/ Factory Reset option. After saving your configuration, if desired, click the Factory Default radio button. For additional details, refer to 5.3c/ Factory Reset/Restore Options section of this guide.

*Note: If you reset or reboot your Verizon Router, you may also need to disconnect your Verizon Router's power supply for a few minutes (3 or more) and then reconnect the power cable.*

## **6.0e/ LAN CONNECTION FAILURE**

*To troubleshoot a LAN connection failure:*

- Verify your Verizon Router is properly installed, LAN connections are correct, and that the Verizon Router and communicating network devices are all powered on.
- Confirm that the computer and Verizon Router are both on the same network segment.

If unsure, let the computer get the IP address automatically by initiating the DHCP function, then verify the computer is using an IP address within the default range of 192.168.1.2 through 192.168.1.254. If the computer is not using an IP address within the correct IP range, it will not connect to your Verizon Router.

- Verify the subnet mask address is set to 255.255.255.0.

# TROUBLESHOOTING TIPS

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## **6.0f/ TIMEOUT ERROR OCCURS WHEN ENTERING THE URL OR IP ADDRESS**

*Verify the following:*

- All computers are working properly.
- IP settings are correct.
- Verizon Router is on and connected properly.
- Verizon Router settings are the same as the computer.

*For connections experiencing lag or a slow response:*

- Check for other devices on the network utilizing large portions of the bandwidth and if possible temporarily stop their current utilization and recheck the connection.
- If lag still exists, clear the cache on the computer and if still needed, unplug the Ethernet cable or disable the Wi-Fi connection to the computer experiencing the slow connection and then reconnect or enable the Wi-Fi connection and try the connection again.

*In rare cases you may also need to:*

- Unplug the Ethernet cable to Verizon Router and restart the Verizon Router, wait 1-2 mins. and insert the Ethernet cable again.
- Under limited circumstances you may use a port forwarding configuration on the router, based on the application you are using (refer to the 5.0e/ Port Forwarding section or Verizon's support online help for more details).

## 6.0g/ FRONT LED AND WPS BUTTON

Front LED Mode	Status	LED Pattern
Bootup	System Off	Off
	System Booting	Soft Blink White
	Firmware update (FOTA)	Fast Blink White
Installation mode (5G Home customer)	Passing signal	Solid White
	LTE coverage only/ No Signal	Solid Red
Regular usage	Setup complete	50% Bright White
	No Signal	Solid Red
	No SIM Card	Hard Blink Red
	Wi-Fi disabled by user	Solid Green
Paring	WPS Paring	Hard blink Blue
Other	Factory Reset	Fast blink yellow
	FW Error	Soft blink red

The rear panel's WPS Button allows quick access to the Wi-Fi Protected Setup (WPS) feature and handset paging/paring mode. In addition, the WPS Button provides a visual display of the Verizon Router's current condition. Refer to the chart above for details.

# FREQUENTLY ASKED QUESTIONS

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## 6.0h/ REAR LIGHTED INDICATORS

Ethernet Port LED Mode	Status	Left LED	Right LED
Wired LAN connection  * Threshold level can be decided based on port capability	Ethernet $\geq$ 100M* Link	Off	Solid White
	Ethernet $\geq$ 100M* Activity	Off	Blinking White
	Ethernet $<$ 100M* Link	Solid Yellow	Off
	Ethernet $<$ 100M* Activity	Blinking Yellow	Off
	No Ethernet connection	Off	Off

## 6.1/ FREQUENTLY ASKED QUESTIONS

### 6.1a/ I'VE RUN OUT OF ETHERNET PORTS ON MY VERIZON ROUTER. HOW DO I ADD MORE COMPUTERS OR DEVICES?

Plugging in an Ethernet hub or switch expands the number of ports on your Verizon Router.

- Run a straight-through Ethernet cable from the Uplink port of the new hub to the Verizon Router.

Use a crossover cable if there is no Uplink port/switch on your hub, to connect to the Verizon Router.

- Remove an existing device from the Ethernet port on your Verizon Router and use that port.

### **6.1b/ HOW DO I CHANGE THE PASSWORD ON MY VERIZON ROUTER UI?**

*To change the password:*

1. On the main screen, select **Advanced**, then select **System Settings** in the **System** section.
2. In the **User Settings** section, set a new password.

### **6.1c/ IS THE WI-FI OPTION ON BY DEFAULT ON MY VERIZON ROUTER?**

Yes, your Verizon Router's Wi-Fi option is activated out of the box.

### **6.1d/ IS THE WI-FI SECURITY ON BY DEFAULT WHEN THE WI-FI OPTION IS ACTIVATED?**

Yes, with the unique WPA2 (Wi-Fi Protected Access II) key that is printed on the sticker on the rear of your Verizon Router.

### **6.1e/ ARE MY VERIZON ROUTER'S ETHERNET PORTS AUTO-SENSING?**

Yes. Either a straight-through or crossover Ethernet cable can be used.

# FREQUENTLY ASKED QUESTIONS

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## **6.1f/ CAN I USE AN OLDER WI-FI DEVICE TO CONNECT TO MY VERIZON ROUTER?**

Yes, your Verizon Router can interface with 802.11b, g, n, ac or ax devices. Your Verizon Router also can be setup to handle only n Wi-Fi cards, g Wi-Fi cards, b Wi-Fi cards, or any combination of the three.

## **6.1g/ CAN MY WI-FI SIGNAL PASS THROUGH FLOORS, WALLS, AND GLASS?**

The physical environment surrounding your Verizon Router can have a varying effect on signal strength and quality. The denser the object, such as a concrete wall compared to a plaster wall, the greater the interference. Concrete or metal reinforced structures experience a higher degree of signal loss than those made of wood, plaster, or glass.

## **6.1h/ HOW DO I LOCATE THE IP ADDRESS THAT MY COMPUTER IS USING?**

In Windows 8 or Windows 10, click the Windows button and select **Settings**, then click **Network & Internet** and **Status**. Click the **Properties** button for details of IP address.

On Mac OS X, open System Preferences and click the Network icon. The IP address displays near the top of the screen.

To find the IP address from the router GUI:

1. From the **Basic** menu, select **Devices** from the left pane.

2. Click the Settings icon to access the **Device Settings** page for that device to view detailed IP address information for the device.

### **6.1i/ I USED DHCP TO CONFIGURE MY NETWORK. DO I NEED TO RESTART MY COMPUTER TO REFRESH MY IP ADDRESS?**

No. In Windows 8, Windows 10 and Mac OSX, unplug the Ethernet cable or Wi-Fi card, then plug it back in.

### **6.1j/ I CANNOT ACCESS MY VERIZON ROUTER UI. WHAT SHOULD I DO?**

If you cannot access the UI, verify the computer connected to your Verizon Router is set up to dynamically receive an IP address.

### **6.1k/ I HAVE A FTP OR WEB SERVER ON MY NETWORK. HOW CAN I MAKE IT AVAILABLE TO USERS ON THE INTERNET?**

For a web server, enable port forwarding for port 80 to the IP address of the server. Also, set up the web server to receive that port. Configuring the server to use a static IP address is recommended.

# FREQUENTLY ASKED QUESTIONS

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For a FTP server, enable port forwarding for port 21 to the IP address of the server. Also, set up the web server to receive that port. Configuring the server to use a static IP address is recommended.

## **6.11/ HOW MANY COMPUTERS CAN BE CONNECTED THROUGH MY VERIZON ROUTER?**

Your Verizon Router is capable of 254 connections, but we recommend having no more than 132 connections. As the number of connections increases, the available speed for each computer decreases.

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*071*

# **SPECIFICATIONS**

- 7.0** General Specifications
- 7.1** LED Indicators
- 7.2** Environmental Parameters

The specifications for your Verizon Router are as follows.

This includes standards, cabling types and environmental parameters.

# GENERAL SPECIFICATIONS

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*Note: The specifications listed in this chapter are subject to change without notice.*

## **7.0/** GENERAL SPECIFICATIONS

Model Number:	CR1000A
Standards:	IEEE 802.3x, 802.3u, 802.3ab, 802.3bz, 802.3 an  IEEE 802.11a/b/g/n/ac/ax
IP:	IP versions 4 and 6
MoCA LAN:	1125 – 1675 MHz 2500 Mbps
Speed:	Wired:  10GE WAN Ethernet: 100 Mbps, 1/2.5/5/10 Gbps auto-sensing  10GE LAN Ethernet: 100 Mbps, 1/2.5/5/10 Gbps auto-sensing  2.5GE LAN Ethernet: 10/100 Mbps, 1/2.5 Gbps auto-sensing  Wireless:  2.4 GHz - IEEE 802.11b/g/n: maximum up to 600 Mbps IEEE 802.11ax: maximum up to 1.1 Gbps

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	5 GHz - IEEE 802.11a/n/ac: maximum up to 2.2 Gbps IEEE 802.11ax: maximum up to 2.4 Gbps
	6 GHz - IEEE 802.11ax: maximum up to 4.8 Gbps
Cabling Type:	Ethernet 100BaseT: UTP/STP Category 5  Ethernet 1000BaseT: UTP/STP Category 5e  Ethernet 2.5/5/10GBaseT: UTP/STP Category 6a
Firewall:	ICSA certified

## **7.1/ LED INDICATORS**

Front Panel:	Router Status LED
Rear Panel:	WAN Ethernet and LAN Ethernet [3]

# ENVIRONMENTAL PARAMETERS

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## **7.2/ ENVIRONMENTAL PARAMETERS**

### **DIMENSIONS AND WEIGHT**

Verizon Router (unit only):

Size: 4.72" wide x 9.85" high x 4.72" deep

Weight: 2.96 lbs / 1.344 kg

Complete System (inc. packaging):

Size: 10.71" wide x 7" high x 8.66" deep

Weight: 5.51 lbs / 2.5 kg

Power:

External, 12V, 5A

Mounting Bracket (optional):

Size: 3.97" wide x 6.86" high x 6.6" deep

Weight: 0.39 lbs / 175 g

Screws (optional):

PH TP+N: 0.157" x 0.984"

PE Anchor: 0.236" x 0.984"

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Certifications:	FCC, UL 62368, WFA
Operating Temperature:	5° C to 40° C (41° F to 104° F)
Storage Temperature:	-5° C to 50° C (23° F to 122° F)
Operating Humidity:	5% to 85%
Storage Humidity:	5% to 93% (non-condensing)

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08 /

# NOTICES

**8.0** Regulatory Compliance Notices

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This chapter lists various compliance and modification notices, as well as the NEBS requirements and GPL.

# REGULATORY COMPLIANCE NOTICES

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## **8.0/ REGULATORY COMPLIANCE NOTICES**

### **8.0a/ Class B Equipment**

#### **Federal Communication Commission Interference Statement:**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

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

FCC regulations restrict the operation of this device to indoor use only.

The operation of this device is prohibited on oil platforms, cars, trains, boats, and aircraft, except that operation of this device is permitted in large aircraft while flying above 10,000 feet.

Operation of transmitters in the 5.925-7.125 GHz band is prohibited for control of or communications with unmanned aircraft systems.

### **RF Exposure:**

To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 31cm from all persons (indoor), and must not be co-located or operating in conjunction with any other antenna or transmitter.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

# REGULATORY COMPLIANCE NOTICES

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## **8.0b/ Safety Warning:**

1. The circuit of cable distribution system under consideration is TNV-1 circuit.
2. The common sides or earthed side of the circuit are connected to the screen of the coaxial cable through an antenna connector of tuner and to all accessible parts and circuits (SELV, LCC and accessible metal parts).
3. The screen of the coaxial cable is intended to be connected to earth in the building installation.

## **8.0c/ Alerte de sécurité:**

1. Le circuit de distribution par câble considéré est le circuit TNV-1.
2. Les côtés communs ou côté terre du circuit sont connectés à l'écran du câble coaxial via un connecteur d'antenne du syntoniseur et à toutes les parties et circuits accessibles (SELV, LCC et parties métalliques accessibles).
3. L'écran du câble coaxial est destiné à être mis à la terre dans l'installation du bâtiment.

The cable distribution system should be grounded (earthed) in accordance with ANSI/NFPA 70, the National Electrical Code (NEC), in particular Section 820.93, Grounding of Outer Conductive Shield of a Coaxial Cable.

Le système de distribution par câble doit être mis à la terre conformément à ANSI / NFPA 70, Code national de l'électricité (NEC), en particulier à la section 820.93, Mise à la terre du blindage conducteur extérieur d'un câble coaxial.

### **8.0d/ NEBS (Network Equipment Building System) Statement**

An external SPD is intended to be used with CR1000A/CME1000.

**WARNING:** The intra-building ports of the equipment or subassembly is suitable for connection to intra-building or unexposed wiring or cabling only. The intra-building port(s) of the equipment or subassembly **MUST NOT** be metalically connected to interfaces that connect to the OSP or its wiring. These interfaces are designed for use as intra-building interfaces only (Type 4 ports as described in GR-1089) and require isolation from the exposed OSP cabling. The addition of Primary Protectors is not sufficient protection in order to connect these interfaces metalically to OSP wiring.

# REGULATORY COMPLIANCE NOTICES

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*Caution: The Verizon Router must be installed inside the home. The Router is not designed for exterior installation.*

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