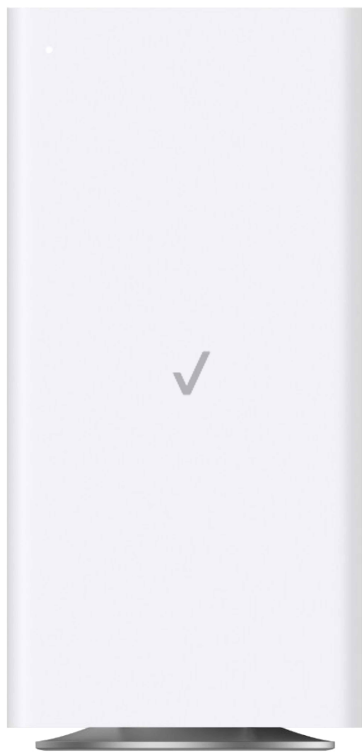




Verizon
Router
**USER
GUIDE**



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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

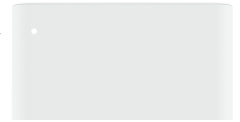
- Static NAT
- Port forwarding
- Port triggering
- Access control
- Advanced Wi-Fi protection featuring WPA2 & WPA3 Modes and MAC address filtering
- Wi-Fi Multimedia (WMM) for Wi-Fi QoS (quality-of-service)
- Dual-stack network configuration of IPv4 and IPv6
- DHCP server
- WAN interface auto-detection
- 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 (50% solid) Setup complete (solid) Router is booting (soft blink) System restart (fast blink)
	BLUE	Pairing mode (hard 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 (hard blink) Overheating (fast blink) WPS pairing failure (fast blink)
Power	OFF	Power off

GETTING TO KNOW YOUR VERIZON ROUTER

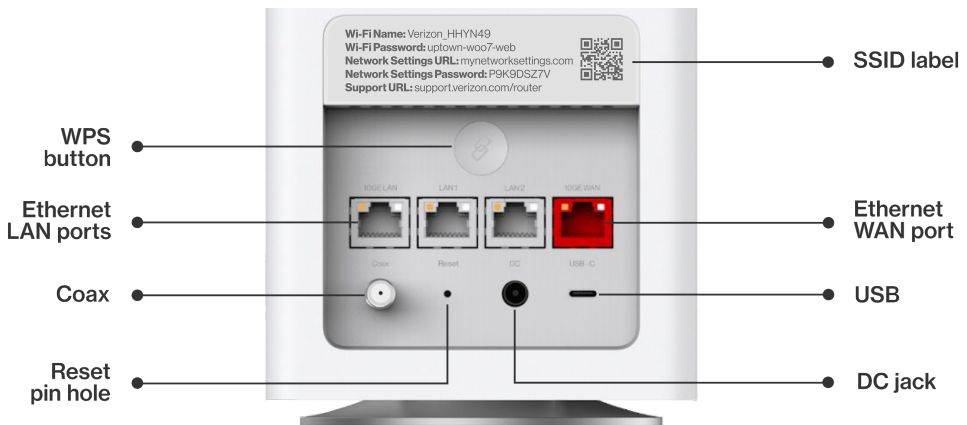
1.3b/ REAR PANEL

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 the “Connecting A Wi-Fi Device Using WPS” on page 33 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

- **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

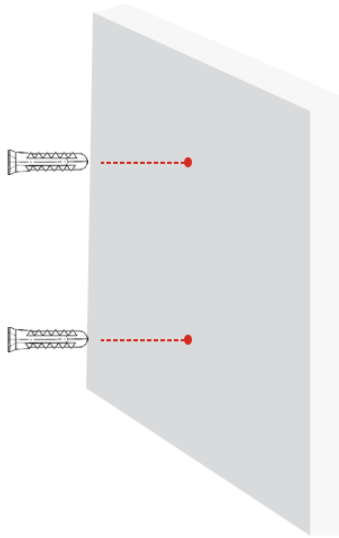
For optimum performance, the Verizon Router is designed to stand in a vertical upright position. Verizon does not recommend wall mounting the Verizon Router. However, if you wish to mount your Verizon Router, you can purchase a wall mount bracket from the Verizon Accessories Store at [verizon.com/home/accessories/networking-wifi](https://www.verizon.com/home/acc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

To mount your Verizon Router to a wall:

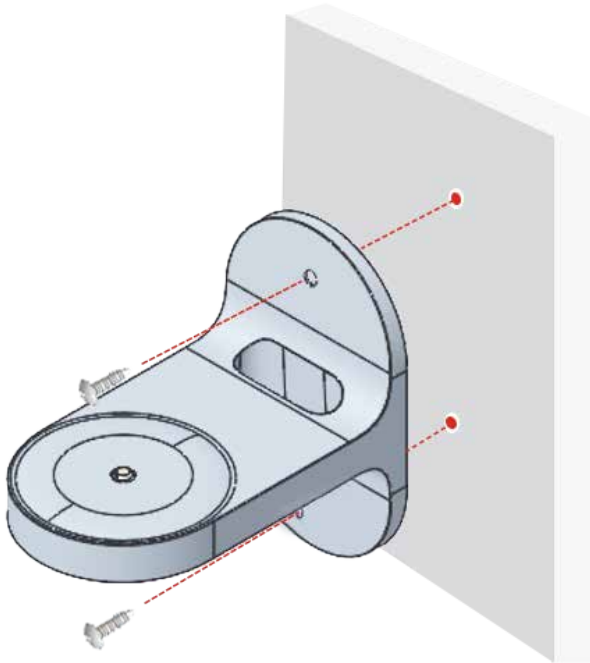
1. Select a mounting spot near a power outlet and the Ethernet port of the device that provides internet on your premises.

GETTING TO KNOW YOUR VERIZON ROUTER

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.

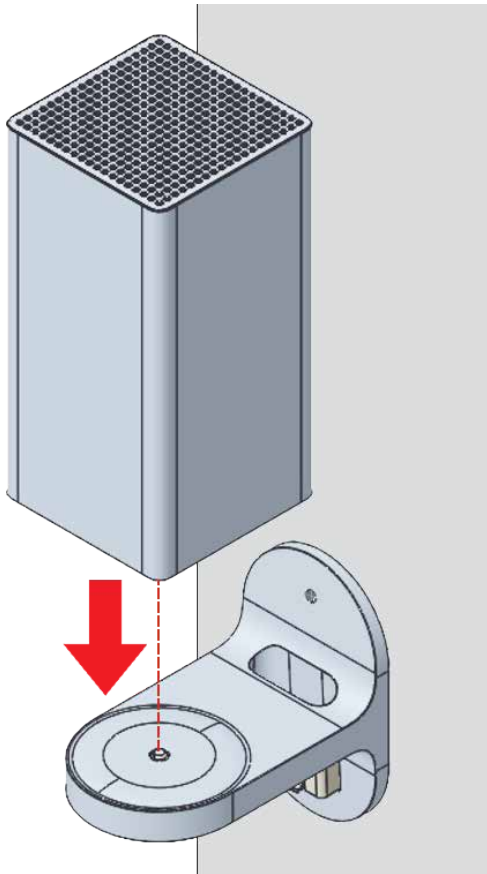


4. Place the screws into the small holes of the bracket and tighten the screws into your wall for securing the wall mount bracket.

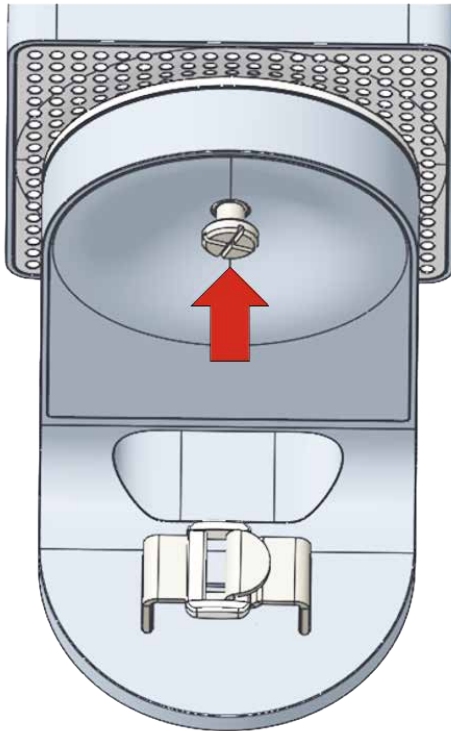


GETTING TO KNOW YOUR VERIZON ROUTER

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

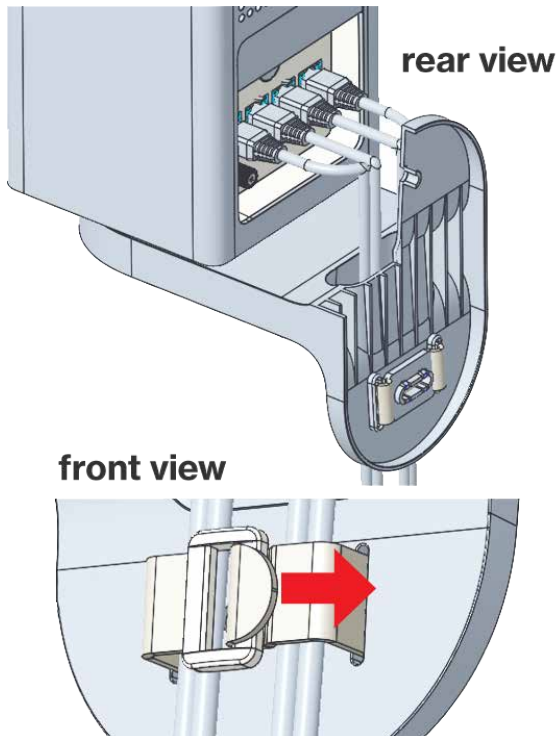


6. Rotate and align the router to the preferred position. While using the hole in the mounting bracket, connect the Ethernet cable providing internet to the router's WAN port and other cables as needed. Tighten the bracket screw to lock the device in place.



GETTING TO KNOW YOUR VERIZON ROUTER

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** Computer Network Configuration
- 2.2** 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

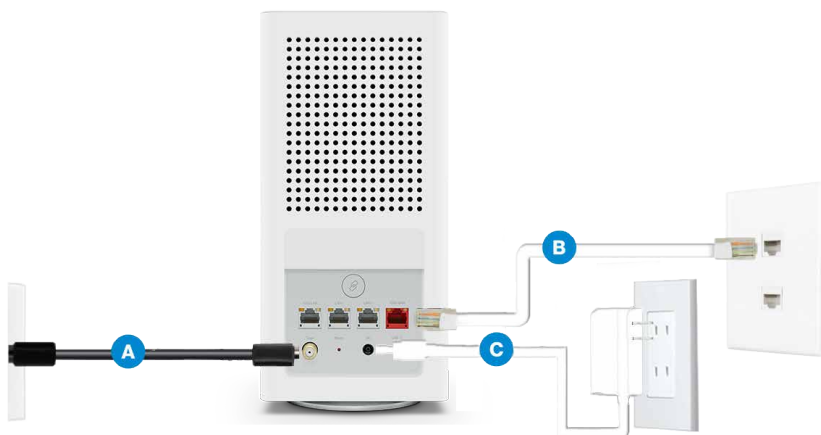
2.0/ SETTING UP YOUR VERIZON ROUTER

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 Verizon TV; skip for 5G Home installation)
 - Separate subscription required for Verizon TV; not available in all areas.
- B. Connect the Ethernet cable from your router's WAN port to an Ethernet outlet. (Required for internet speeds greater than 100 Mbps)
- C. Connect the power cord to your router then to an electrical outlet.



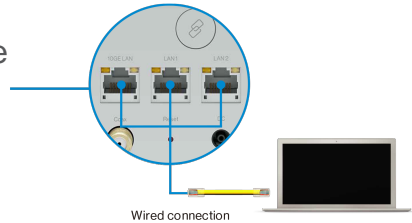
- D. Router will take up to 10 minutes to update completely. Move on when the front light is solid white.

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

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.

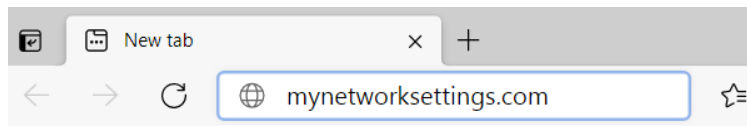
3. COMPLETE ACTIVATION

Activate your service by opening a web browser on your computer and following the prompts.

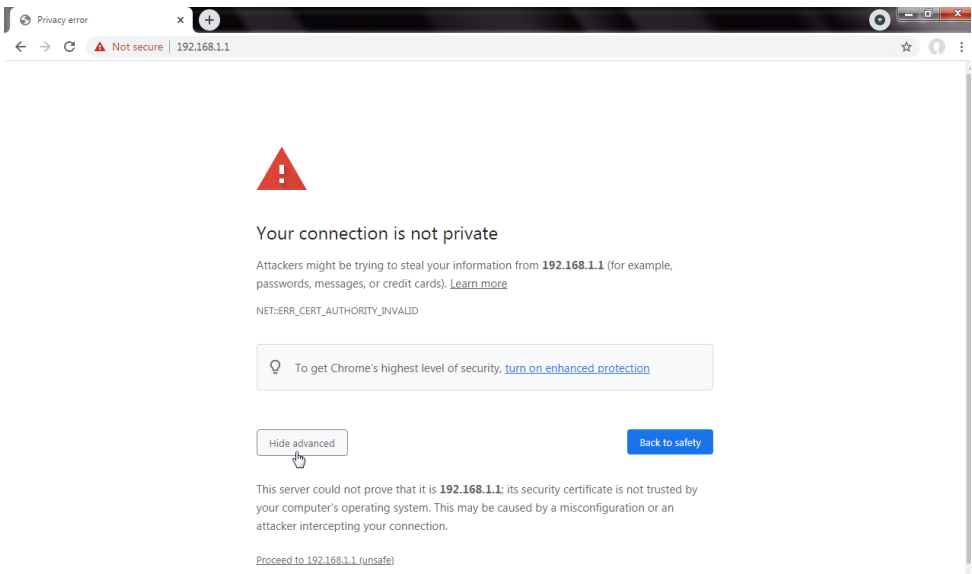
2.0b/ CONFIGURE YOUR VERIZON ROUTER

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

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

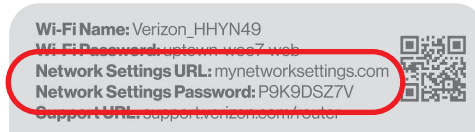
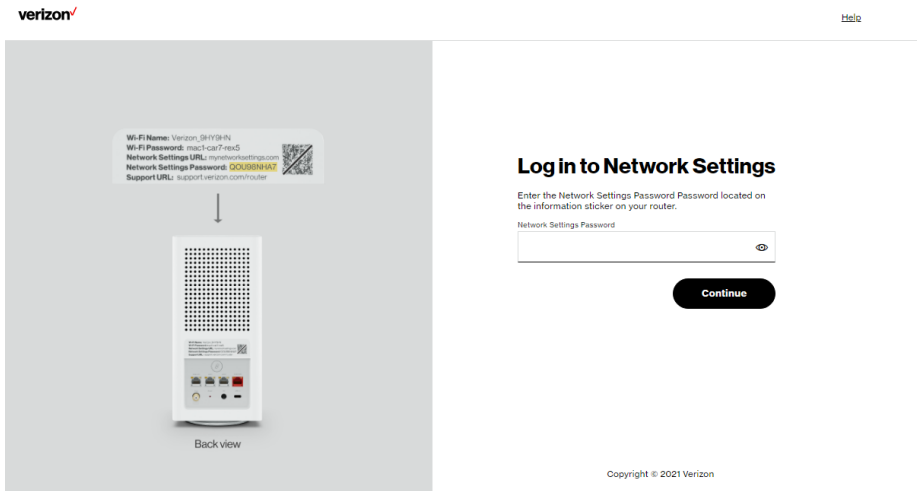


3. You may see a security message warning that **Your connection is not private** when you visit [mynetworksettings.com](https://192.168.1.1) (<https://192.168.1.1>) for GUI management. To get to the login screen, click the **ADVANCED** button, then on **Proceed to 192.168.1.1 (unsafe)** link.



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 **Step 1: Please log in to your router** 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



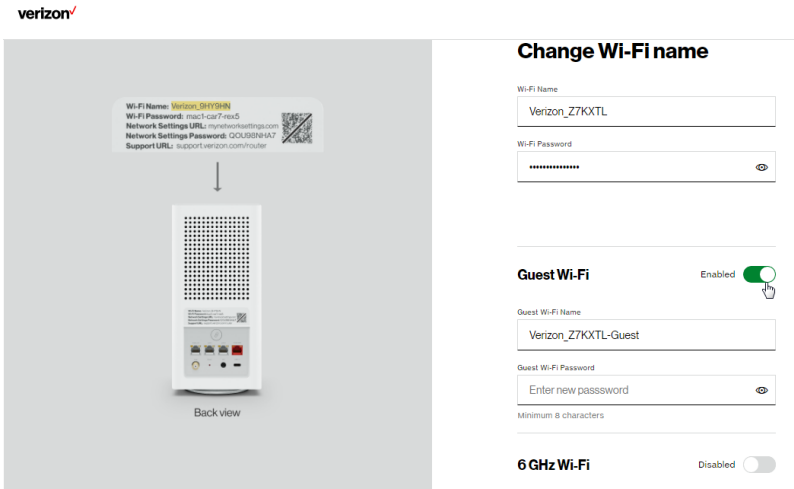
6. The **Change Wi-Fi name** screen displays. You can continue with the default settings or customize them as needed. For your protection, your Verizon Router is pre-set at the factory to use WPA2 (Wi-Fi Protected Access II) encryption for your Wi-Fi network. This is the best setting for most users and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

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.

SETTING UP YOUR VERIZON ROUTER



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 provides security.

11. Click **Continue**. The **Apply Wi-Fi changes** screen appears. You have an option of saving the Wi-Fi settings as an image on your device by clicking the **Save as image** button. After you click **Save as image** to save your Wi-Fi settings as an 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.

verizon



Apply Wi-Fi changes

Wi-Fi Info

[Save as image](#)

Wi-Fi Name

Verizon_Z7KXTL

Wi-Fi Password

mew3-jobs-adopt

Security

WPA2/WPA3 (2.4 & 5 GHz)
WPA3 (6 GHz)

Guest Wi-Fi

ON

Guest Wi-Fi Name

Verizon_Z7KXTL-Guest

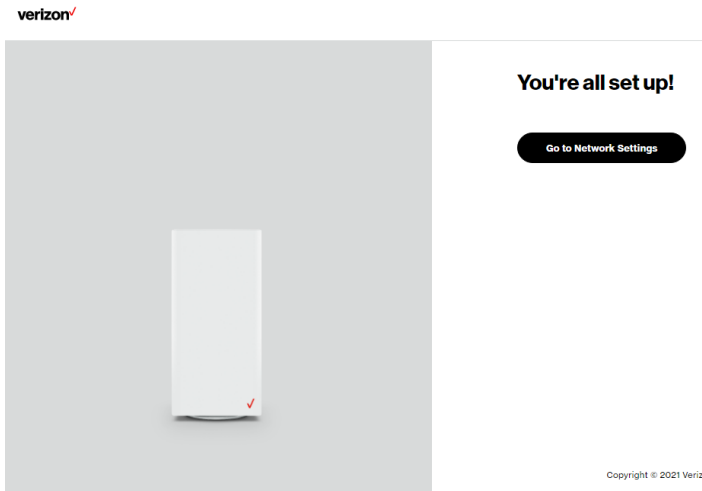
Guest Wi-Fi Password

123456789[Back](#)[Apply](#)

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SETTING UP YOUR 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/ 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.

2.1a/ 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**.

COMPUTER NETWORK CONFIGURATION

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.
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**.

2.1b/ 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.

COMPUTER NETWORK CONFIGURATION

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.

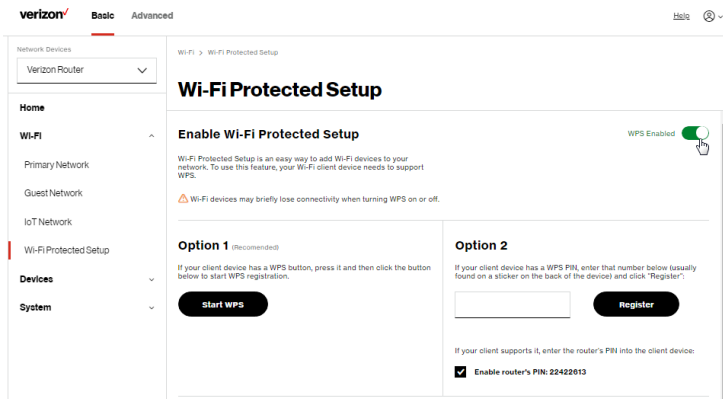
In most cases, this only requires the pressing of two buttons – one on your Verizon Router and one on the Wi-Fi client. This could be either a built-in button or one on a compatible Wi-Fi adapter/card, or a virtual button in software. Once completed, this allows Wi-Fi clients to join your Wi-Fi network.

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 the **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 the **Option 2** on the user interface.
 - Click **Register**.

COMPUTER NETWORK CONFIGURATION

- 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.

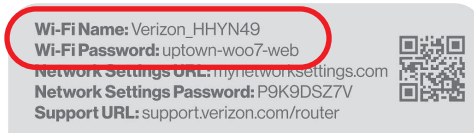
If WPS fails to establish a connection to a Wi-Fi client device within two minutes, the Router Status LED on your router flashes red for two minutes to indicate the WPS pairing process was unsuccessful. After flashing red, the light returns to solid white to indicate that Wi-Fi is on.

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.

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.

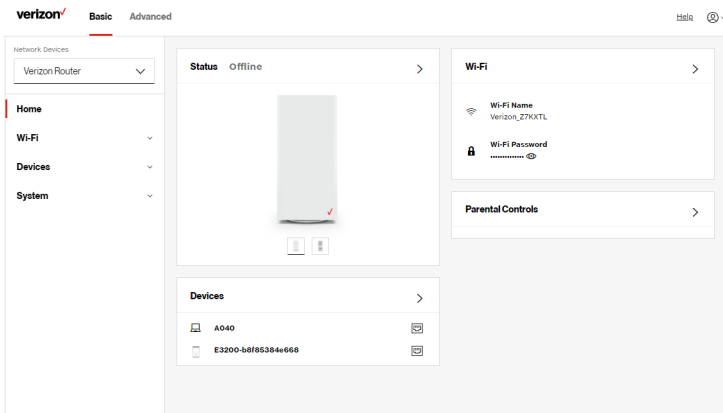
COAX

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.

MAIN SCREEN

2.2/ 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

2.2a/ 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 Extender Mini(s) (if connected).

The screenshot shows the Verizon Router web interface. At the top, there are tabs for 'Basic' (selected) and 'Advanced'. A 'Network Devices' dropdown menu shows 'Verizon Router'. The main content area is titled 'System Status' and is divided into two columns: 'Broadband IPv4' and 'Broadband IPv6'. The 'Broadband IPv4' section shows 'Status: Disconnected', 'IPv4 address is from: DHCP', and fields for 'IPv4 address', 'Subnet Mask', 'IPv4 Default Gateway', 'IPv4 DNS Address 1', and 'IPv4 DNS Address 2'. The 'Broadband IPv6' section shows 'Status: Disconnected', 'IPv6 address is from: DHCPv6-FD', and fields for 'Delegated Prefix', 'IPv6 Address', 'Link-Local Address', 'IPv6 Default Gateway', 'IPv6 DNS Address 1', and 'IPv6 DNS Address 2'. Below these sections is a 'Router' section with 'Firmware Version: 3.11.4b-eng0'. A 'Refresh' button and an 'Auto-refresh' toggle are also visible.

MAIN SCREEN

verizon **Bele** Advanced Hello

Network Devices
Verizon Router

Home
Wi-Fi
Devices
System

System Status
Open Source Software

System > System Status

System Status

Auto-refresh **Refresh**

3.11.4b-eng0

Hardware Version
EVT4

Model Name
CR1000E

Serial Number
A014900442

LAN IPv4 Address
192.168.1.1

Broadband MAC address
C0:D7:AA:54:7F:12

Broadband Physical Connection
Disconnected

Router has been active for
0 days/1 6 hours 55 minutes 53 seconds

LED Status
No internet connection

Extender

Serial Number
E3200-b8f85384e668

Model Name
E3200

verizon **Bele** Advanced Hello

Network Devices
Verizon Router

Home
Wi-Fi
Devices
System

System Status
Open Source Software

System > System Status

System Status

Auto-refresh **Refresh**

E3200

Firmware Version
3.11.15

Hardware Version
T102

Serial Number
E30120071800005

MAC Address
B8:F8:53:84:E6:68

System Up Time
0 days/1 8 hours 15 minutes 30 seconds

LED Status
Normal operation

Backend Type
Ethernet

Bit Rate
1.0 Gbps

IPv4 Address
192.168.1.100

IPv6 Address

Subnet Mask
255.255.255.0

Default Gateway
192.168.1.1

2.2b/ OPEN SOURCE SOFTWARE

The screenshot shows the Verizon Router web interface. At the top, there are tabs for 'Basic' (selected) and 'Advanced'. The left sidebar contains a 'Network Devices' dropdown menu set to 'Verizon Router', and a 'System' menu with options for 'Home', 'Wi-Fi', 'Devices', 'System', 'System Status', and 'Open Source Software'. The main content area is titled 'Open Source Software' and contains the following text: 'This product includes software made available under open source licenses. Additional information about that software, applicable licenses, and downloadable copies of source code, is available at: <https://verizon.com/opensource/>. All open source software contained in this product is distributed WITHOUT ANY WARRANTY. All such software is subject to the copyrights of the authors and to the terms of the applicable licenses included in the download. This information is provided for those who wish to edit or otherwise change such programs. You do not need a copy of any of such open source software source code to install or operate the device.' At the bottom right, it says 'Copyright © 2021 Verizon'.

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.

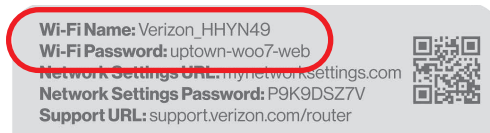
The Verizon Router contains 2.4 GHz, 5 GHz and 6 GHz Wi-Fi bands, and the operation modes and speeds are listed as follows:

- 2.4 GHz
 - Legacy operation mode: supports IEEE 802.11b/g/n with maximum theoretical rate at 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 at 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

Note: 802.11a, 802.11b, and 802.11g are legacy modes and are not recommended. Even one such device connected to the network will slow your entire Wi-Fi network.

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.

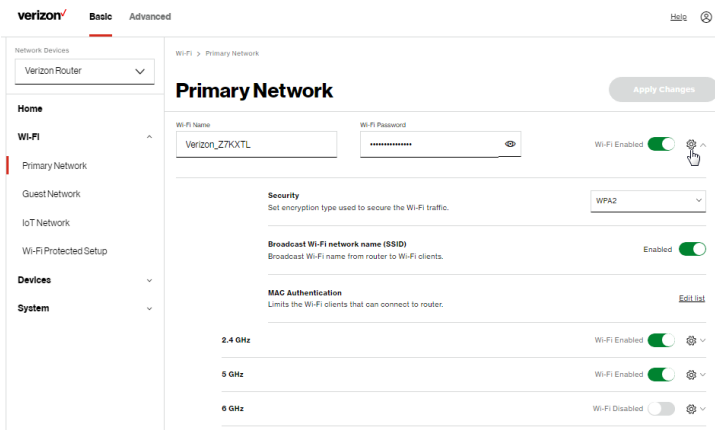
Your router integrates multiple layers of security. These include Wi-Fi Protected Access, and firewall.



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 Primary Wi-Fi name & password 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 home 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**.

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)**

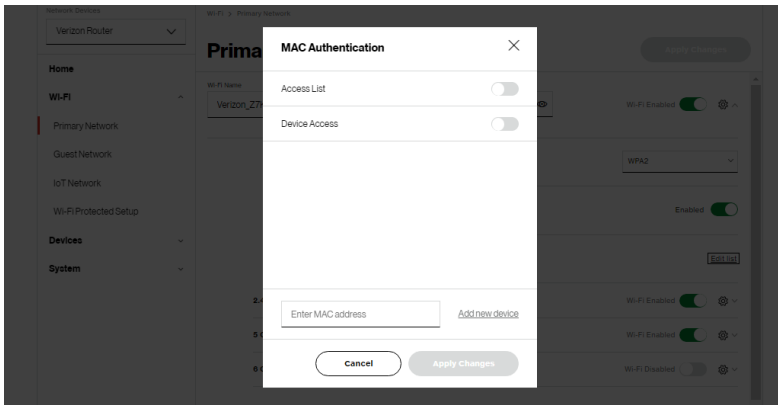
You can configure the Verizon Router's SSID broadcast capabilities to allow or disallow Wi-Fi devices from automatically using a broadcast SSID name to detect your router Wi-Fi network.

- 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.



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.

BASIC SETTINGS

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.

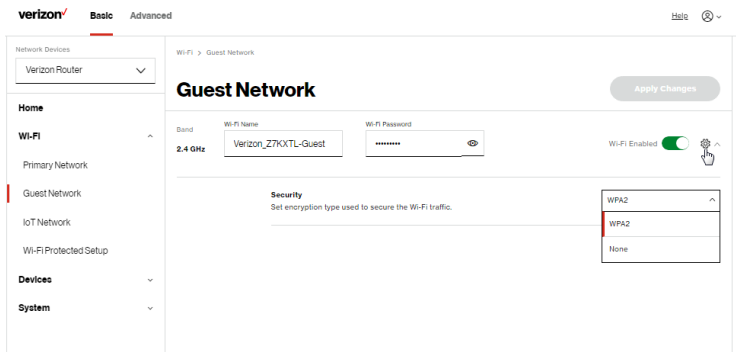
- **Device Access** – Wi-Fi devices will be able to access the Wi-Fi network if they use the correct Wi-Fi password.
3. Enter the MAC address of a device and click **Add new device**.
 4. Repeat step 2 and step 3 to add additional devices, as needed.
 5. When all changes are complete, click **Apply Changes**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

3.1b/ GUEST NETWORK

The **Guest Network** is designed to provide internet connectivity to your guests but restricts 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 Wi-Fi 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”.

The screenshot shows the Verizon Router's web interface. At the top, there are tabs for 'Basic' and 'Advanced', with 'Basic' selected. The page title is 'IoT Network'. On the left, a navigation menu includes 'Home', 'Wi-Fi', 'Primary Network', 'Guest Network', 'IoT Network' (highlighted), 'Wi-Fi Protected Setup', 'Devices', and 'System'. The main content area is titled 'IoT Network' and includes an 'Apply Changes' button. Below the title, there are fields for 'Band' (set to 2.4 GHz), 'Wi-Fi Name' (set to Verizon_Z7KXTL-IoT), and 'Wi-Fi Password' (masked with asterisks). A 'Wi-Fi Enabled' toggle switch is turned on. A 'Security' section is visible, with a dropdown menu showing 'WPA2' selected, and 'WPA2' and 'None' as options.

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.

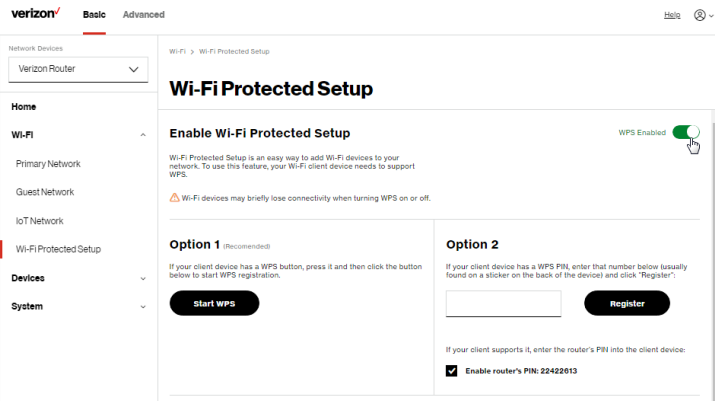
To initialize the WPS process, you can either press and hold the unified button located on the front of your Verizon Router for more than two seconds or use the UI and press the on-screen button.

BASIC SETTINGS

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)**.



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 unified button on your router for more than two seconds, then click the **start WPS** button in the **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 unified button (WPS) on your router, you have two minutes to press the WPS button on the client device before the WPS session times out.

When the unified button (WPS) 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 blue.

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.*

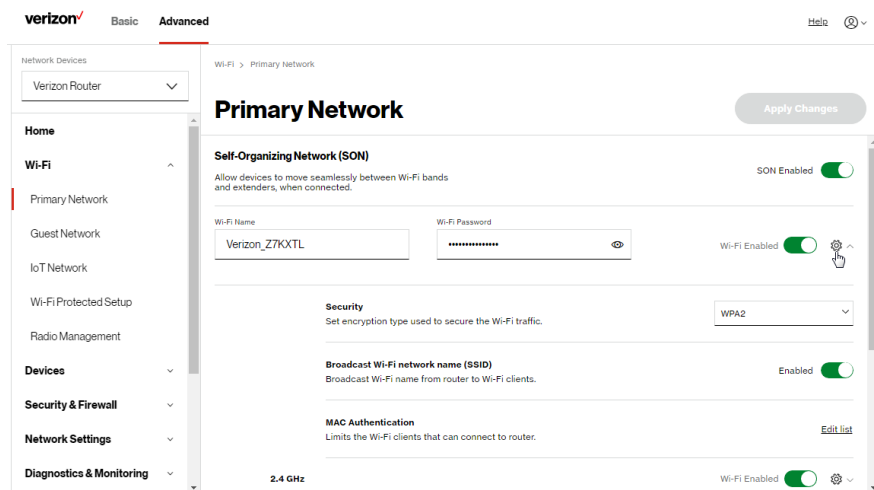
ADVANCED SETTINGS

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.



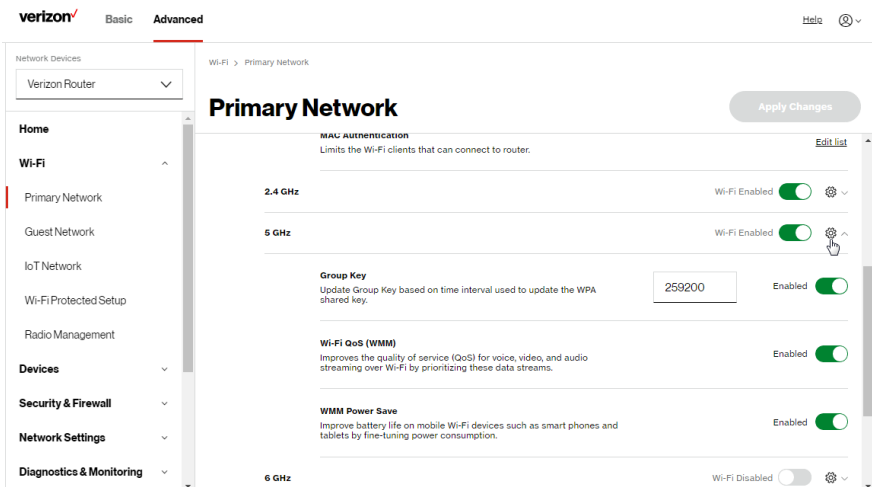
To configure SON, Wi-Fi radio, SSID and security settings:

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 Advanced Wi-Fi settings for the Primary Network. The interface includes a navigation menu on the left with options like Home, Wi-Fi, Primary Network, Guest Network, IoT Network, Wi-Fi Protected Setup, Radio Management, Devices, Security & Firewall, Network Settings, and Diagnostics & Monitoring. The main content area is titled 'Primary Network' and features an 'Apply Changes' button. Below this, there are sections for MAC Authentication, 2.4 GHz, 5 GHz, 6 GHz, Group Key, Wi-Fi QoS (WMM), and WMM Power Save. Each section has a description and a toggle switch. The 5 GHz band is currently set to 'Wi-Fi Enabled' and has a gear icon next to it, indicating it is the active configuration point. The Group Key is set to '259200' and 'Enabled'. Wi-Fi QoS (WMM) and WMM Power Save are also set to 'Enabled'.

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.

ADVANCED SETTINGS

- **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.

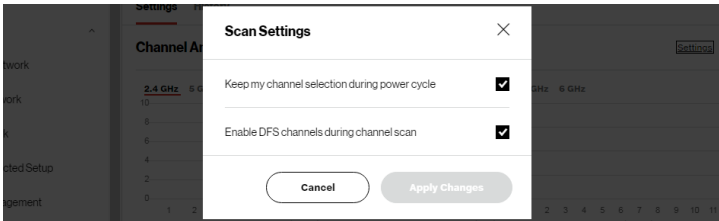
3.2b/ RADIO MANAGEMENT

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 shows the Verizon Wi-Fi Router's Advanced Settings page. The left sidebar contains navigation options: Home, Wi-Fi, Primary Network, Guest Network, IoT Network, Wi-Fi Protected Setup, Radio Management (selected), Devices, Security & Firewall, Network Settings, and Diagnostics & Monitoring. 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 line graphs: 'Score' for the 2.4 GHz band (channels 1-11) and 'Signal' for the 5 GHz and 6 GHz bands (channels 1-14). A 'Recent scan' message indicates the router is waiting for an NTP server to synchronize. The 'Channel Settings' section at the bottom shows the current configuration: Band: 2.4 GHz, Channel: Ch. 6 (Auto), Width: 20/40MHz, and a 'Radio Enabled' toggle switch that is turned 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.

ADVANCED SETTINGS

3. Click **Scan** to perform channel availability scan for the Verizon Router accommodating the best radio channel and providing the best Wi-Fi performance.
4. On the **Channel Settings** page for either 2.4 GHz, 5 GHz or 6 GHz, the following information displays and can be configured:
 - **Channel Analysis** - scans and displays channel bandwidth and signal strength of available APs. **Channel Score** displays a network congestion score of one 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 router 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 router will automatically assign itself a radio channel.
 - **Width** - displays 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.

- **Transmit Power** – adjusts the power of the Wi-Fi signal.

ADVANCED SETTINGS

To view the channel settings history:

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

The screenshot displays the Verizon Router's Advanced Settings 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. Below the navigation bar, a dropdown menu shows 'Verizon Router'. The main content area is titled 'Radio Management' and has two sub-tabs: 'Settings' and 'History', with 'History' being the active tab. Below the tabs is a table with columns for 'Band', 'Channel', 'Time', and 'Date'. The table is currently empty. On the left side of the interface, there is a sidebar menu with categories: 'Home', 'Wi-Fi' (expanded), 'Devices', 'Security & Firewall', 'Network Settings', and 'Diagnostics & Monitoring'. Under 'Wi-Fi', the following options are listed: 'Primary Network', 'Guest Network', 'IoT Network', 'Wi-Fi Protected Setup', and 'Radio Management'. At the bottom right of the page, there is a copyright notice: 'Copyright © 2021 Verizon'.

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?"

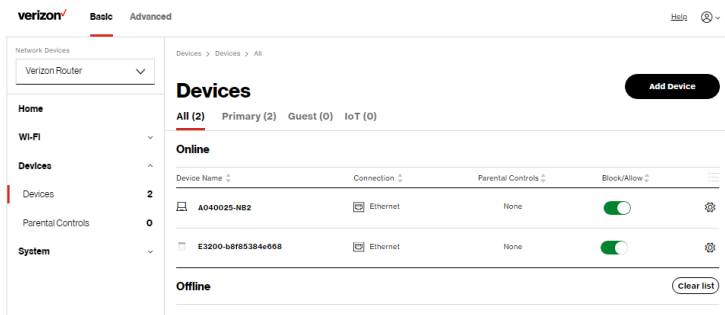
With that question in mind, your Verizon Router's Parental Controls were designed to allow control of internet access on all locally networked devices.

DEVICE SETTINGS

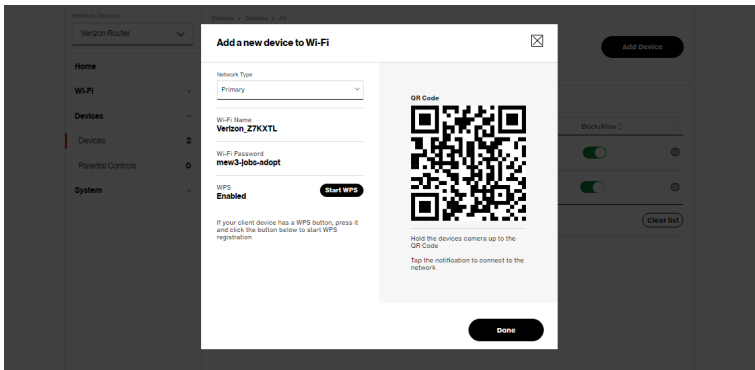
4.0/ DEVICE SETTINGS

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.



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 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 using the WPS option if your Wi-Fi device supports the WPS feature. Refer to “3.1d/ Wi-Fi Protected Setup (WPS)” on page 50.
 - vi. Click **Done** to save the changes.
4. 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.

DEVICE SETTINGS

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

The screenshot shows the Verizon Device Settings page for a device named "Extender". The page is divided into several sections:

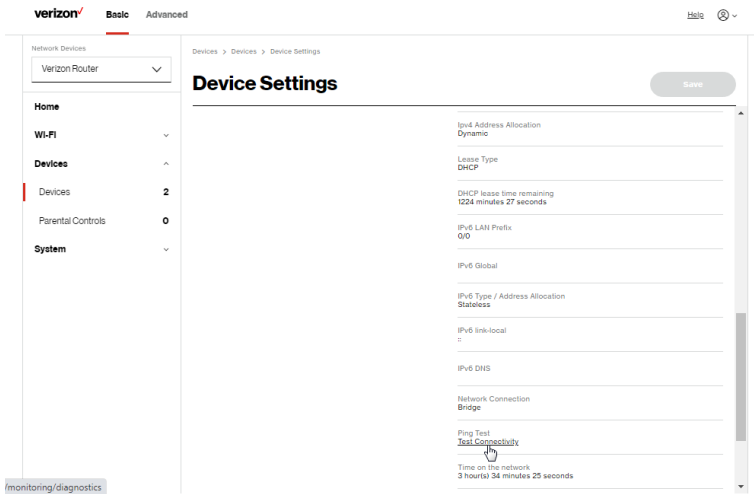
- Device Information:** Includes fields for Name (E3200-b8f85384e668), Host Name (E3200-b8f85384e668), Location (Select), and Mobility (Portable).
- Device Add-Ons:** Includes Port Forwarding (N/A), Access Control (N/A), DMZ host (N/A), and DNS Server (N/A).
- Device Connection:** This section is currently empty.

The left sidebar shows navigation options: Home, Wi-Fi, Devices (2), Parental Controls (0), and System. The top navigation bar includes the Verizon logo, "Basic" (selected), and "Advanced" tabs. A "Save" button is visible in the top right corner.

This screenshot shows the same Verizon Device Settings page, but with the "Network Info" section expanded. The "Device Add-Ons" section is now collapsed.

- Device Add-Ons:** Port Forwarding (N/A), Access Control (N/A), DMZ host (N/A), and DNS Server (N/A).
- Device Connection:** This section is empty.
- Connection Info:** Connection: Ethernet; Phy Rate / Modulation Rate: 1000 Mbps.
- Network Info:** Mac Address: b8f85384e668; Connected to: CR1000B; IPv4 Address: 192.168.1.100; Subnet Mask: 255.255.255.0; IPv4 DNS: 192.168.1.1; IPv4 Address Allocation: Dynamic.

The left sidebar and top navigation bar are identical to the previous screenshot.



– 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

DEVICE SETTINGS

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 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 section in Chapter 5 Configuring Advanced Settings.

– Device Connection

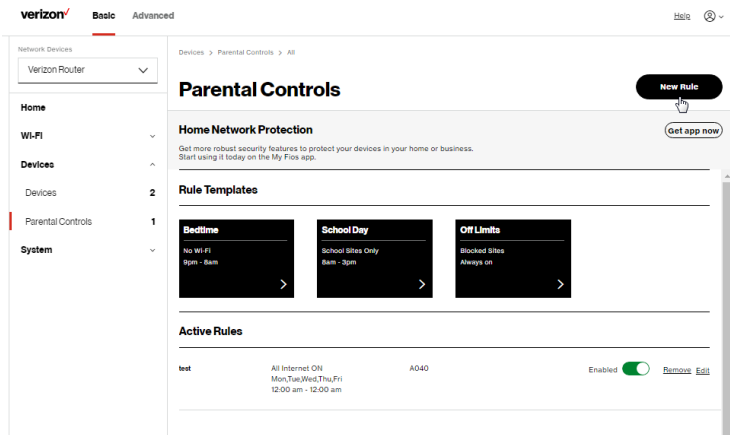
This section displays Connection information of how and how well the device is connected to the Access Point. It also displays the Network related information, including IPv6 addresses and a **Ping Test** option.

4.1/ SETTING PARENTAL CONTROLS

4.1a/ ACTIVATING PARENTAL CONTROLS

You can create a basic access policy or using the provided **Rule Templates** for any computer or device on your Verizon Router network. Parental 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.

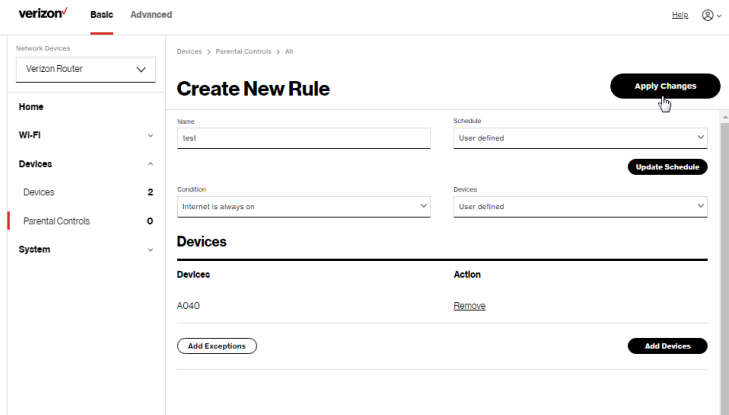


To limit device access:

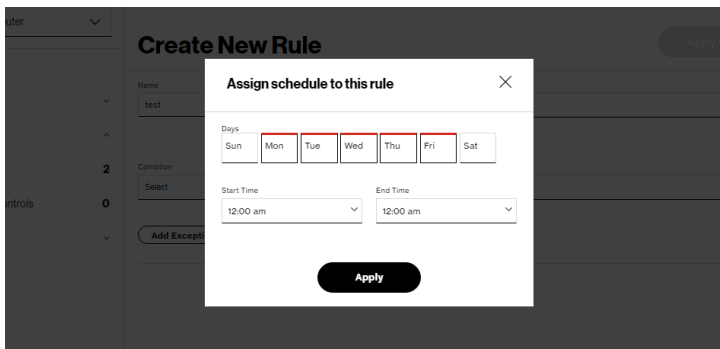
1. From the **Basic** menu, select **Devices** from the left pane and then click **Parental Controls**.

SETTING PARENTAL CONTROLS

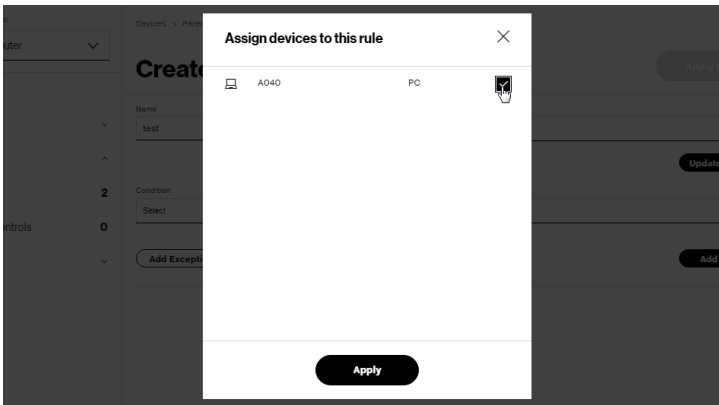
2. To use the default **Rule Templates**, select one of the pre-defined rules as shown on screen to quickly setup access policy for devices on your network.
3. To create a new access policy, click on the **New Rule** and the configuration page displays.



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



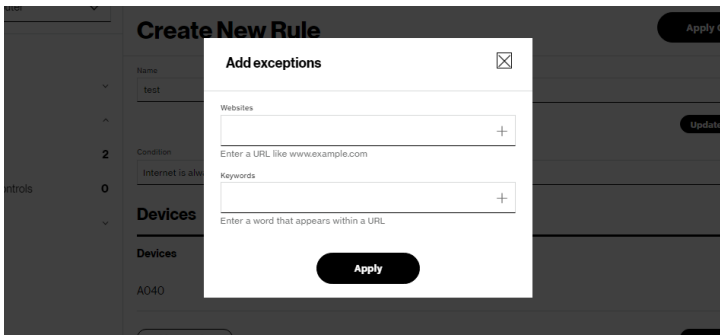
6. Select the days of the week when the rule will be active or inactive.
7. Set the time when the rule will be active or inactive, then specify the start time and end time.
8. Click **Apply** to save changes.
9. Select the **Condition** rule of **Internet is always off/Internet is always on** to block/allow 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** to the assigned device.

SETTING PARENTAL CONTROLS

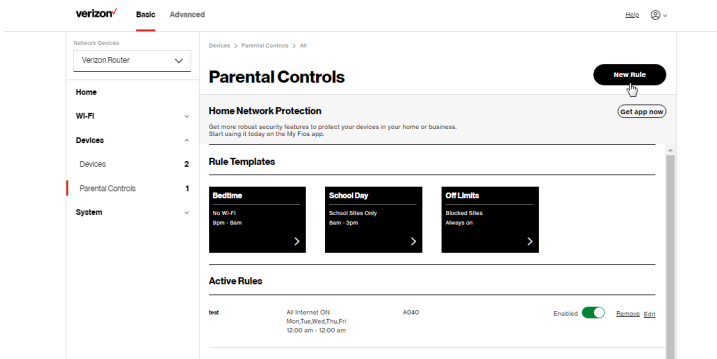
13. Click **Add Exceptions** for the following exception options:
- Enter the name of the website or keywords within a URL to block/allow the specified websites and websites with names containing the specified keyword.



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.



4.2/ UNIVERSAL PLUG & PLAY

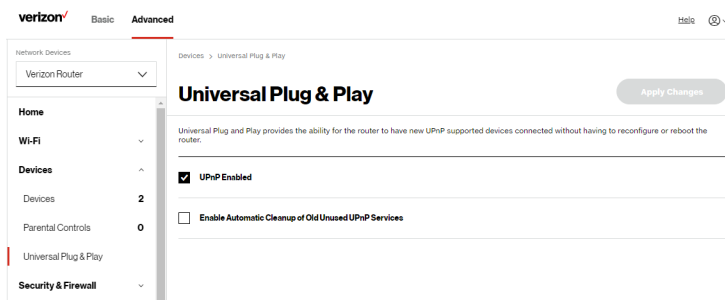
You can use Universal Plug and Play (UPnP) to support new devices without configuring or rebooting your Verizon Router.

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**.



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.

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.

This chapter covers the following advanced features:

Security & Firewall

- General Firewall - select the security level for the firewall.
- Access Control - restrict 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 - provide access tunnel to a service on a host for a particular application.
- Port Forwarding - enable access from the internet to specified services provided by computers on the local network.
- Port Forwarding Rules – displays port forwarding rules.
- Port Triggering - define 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.

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 - allow multiple static NAT IP addresses to be designated to devices on the network.

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 Router Status LED light to either dim or brighten.
- Reboot Router – restarts your Verizon Router.
- Remote Administration – enable remote configuration of your Verizon Router from any internet-accessible computer.
- System Settings - sets up various system and management parameters.

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

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:

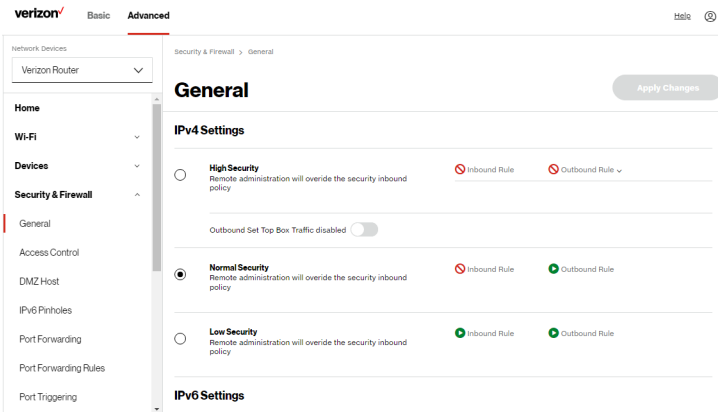
- Blocked traffic - no access allowed, except as configured in Port Forwarding and Remote Access
- Limited - permits only commonly used services, such as email and web browsing
- Unrestricted - permits full access of incoming traffic from the internet and allows all outgoing traffic, except as configured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

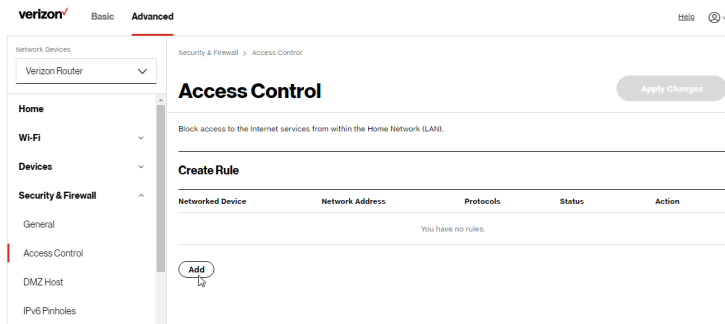
You can block individual computers on your local network from accessing specific services on the internet. For example, you could block one computer from accessing the internet, then block a second computer from transferring files using FTP as well as prohibit the computer from receiving incoming email.

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

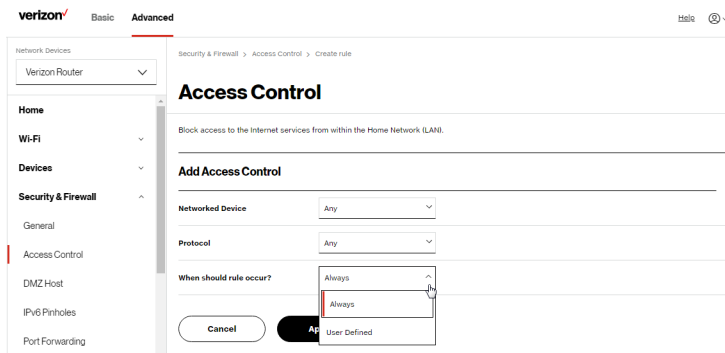
ALLOW OR RESTRICT SERVICES

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 **Allows** and **Blocked** sections displayed. The **Allowed** section only displays when the firewall is set to maximum security.



2. To block a service, click **Add**. The **Add Access Control** page displays.



SECURITY & FIREWALL

- To apply the rule to:
 - Networked Computer/Device - select **Any**.
 - Specific devices only - select **User Defined**.
- In the **Protocol** field, select the internet protocol to be allowed or blocked. If the service is not included in the list, select **User Defined**. The **Edit Service** page displays. Define the service, then click **Apply**. The service is automatically added to the **Add Access Control** section.
- Specify when the rule is active as **Always** or **User Defined**.

The screenshot shows the Verizon router's web 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 lists various settings: Network Devices (Verizon Router), Home, Wi-Fi, Devices, Security & Firewall (General, Access Control, DMZ Host, IPv6 Pinholes, Port Forwarding, Port Forwarding Rules, Port Triggering), and DMZ Host. The main content area is titled 'Access Control' and contains the following fields and options:

- Block access to the Internet services from within the Home Network (LAN).**
- Set Rule Schedule**
- Rule name:** [Empty text box]
- Rule days:** Sun, Mon, Tue, Wed, Thu, Fri, Sat (checkboxes)
- Rule time:** Start Time: 9:00 pm, End Time: 12:00 am (dropdown menus)
- Rule will be **active** during scheduled time
- Rule will be **inactive** during scheduled time
- Cancel** and **Apply** buttons at the bottom.

- Enter the rule name, specify days of the week, and set the start time and end time when the rule will be active or inactive.
- Click **Apply** to save changes.
- The **Access Control** page displays a summary of the new access control rule.

DISABLE ACCESS CONTROL

You can disable an access control and enable access to the service without removing the service from the Access Control table. This can make the service available temporarily and allow you to easily reinstate the restriction later.

- To disable an access control, clear the check box next to the service name.
- To reinstate the restriction, select the check box next to the service name.
- To remove an access restriction, select the service and click **Remove**. The service 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.

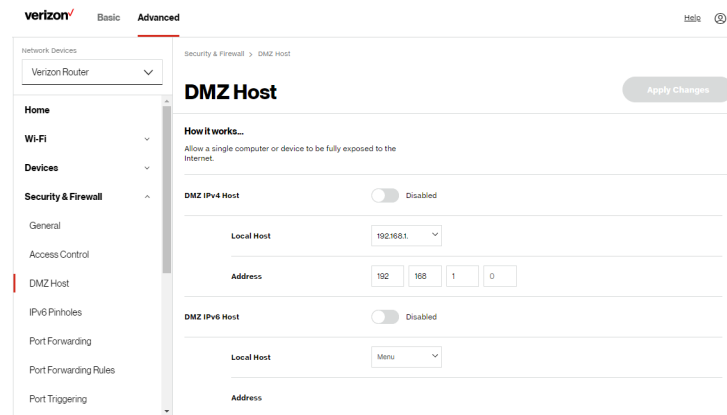
***Warning:** Enabling DMZ Host is a security risk. When a device on your network is a DMZ Host, it is directly exposed to the internet and loses much of the protection of the firewall. If it is compromised, it can also be used to attack other devices on your primary network.*

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.

SECURITY & FIREWALL

3. Enter the IP address or select the MAC address of the device you want to designate as the DMZ Host.



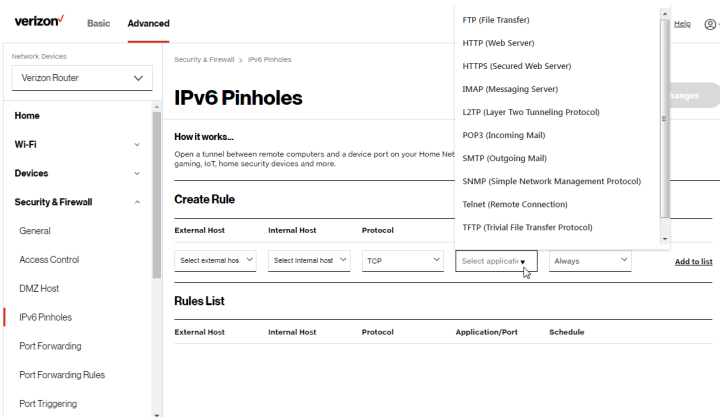
4. Click **Apply Changes** to save changes.

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**.



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.

SECURITY & FIREWALL

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 expanded to 'Security & Firewall' > 'Port Forwarding'. 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]
- Fwd to Addr: [Select]
- Fwd to Port: [0000]
- Schedule: [Select]

Below the form is an 'Add to list' button. The 'Rules List' table is as follows:

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

5.0f/ PORT FORWARDING RULES

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

To access the rules:

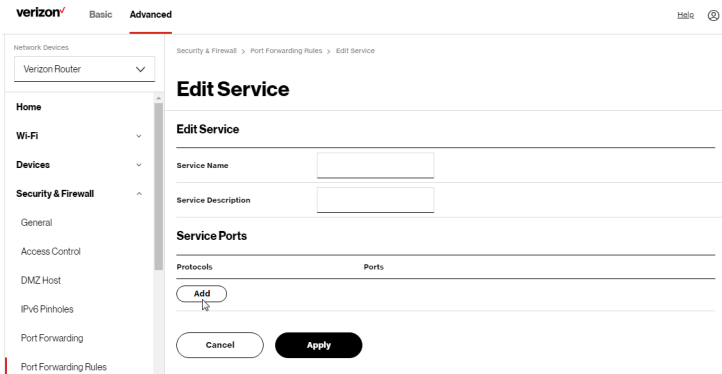
1. Select **Port Forwarding Rules** in the **Security & Firewall** section.

The screenshot shows the Verizon router's web interface. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' tabs. The left sidebar shows a menu with 'Security & Firewall' expanded. The main content area is titled 'Port Forwarding Rules' and contains a table of configured protocols. Below the table is an 'Add new' button.

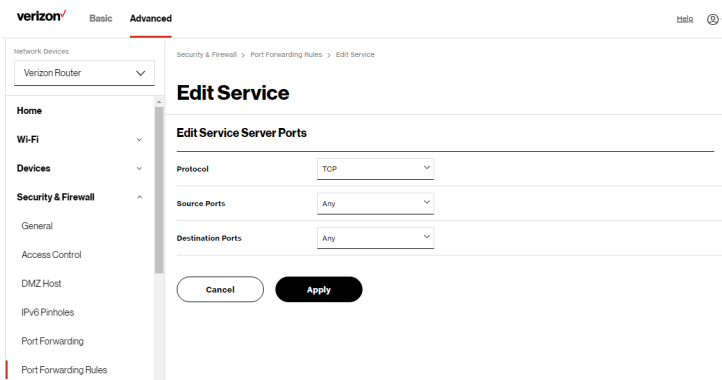
Port Forwarding Rules		
Below is a list of currently configured Protocols that are implemented in the router.		
HTTPS	TCP Any → 443	Edit Remove
IMAP	TCP Any → 143	Edit Remove
L2TP	UDP Any → 1701	Edit Remove
Ping	ICMP Echo Request	Edit Remove
POP3	TCP Any → 110	Edit Remove
SMTP	TCP Any → 25	Edit Remove
SNMP	UDP Any → 161	Edit Remove
Telnet	TCP Any → 23	Edit Remove
TFTP	UDP 1024 - 65535 → 69	Edit Remove
Traceroute	UDP 32769 - 65535 → 33434 - 33523	Edit Remove

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

SECURITY & FIREWALL



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.



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:

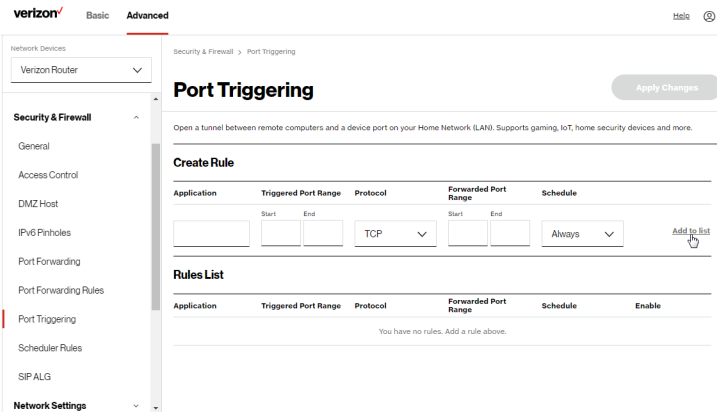
- Firewall blocks inbound traffic by default.
- Server replies to your Verizon Router IP, and the connection is not sent back to the host since it is not part of a session.

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**.

SECURITY & FIREWALL



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.

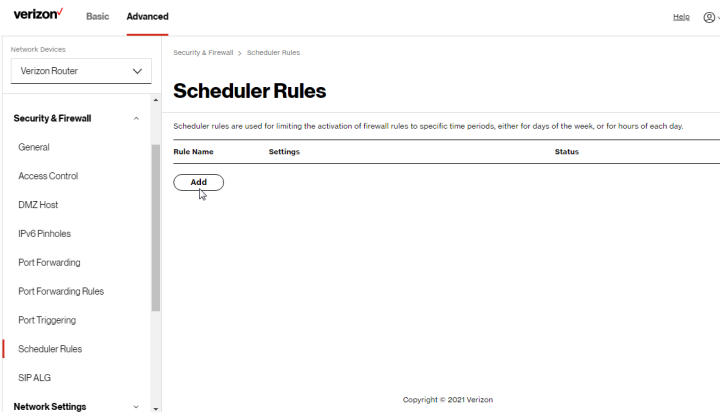
5.0h/ SCHEDULER RULES

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.

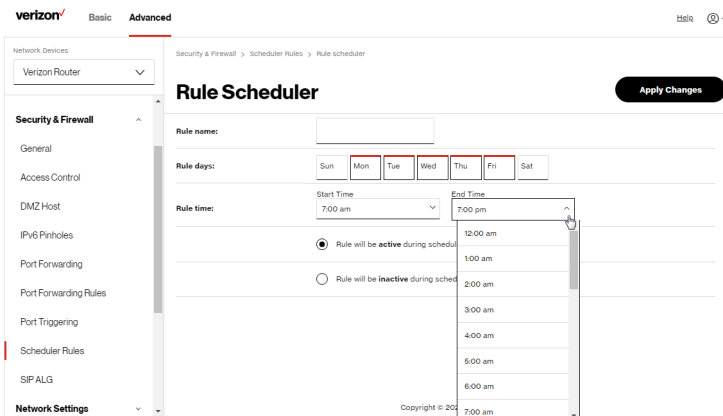
To define a rule:

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 Schedule page displays.



4. Enter the name of the rule, select the active or inactive days of the week and the start and end time range.

SECURITY & FIREWALL

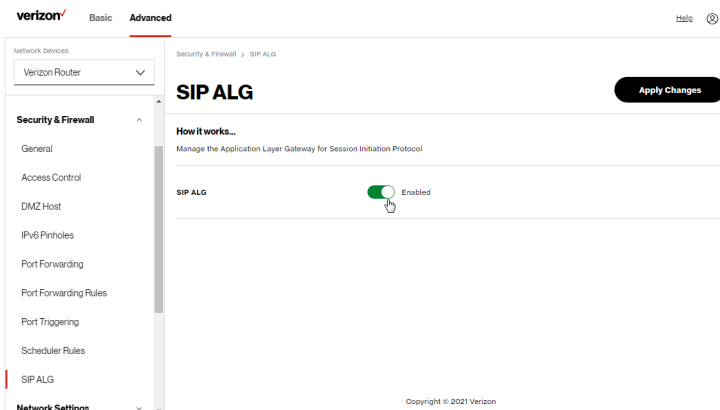
5. Specify if the rule is **active** at the scheduled time or **inactive** at the scheduled time.
6. Click **Apply changes** to save changes.

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.

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.



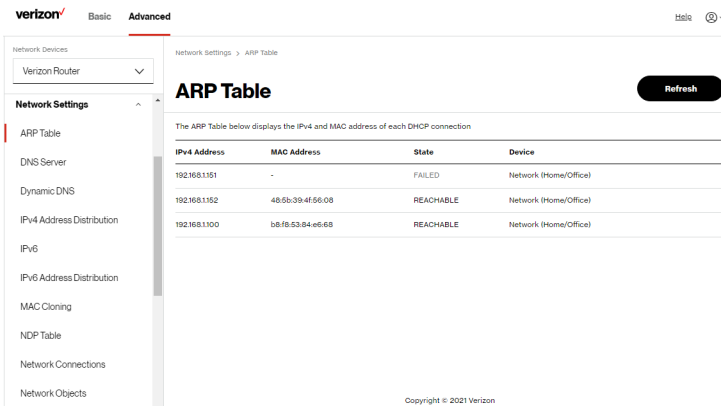
3. Click **Apply Changes** to save changes.

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 'Advanced' tab is selected. On the left, a sidebar menu lists 'Network Settings' with sub-items: 'ARP Table', 'DNS Server', 'Dynamic DNS', 'IPv4 Address Distribution', 'IPv6', 'IPv6 Address Distribution', 'MAC Cloning', 'NDP Table', 'Network Connections', and 'Network Objects'. The 'ARP Table' item is selected. The main content area is titled 'ARP Table' and includes a 'Refresh' button. Below the title, a table displays DHCP connections. The table has four columns: 'IPv4 Address', 'MAC Address', 'State', and 'Device'. The table is currently empty, showing only the header row.

IPv4 Address	MAC Address	State	Device
192.168.1.151	-	FAILED	Network (Home/Office)
192.168.1.152	48:5b:39:4f:56:08	REACHABLE	Network (Home/Office)
192.168.1.100	b8:fb:53:04:e6:68	REACHABLE	Network (Home/Office)

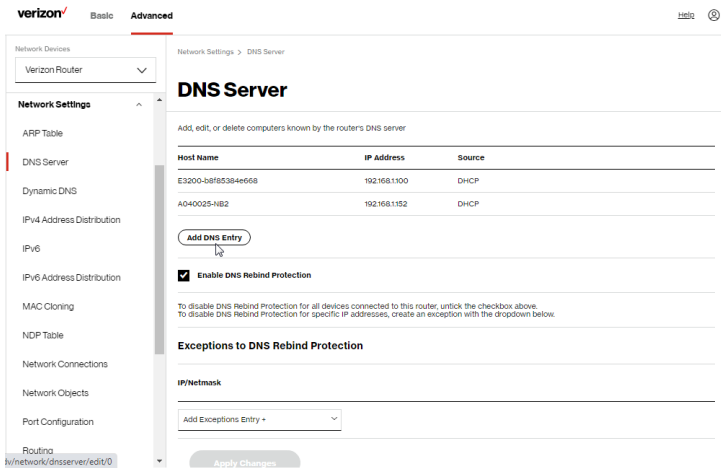
5.1b/ DNS SERVER

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**.

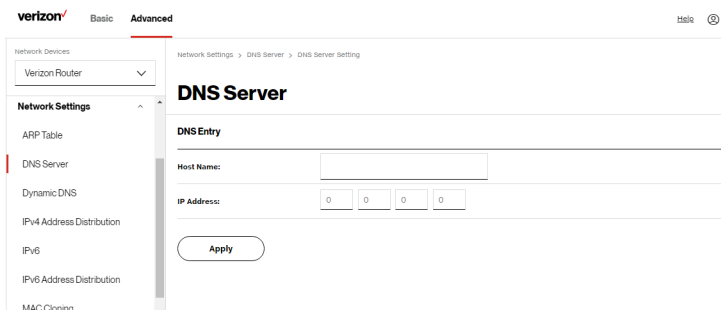
NETWORK SETTINGS



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

Warning: Disabling this protection may create a risk of cybersecurity 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.



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.

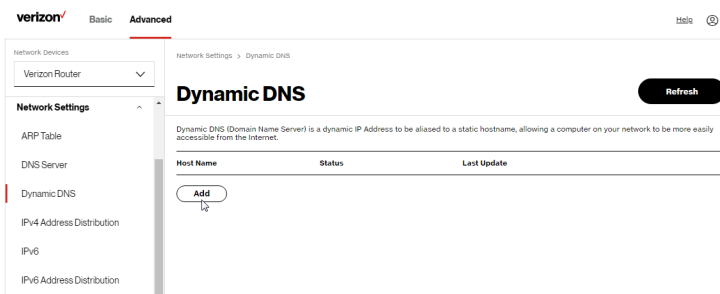
Dynamic DNS allows a static domain name to be mapped to the dynamic IP address, allowing a computer within your network to be more easily accessible from the internet.

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.

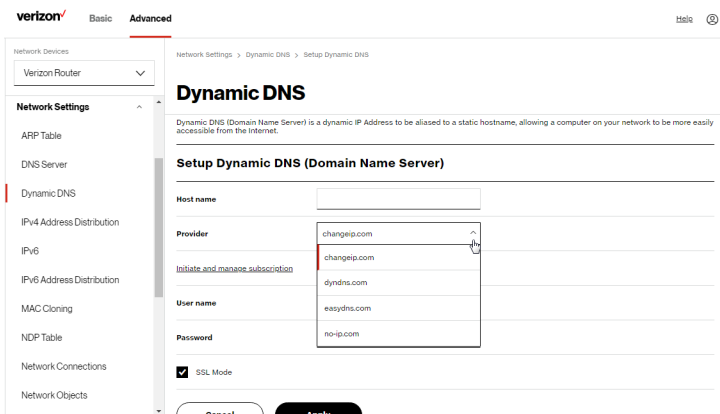
To set up dynamic DNS:

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

NETWORK SETTINGS



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



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.

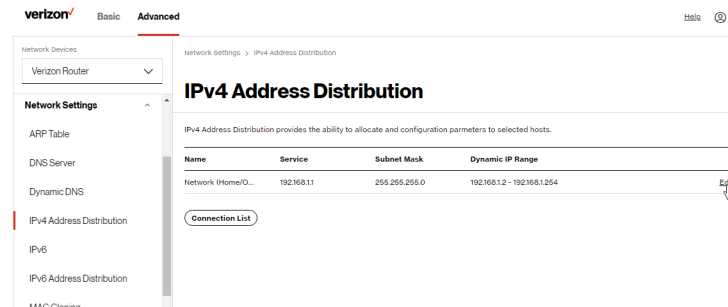
NETWORK SETTINGS

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
- 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.



The screenshot shows the Verizon Network Settings interface. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' tabs. The main content area is titled 'Network Settings > IPv4 Address Distribution'. On the left, a sidebar lists various settings, with 'IPv4 Address Distribution' selected. The main panel displays the title 'IPv4 Address Distribution' and a description: 'IPv4 Address Distribution provides the ability to allocate and configuration parameters to selected hosts.' Below this is a table with columns for Name, Service, Subnet Mask, and Dynamic IP Range. The table contains one entry: 'Network (Home/O...)' with Service '192.168.1.1', Subnet Mask '255.255.255.0', and Dynamic IP Range '192.168.1.2 - 192.168.1.254'. A 'Connection List' button is located below the table.

Name	Service	Subnet Mask	Dynamic IP Range
Network (Home/O...	192.168.1.1	255.255.255.0	192.168.1.2 - 192.168.1.254

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

Start IP Address:

End IP Address:

WINS Server:

Lease Time in Minutes:

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

Vendor Class Id	IP Address	MAC Address	GoS
MSPT 5.0	192.168.1.152	48-5B-39-4F-56-08	

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 192.162.1.2.

NETWORK SETTINGS

- **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.
- **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**.

Network Settings > IPv4 Address Distribution > DHCP Connections

DHCP Connections

IPv4 Address Distribution provides the ability to allocate and configuration parameters to selected hosts.

Host Name	IP Address	Physical Address	Lease Type	Connection Name	Status	Expired in	
E3200-b8985384e...	192.168.1.100	B8:F8:53:84:E6:68	Dynamic	Network (Home/D...	Active	1366	Search Edit
A040	192.168.1.152	48:5B:39:4F:56:08	Dynamic	Network (Home/D...	Active	1366	Search Edit

[Add static connection](#)

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

Network Settings > IPv4 Address Distribution > DHCP Connection Settings

DHCP Connection Settings

Host name:

IP Address:

MAC Address:

[Apply](#)

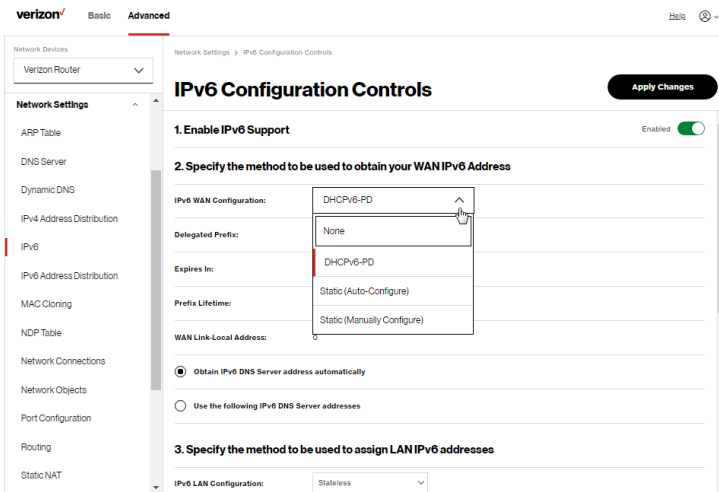
3. Enter the host name.
4. Enter the fixed IP address to be assigned.
5. Enter the MAC address of the network interface of the computer used with this DHCP static connection.
6. Click **Apply** to save changes.

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:



2. Select **Enabled** in the **Enable IPv6 Support** field. (Once IPv6 is enabled the default setting will be IPv6 WAN as DHCPv6 and IPv6 LAN as Stateless).
3. Select the appropriate IPv6 connection method from the dropdown list (DHCPv6 or Static) to specify the method to be used to obtain your WAN IPv6 Address.

4. Click **Apply changes** to have changes take effect.

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

5. To disable the IPv6 service, move the selector to **off** in the **Enable IPv6 Support** field.

6. 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. At the top, there are tabs for 'Basic' and 'Advanced'. Below the tabs, there's a 'Network Devices' dropdown menu set to 'Verizon Router'. A sidebar on the left contains navigation links: Home, Wi-Fi, Devices (selected), Parental Controls, and System. The main content area is titled 'Devices' and shows a summary: 'All (2) Primary (2) Guest (0) IoT (0)'. There's an 'Add Device' button. Below this, a table lists online devices:

Device Name	Connection	Parental Controls	Block/Allow
A040025-NB2	Ethernet	None	On
E3200-bf65384c608	Ethernet	None	On

At the bottom of the table, there's a 'Clear list' button. The 'Offline' section is currently empty.

NETWORK SETTINGS

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.

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

The screenshot shows the Verizon Router's IPv6 Configuration Controls page. The page is titled "IPv6 Configuration Controls" and has an "Apply Changes" button. It 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**: A dropdown menu is open for "IPv6 WAN Configuration", showing options: Static (Auto-Configure), None, DHCPv6-PD, Static (Auto-Configure), and Static (Manually Configure). The "Static (Auto-Configure)" option is highlighted. Other fields include Assigned Prefix, IPv6 WAN Address, Default Gateway, and WAN Link-Local Address.
- 3. Specify the method to be used to assign LAN IPv6 addresses**: A dropdown menu is set to "Stateless".

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.

Static WAN with LAN IPv6 Stateful Settings

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

verizon Basic Advanced

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 > 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
Stateful (DHCPv6)

LAN Prefix:

DHCPv6 Client Address Range:

LAN Link-Local Address:

Subnet ID: 00

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

2. Specify the **Stateful (DHCPv6)** settings to be used to assign LAN IPv6 addresses by entering the following details:
 - **IPv6 LAN Configuration** (select **Stateful** from the dropdown list)

NETWORK SETTINGS

- **LAN Prefix** (automatically populated)
 - **IPv6 LAN Address** (automatically populated)
 - **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
3. After entering all appropriate IPv6 settings, click **Apply changes** to have changes take effect.

Static WAN with LAN IPv6 Stateless Settings

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

The screenshot displays the Verizon Network Settings interface for IPv6 Configuration Controls. The page title is "IPv6 Configuration Controls" and it includes an "Apply Changes" button. The main heading is "3. Specify the method to be used to assign LAN IPv6 addresses". The "IPv6 LAN Configuration" dropdown menu is open, showing "Stateless" as the selected option. Other fields include "LAN Prefix" (Stateless), "LAN Link-Local Address" (Stateful (DHCPv6)), "Subnet ID" (00), and "Router Advertisement Lifetime" (15 minutes (0-150)). An "Option" section contains an unchecked checkbox for "Allow ICMPv6 Echo Requests for LAN devices using their Global IPv6 Address from WAN side".

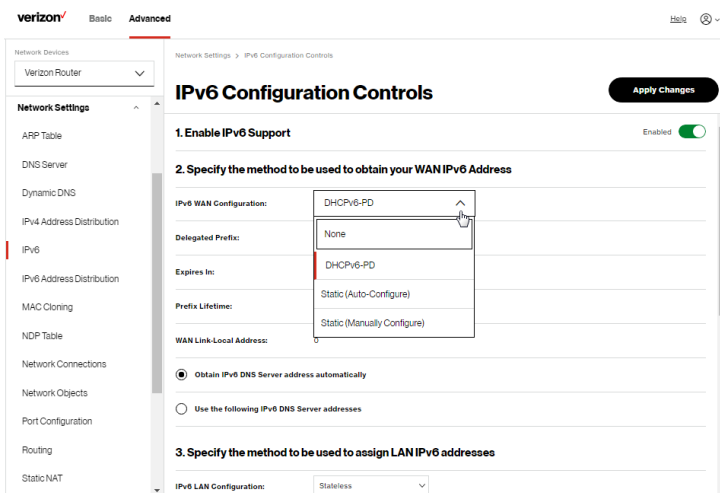
2. Specify the settings to be used to assign LAN IPv6 addresses by entering the following details:
 - **IPv6 LAN Configuration** (select **Stateless** from the dropdown list)
 - **LAN Prefix** (automatically populated)
 - **IPv6 LAN Address** (automatically populated)
 - **LAN Link Local Address** (automatically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

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 Controls** page as shown below:

NETWORK SETTINGS



2. Check to either **Obtain IPv6 DNS Server address automatically**, or **Use the following IPv6 DNS Server addresses**
3. After entering all appropriate IPv6 settings, click **Apply changes** to have changes take effect.

DHCPv6 WAN with LAN IPv6 Stateful (DHCPv6) Settings

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

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)

LAN Prefix:

DHCPv6 Client Address Range:

LAN Link-Local Address:

Subnet ID: 00

Router Advertisement Lifetime: 15 minutes (0-150)

IPv6 Address Lifetime: 00 minutes (3-150)

Option

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

- Specify the **Stateful (DHCPv6)** settings to be used to assign LAN IPv6 addresses by entering the following details:
 - IPv6 LAN Configuration** (select **Stateful** from the dropdown list)
 - LAN Prefix** (automatically populated)
 - DHCPv6 Client Address Range** (start and end)
 - LAN Link Local Address** (automatically populated)
 - Subnet ID** - set the site topology for your internal site
 - 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

NETWORK SETTINGS

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

DHCPv6 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:

The screenshot shows the Verizon Network Settings interface. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' tabs. The main content area is titled 'IPv6 Configuration Controls' and features an 'Apply Changes' button. A sidebar on the left lists various network settings, with 'IPv6' highlighted. The main panel displays the following configuration options:

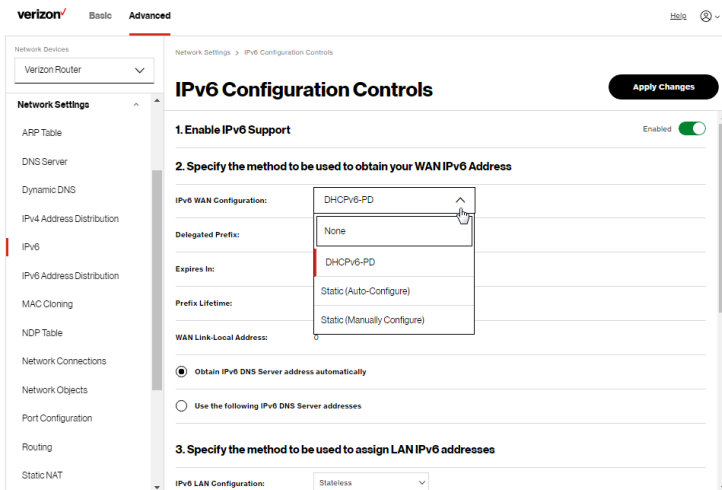
- 3. Specify the method to be used to assign LAN IPv6 addresses**
- IPv6 LAN Configuration:** A dropdown menu with 'Stateless' selected and 'Stateful (DHCPv6)' as an alternative option.
- LAN Prefix:** A field that is automatically populated.
- LAN Link Local Address:** A field that is automatically populated.
- Subnet ID:** A text input field containing '00'.
- Router Advertisement Lifetime:** A text input field containing '15' minutes (0-150).
- Option:** A checkbox labeled 'Allow ICMPv6 Echo Requests for LAN devices using their Global IPv6 Address from WAN side', which is currently unchecked.

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)
 - **LAN Link Local Address** (automatically populated)
 - **Subnet ID** - set the site topology for your internal site
 - **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.

LAN IPv6 Configuration without An IPv6 WAN Connection

1. To configure IPv6 to use either the IPv6 LAN Stateful or Stateless mode without using an IPv6 Internet WAN connection, select the **None** option on the **IPv6 Configuration Controls** page.



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

NETWORK SETTINGS

LAN IPv6 Stateful (DHCPv6) with No WAN Settings

1. To configure IPv6 LAN Stateful mode with no WAN connection, select the Stateful 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, Port Configuration, Routing, Static NAT

IPv6 Configuration Controls

Apply Changes

2. Specify the method to be used to obtain your WAN IPv6 Address

IPv6 WAN Configuration: None

WAN Link-Local Address: 0

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

IPv6 LAN Configuration: Stateful (DHCPv6)

DHCPv6 Client Address Range: Stateless

LAN Link-Local Address: Stateful (DHCPv6)

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

2. Specify the **Stateful (DHCPv6)** settings to be used to assign LAN IPv6 addresses by entering the following details:
 - **IPv6 LAN Configuration** (select **Stateful** from the dropdown list)
 - **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
3. After entering all appropriate IPv6 settings, click **Apply changes** to have changes take effect.

LAN IPv6 Stateless with No WAN Settings

1. To configure IPv6 LAN Stateless mode with no WAN connection, select the **Stateless** option on the **IPv6 Configuration Controls** page as shown below:

verizon Basic Advanced

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

1. Enable IPv6 Support Enabled
2. Specify the method to be used to obtain your WAN IPv6 Address
IPv6 WAN Configuration: None
WAN Link-Local Address: 0
3. Specify the method to be used to assign LAN IPv6 addresses
IPv6 LAN Configuration: Stateless
LAN Link-Local Address:
Router Advertisement Lifetime: 120 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)

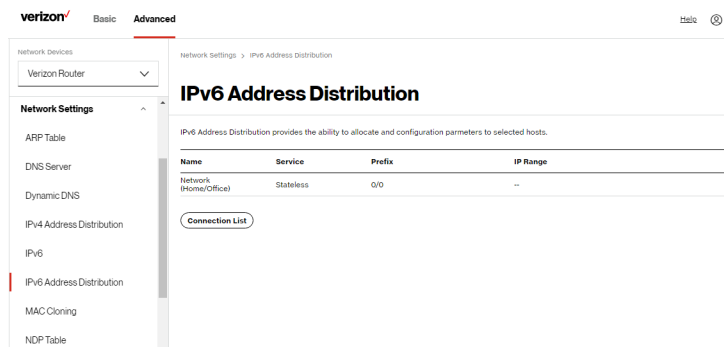
NETWORK SETTINGS

- 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.

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. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' tabs. The main content area is titled 'IPv6 Address Distribution' and includes a sub-header: 'IPv6 Address Distribution provides the ability to allocate and configuration parameters to selected hosts.' Below this is a table with the following data:

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

A 'Connection List' button is located below the table. The left sidebar shows the 'Network Settings' menu with 'IPv6 Address Distribution' selected.

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**.
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.

NETWORK SETTINGS

5. Enter the MAC address of the network interface of the computer used with this DHCP static connection.
6. Click **Apply** to save changes.

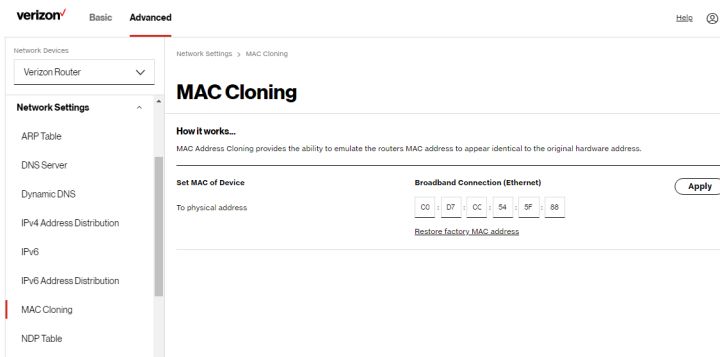
5.1g/ MAC CLONING

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.



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 'Advanced' tab is selected. On the left, the 'Network Settings' menu is visible, with 'NDP Table' highlighted. The main content area displays the 'NDP Table' with a 'Refresh' button. Below the title, a note states: 'The NDP Table below displays the IPv6 and MAC address of each DHCP connection'. A table with the following data is shown:

IPv6 Address	MAC Address	State	Rtr	Device
fd00:11f5:2065:0:09:91a7	48:5b:39:4f:56:08	REACHABLE	No	Network (Home/Office)

Copyright © 2021 Verizon

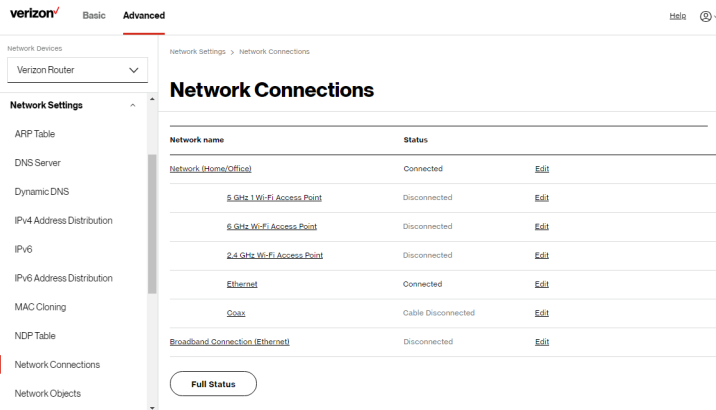
NETWORK SETTINGS

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**.



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:

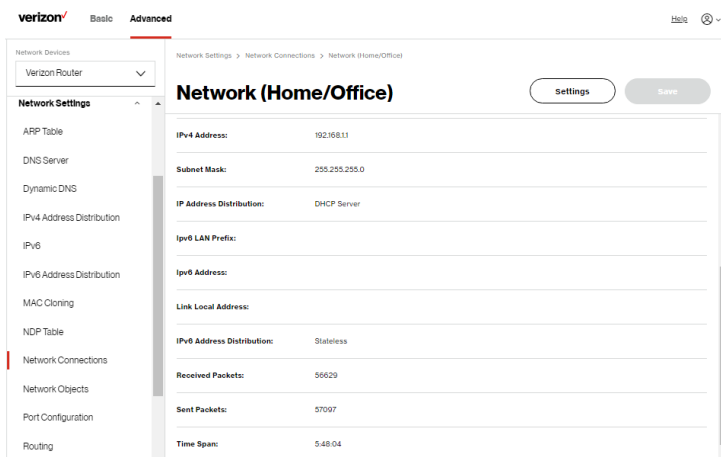
1. On the **Network Connections** page, click the **Network (Home/Office)** connection link. The **Network (Home/ Office) Properties** page displays.

The screenshot shows the Verizon Router's web interface. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' tabs. The breadcrumb trail is 'Network Settings > Network Connections > Network (Home/Office)'. The main content area is titled 'Network (Home/Office)' and features a 'Settings' button and a 'Save' button. Below the title, there is 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:	5 GHz Wi-Fi Access Point 6 GHz Wi-Fi Access Point 2.4 GHz Wi-Fi Access Point Ethernet Coax
Connection Type:	Bridge
MAC Address:	C0:D7:AA:54:7F:13
IPv4 Address:	192.168.1.1
Subnet Mask:	255.255.255.0

The left sidebar contains a 'Network Settings' menu with options: 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, and Static NAT. The bottom of the page shows the URL 'work/networkconnections/networksettings'.

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** 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

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: C0:D7:A4:54:7F:13

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	Edit
<input checked="" type="checkbox"/> 5 GHz 1 Wi-Fi Access Point	Disable	Disconnected	Edit

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

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

Network (Home/Office)

Save Changes

Bridge

Name	VLAN	Status	
<input type="checkbox"/> Broadband Connection (Ethernet)	Disable	Disconnected	Edit
<input checked="" type="checkbox"/> 5 GHz 1 Wi-Fi Access Point	Disable	Disconnected	Edit
<input checked="" type="checkbox"/> 6 GHz Wi-Fi Access Point	Disable	Disconnected	Edit
<input checked="" type="checkbox"/> 2.4 GHz Wi-Fi Access Point	Disable	Disconnected	Edit
<input checked="" type="checkbox"/> Ethernet	Disable	Connected	Edit
<input checked="" type="checkbox"/> Coax	Disable	Disabled	Edit

IP Address Distribution: DHCP Server

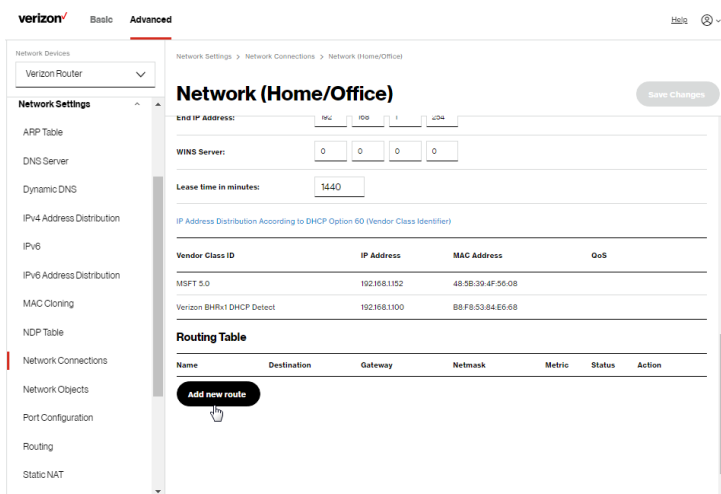
Start IP Address: 192 168 1 2

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 Verizon 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.

NETWORK SETTINGS

- **IP Address Distribution**

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

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.

NETWORK SETTINGS

To configure routing:

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

The screenshot shows the Verizon Router's web interface. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' tabs. The breadcrumb trail reads: Network Settings > Network Connections > Network (Home/Office) > Route Settings. The left sidebar shows 'Network Settings' expanded, with 'Network Connections' selected. The main content area is titled 'Route Settings' and contains the following fields:

- Routing Entry:** A dropdown menu with 'IPv4' selected.
- Name:** A text input field containing 'IPv4'.
- Destination:** Four digit input boxes.
- Netmask:** Four digit input boxes.
- Gateway:** Four digit input boxes.
- Metric:** One digit input box.

An 'Apply' button is located at the bottom of the form.

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

WI-FI ACCESS POINT CONNECTION

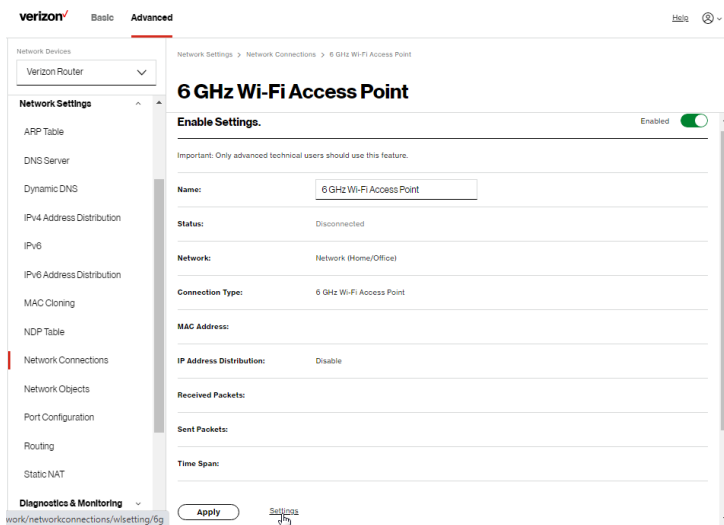
A Wi-Fi Access Point network connection allows Wi-Fi devices to connect to the local area network (LAN) using the 2.4 GHz or 5 GHz Wi-Fi network.

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.



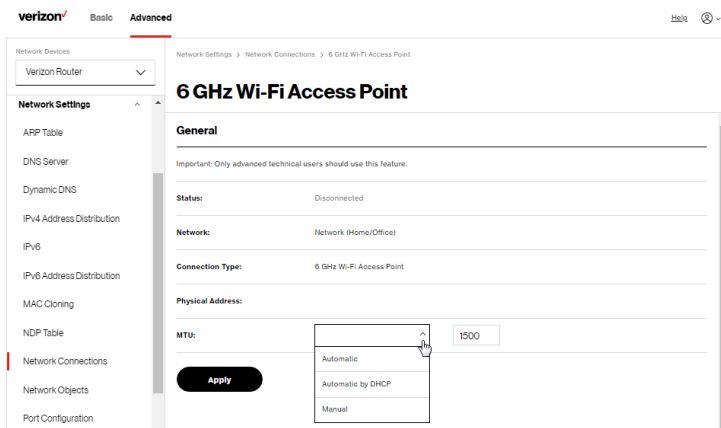
3. From the connection's **Enable Settings** page, to enable or disable the connection, move the selector to **on** or **off**.
4. To rename the connection, enter a name in the **Name** field.
5. Click **Apply** to save the changes.
6. Reboot your Verizon Router.

NETWORK SETTINGS

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.



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.

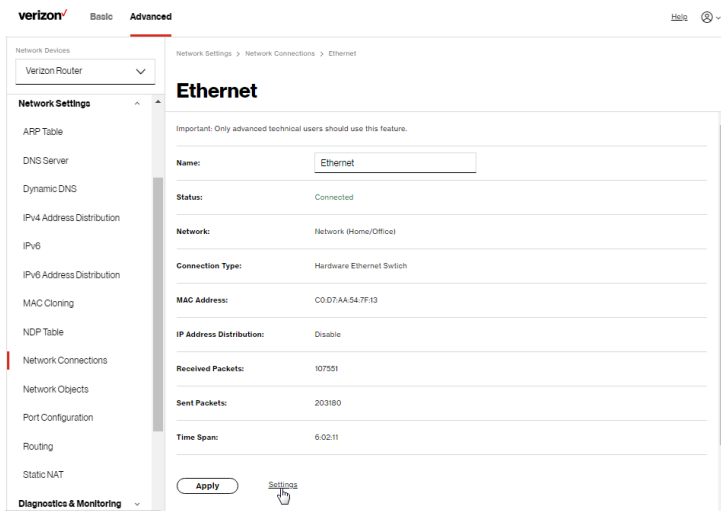
ETHERNET CONNECTION

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.

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.

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 > Ethernet

Ethernet

General

Important: Only advanced technical users should use this feature.

Status: Connected

Network: Network (Home/Office)

Connection Type: Hardware Ethernet Switch

Physical Address: C0:D7:AA:54:7F:13

MTU: Automatic 1500

HW Switch Ports:

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

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).

NETWORK SETTINGS

- **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.

COAX CONNECTION

You can view the properties of your LAN connection using a coaxial cable.

To view the connection settings:

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

The screenshot shows the Verizon Network Settings interface. At the top, there are tabs for 'Basic' and 'Advanced', with 'Advanced' selected. The page title is 'Coax'. Below the title, 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 main content area displays various settings for the Coax connection:

Name:	COBX
Status:	Cable Disconnected
Network:	Network (Home/Office)
Connection Type:	Hardware MoCA
MAC Address:	CO:D7:AA:54:7F:13
IP Address Distribution:	Disable
Received Packets:	0
Sent Packets:	0
Time Span:	0:00:00

At the bottom of the page, there is an 'Apply' button and a 'Settings' link with a mouse cursor pointing to it. The left sidebar contains a list of network settings categories, including 'Network Settings', 'Network Connections', and 'Diagnostics & Monitoring'.

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 router configuration interface. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' tabs. The left sidebar lists various settings categories: 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 'Coax' and contains the following configuration options:

- General**
 - Status: Cable Disconnected
 - Network: Network (Home/Office)
 - Connection Type: Hardware MoCA
 - Physical Address: C0D7AA547F13
 - MTU: Automatic (dropdown) and 1500 (input field)
- Coax Link**
 - Privacy: Enable
 - Password: 9999999988888888 (input field)
 - Coax Connection Stats: [Go to L4H Coax Stats](#)

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

NETWORK SETTINGS

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 **HardwareMoCA**.
- **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.

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.
- **Password** - to set the privacy password, enter the Coax Link password.
- 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:

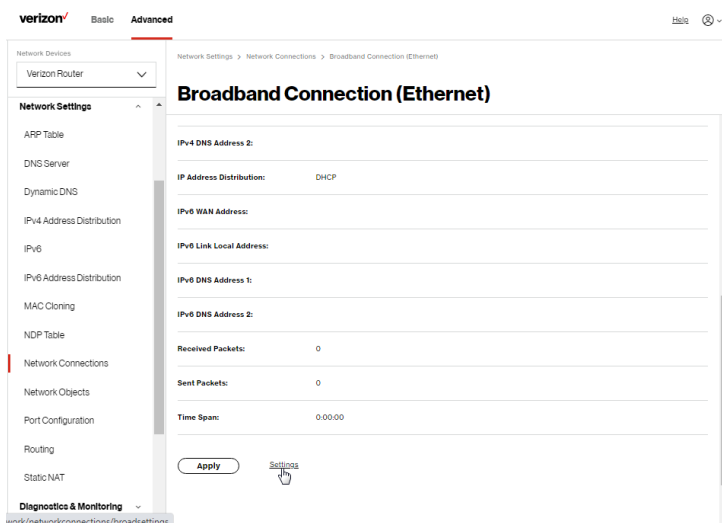
1. In the **Network Connections** page, click the **Broadband Connection (Ethernet)**.

The screenshot shows the Verizon router's web interface. At the top, there are tabs for 'Basic' and 'Advanced', with 'Advanced' selected. The breadcrumb trail reads 'Network Settings > Network Connections > Broadband Connection (Ethernet)'. The main heading is 'Broadband Connection (Ethernet)'. Below the heading 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 organized into several rows, each with a label and a value:

- 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:**
- IPv4 DNS Address 2:**

On the left side, there is a navigation menu with categories: 'Network Devices' (Verizon Router), 'Network Settings' (with a sub-menu including 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 Static NAT), and 'Diagnostics & Monitoring'.

NETWORK SETTINGS



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 THE ETHERNET 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
- Routing
- Static NAT
- Diagnostics & Monitoring

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: 0 0 0 0

DHCP Lease: Use the following IPv4 Address

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.

Apply

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.

WAN IP Address

- In the **Internet Protocol** section of **WAN IP Address**, specify one of the following:
 - **No IPv4 Address:** the connection has no IP address. This is useful if the connection operates under a bridge.

-
- **Obtain an IPv4 Address Automatically:** the network connection is required by Verizon to obtain an IP address automatically. The server assigning the IP address also assigns a subnet mask address, which can be overridden by entering another subnet mask address.
 - **Use the Following IP Address:** the network connection uses a permanent or static **IP address** and **Subnet Mask** address, provided by Verizon or experienced network technician.
 - To override the subnet mask, select the **Override Subnet Mask** check box, then enter the new subnet mask.
 - Click **Release/Renew** in the **DHCP Lease** field to drop/get an IP address from the DHCP server.
 - In the **Expires In** field, enter the amount of time a network device is allowed to connect to the Verizon Router with its currently issued dynamic IP address.
 - **IPv4 DNS** - selects **Obtain IPv4 DNS Address Dynamically** for using Dynamic DNS. Each time the public IP address changes, the DNS database is automatically updated with the new IPv4 address. In this way, even though the IP address changes often, the domain name remains constant and accessible.
 - **Internet Connection Firewall** - allows you to enable or disable the firewall configuration on this interface.
3. Click **Apply** to save changes.

NETWORK SETTINGS

5.1j/ NETWORK OBJECTS

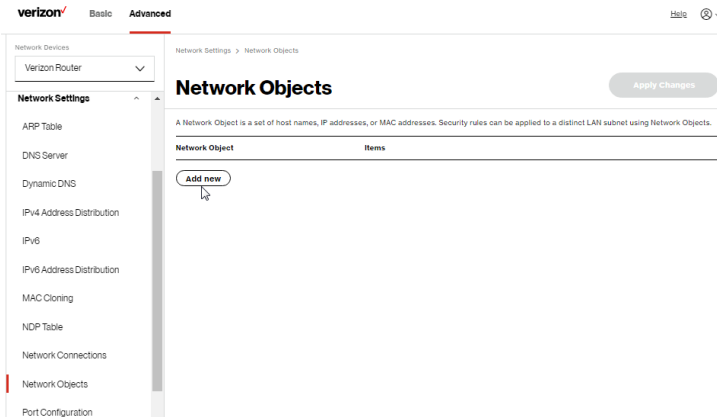
Network objects define a group, such as a group of computers, on your Verizon Router network by MAC address, IP address, and/or host name. The defined group becomes a network object. You can apply settings, such as configuring system rules, to all devices defined in the network object.

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.

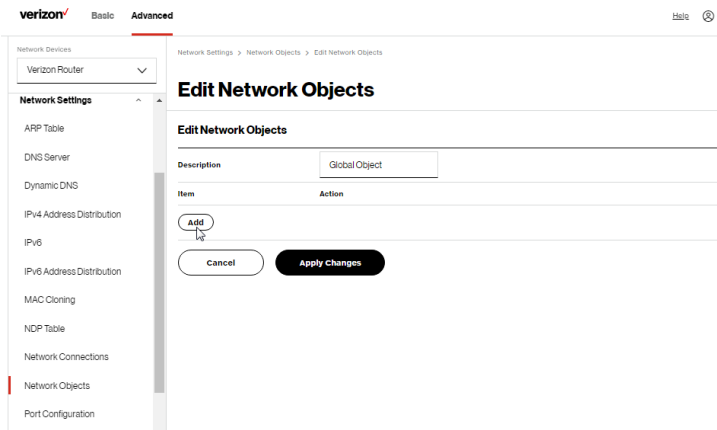
You can use network objects to apply security rules based on host names, instead of IP addresses. This is useful since IP addresses change from time to time. In addition, you can define network objects according to MAC address to make the rule application more persistent against network configuration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

To define a network object:

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

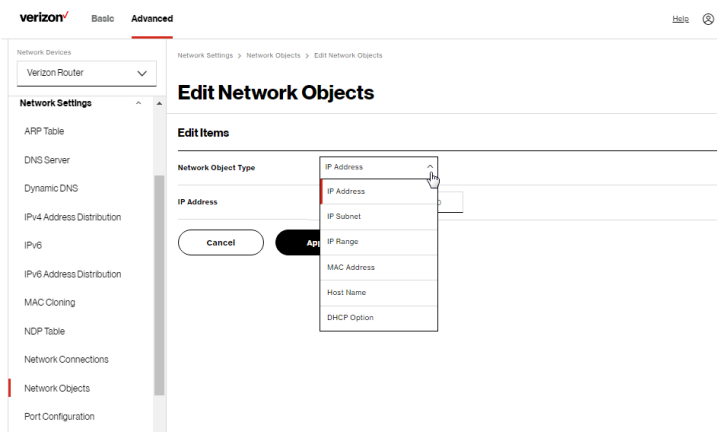


3. To define a network object, click **Add new**. The **Edit Network Objects** page displays.



4. In the **Description** field, enter a name for the network object.
5. Click **Add**. The **Edit Item** page displays.

NETWORK SETTINGS



6. Select and configure the type of network object as IP address, IP subnet, IP range, MAC address, host name, or DHCP option, and click **Apply** to save changes.
7. Repeat the above steps to create additional network objects.
8. 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.

Network Settings > Port Configuration

Port Configuration

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

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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

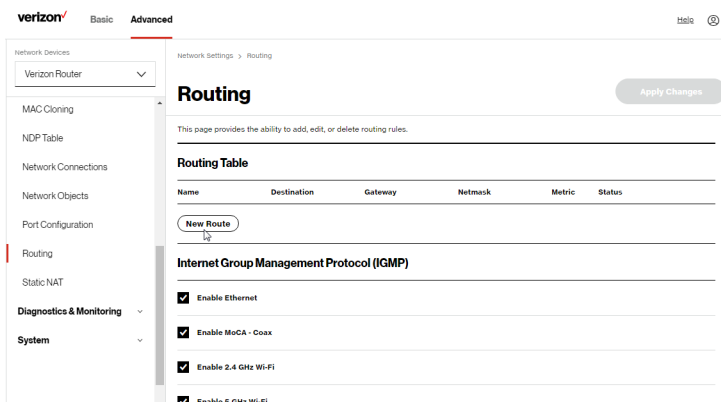
You can view the routing and IP address distribution rules as well as add, edit, or delete the rules.

Routing Table

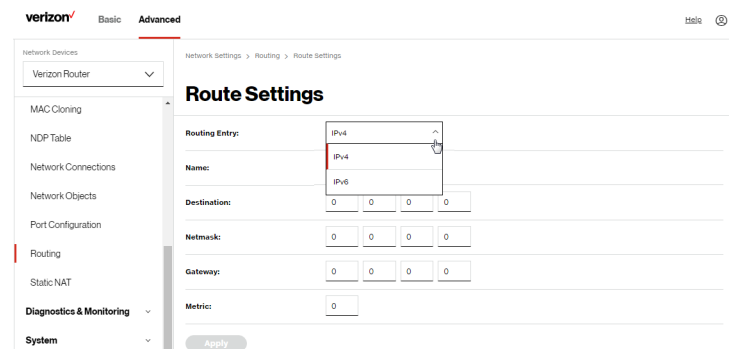
To view the rules:

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

NETWORK SETTINGS



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



3. 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.

NETWORK SETTINGS

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.

To configure static NAT:

1. Select **Static NAT** in the **Network Settings** section.

The screenshot shows the Verizon Network Settings interface for Static NAT configuration. The interface is divided into a left sidebar and a main content area. The sidebar includes sections for Network Devices (Verizon Router), MAC Cloning, NDP Table, Network Connections, Network Objects, Port Configuration, Routing, Static NAT (highlighted), Diagnostics & Monitoring, and System. The main content area is titled 'Static NAT' and includes an 'Apply Changes' button. Below the title, there is a 'Create Rule' section with a 'Device' dropdown menu (showing 'User defined' and '192.168.1.152 - A040') and a 'Public IP Address' field (showing '0.0.0.0'). There is also an 'Add another entry' checkbox and an 'Add' button. At the bottom, there is a 'Rules List' section with a table header: ID, Network Device, Public IP Address, and Port Forward.

2. To create a static NAT, select a source address in the **Device** field.
3. Enter the **Public IP Address**.
4. If using port forwarding, select the **Enabled Port forward** check box.
5. Click **Add**. The rule displays in the **Rules List** section.
6. Click **Apply Changes** to save changes.

7. Click **Add another entry** and 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 Kbps.

To view the bandwidth:

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

The screenshot shows the Verizon router's interface for Bandwidth Monitoring. The page title is "Bandwidth Monitoring" and it includes an "Auto-refresh" toggle (currently on) and a "Refresh" button. The table below shows bandwidth usage for the last 8 minutes and the last 8 hours. All values are currently 0 kbps/s.

	Last min	1min	2min	3min	4min	5min	6min	7min	8min
Tx Rate	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s
Rx Rate	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s
	Last Hr	1hr	2hr	3hr	4hr	5hr	6hr	7hr	8hr
Tx Rate	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s
Rx Rate	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s	0 kbps/s

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

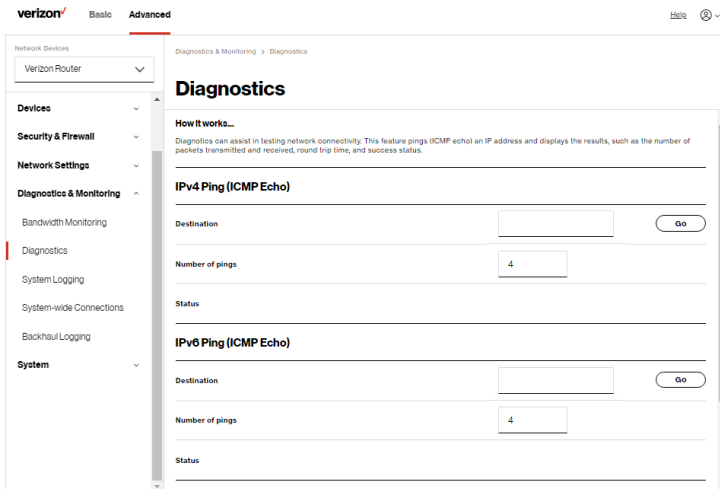
DIAGNOSTICS & MONITORING

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 web interface. At the top, there are tabs for 'Basic' and 'Advanced', with 'Advanced' selected. The breadcrumb trail indicates 'Diagnostics & Monitoring > Diagnostics'. On the left, a navigation menu lists various settings categories: Network Devices (Verizon Router), Devices, Security & Firewall, Network Settings, Diagnostics & Monitoring (highlighted), Bandwidth Monitoring, Diagnostics, System Logging, System-wide Connections, Backhaul Logging, and System. The main content area is titled 'Diagnostics' and includes a 'How it works...' section explaining that diagnostics assist in testing network connectivity by pinging ICMP echo to an IP address. Below this, there are two sections for pinging: 'IPv4 Ping (ICMP Echo)' and 'IPv6 Ping (ICMP Echo)'. Each section has a 'Destination' input field, a 'Go' button, and a 'Number of pings' input field set to '4'. A 'Status' field is present below each section but is currently empty.

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 DHCP and LAN DHCP.

To view the system log:

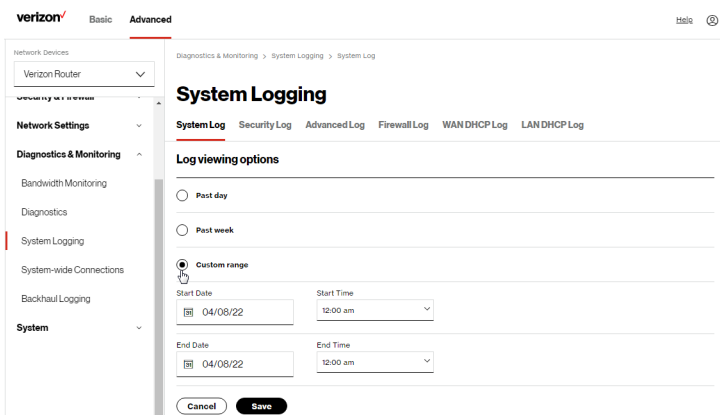
1. Select **System Logging** in the **Diagnostics & Monitoring** section.

The screenshot shows the Verizon Router's System Logging interface. The left sidebar has a navigation menu with categories like Network Devices, Network Settings, Diagnostics & Monitoring, System-wide Connections, Backhaul Logging, and System. Under Diagnostics & Monitoring, 'System Logging' is selected. The main content area is titled 'System Logging' and has tabs for 'System Log', 'Security Log', 'Advanced Log', 'Firewall Log', 'WAN DHCP Log', and 'LAN DHCP Log'. The 'System Log' tab is active, showing a table of log events. The table has columns for Time, Event type, Log Level, and Details. There are buttons for 'Options', 'Refresh', 'Save', and 'Clear' at the top right of the table area.

Time	Event type	Log Level	Details
2022 Apr 8 03:51:26	CR1000B	notice	[SYS] LED dim on/off pattern:)
2022 Apr 8 03:51:00	CR1000B	notice	[SYS] LED dim on/off pattern:)
2022 Apr 8 03:35:00	CR1000B	notice	[SYS] LED dim off
2022 Apr 8 03:22:54	CR1000B	notice	[SYS] LED dim on/off pattern:)
2022 Apr 8 03:21:01	CR1000B	notice	[SYS] LED dim on/off pattern:)
2022 Apr 8 03:15:01	CR1000B	notice	[SYS] LED dim off
2022 Apr 8 03:02:24	CR1000B	notice	[SYS] LED dim on/off pattern:)
2022 Apr 8 03:01:01	CR1000B	notice	[SYS] LED dim on/off pattern:)
2022 Apr 8 02:55:01	CR1000B	notice	[SYS] LED dim off

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 DHCP 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

Network Settings

Diagnostics & Monitoring

Bandwidth Monitoring

Diagnostics

System Logging

System-wide Connections

Backhaul Logging

System

Diagnostics & Monitoring > System-wide Traffic Connections

System-wide Connections

Auto-refresh

Name	Network (Home/Office)	Broadband Connection (Ethernet)	5 GHz 1 Wi-Fi Access Point	5 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	5 GHz 1 Wi-Fi Access Point 5 GHz Wi-Fi Access Point 2.4 GHz Wi-Fi Access Point Ethernet Cable	Broadband Connection (Ethernet)	5 GHz Wi-Fi Access Point	6 GHz Wi-Fi Access Point	2.4 GHz Wi-Fi Access Point
MAC Address	00:D7:AA:54:7F:13	--	--	--	--
IPv4 Address	192.168.1.1	--	--	--	--
Subnet Mask	255.255.255.0	--	--	--	--

verizon Basic **Advanced** Help ⓘ

Network Devices
Verizon Router

Network Settings

Diagnostics & Monitoring

Bandwidth Monitoring

Diagnostics

System Logging

System-wide Connections

Backhaul Logging

System

Diagnostics & Monitoring > System-wide Traffic Connections

System-wide Connections

Auto-refresh

IPv4 Default Gateway	192.168.1.1	--	--	--	--
IPv4 DNS Address 1	--	--	--	--	--
IPv4 DNS Address 2	--	--	--	--	--
IPv4 Address Disable	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 network management interface. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' tabs. The left sidebar contains a navigation menu with categories: Network Devices (Verizon Router), Network Settings, Diagnostics & Monitoring (selected), Bandwidth Monitoring, Diagnostics, System Logging, System-wide Connections, Backhaul Logging, and System. The main content area is titled 'System-wide Traffic Connections' and features an 'Auto-refresh' toggle switch that is turned on. Below the title is a table with the following data:

Address 2	
IPv6 Address Discontin.	Stateless Disable Disable Disable Disable
Rec'd Packets	69216 0
Sent Packets	61016 0
Rec'd Bytes	9427722 0
Sent Bytes	45605327 0
Rec'd Errors	0 0
Rec'd Drops	28 0
Time Span	3:50:24 0:00:00

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, coax and Wi-Fi) status of your network.

To view the backhaul modes log:

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

The screenshot shows the Verizon router's web interface. The top navigation bar includes the Verizon logo, 'Basic', and 'Advanced' tabs. The left sidebar contains a menu with categories: Network Devices (Verizon Router), Network Settings, Diagnostics & Monitoring (expanded), and System. Under Diagnostics & Monitoring, 'Backhaul Logging' is selected. The main content area is titled 'Backhaul Logging' and shows a table for 'Fios Extender' logs. The table has columns for Time, Date, Backhaul Type, Connection Rate, and Mac Address. A single log entry is visible: Time: 01:35 am, Date: 04 / 08 / 22, Backhaul Type: Ethernet, Connection Rate: 1000 Mbps, Mac Address: B8:F9:53:84:E6:68. Below the table are three buttons: Refresh, Clear, and Save. The footer of the page reads 'Copyright © 2021 Verizon'.

Time	Date	Backhaul Type	Connection Rate	Mac Address
01:35 am	04 / 08 / 22	Ethernet	1000 Mbps	B8:F9:53:84:E6:68

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**.

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 shows the 'System Status' page for a Verizon Router. The page is divided into two main columns. The left column contains a navigation menu with 'System' expanded to show 'System Status', 'Date & Time', 'Factory Reset', 'LED Brightness', 'Open Source Software', 'Reboot Router', 'Remote Administration', and 'System Settings'. The right column displays the 'System Status' information. At the top right, there is an 'Auto-refresh' toggle switch (turned on) and a 'Refresh' button. The main content area is split into two sections: 'Broadband IPv4' and 'Broadband IPv6'. Both sections show a 'Status' of 'Disconnected'. The IPv4 section lists 'IPv4 address is from: DHCP', 'IPv4 address', 'Subnet Mask', 'IPv4 default gateway', 'IPv4 DNS Address 1', 'IPv4 DNS Address 2', and 'NATs Supported (used / max): 0 / 30000'. The IPv6 section lists 'IPv6 address is from: DHCPv6-PD', 'Delegated Prefix', 'IPv6 Address', 'Link-Local Address', 'IPv6 Default Gateway', 'IPv6 DNS Address 1', and 'IPv6 DNS Address 2'.

The screenshot shows the 'System Status' page for a Verizon Router, focusing on the 'Router' section. The navigation menu on the left is the same as in the previous screenshot. The 'System Status' page features an 'Auto-refresh' toggle switch (turned on) and a 'Refresh' button. The 'Router' section provides detailed information: 'Firmware Version: 311.45-emp0', 'Hardware version: EV74', 'Model name: CR1000B', 'Serial Number: A4D14900442', 'LAN IPv4 Address: 192.168.1.1', 'Broadband MAC address: CO.D7AA.54.7F.12', and 'Broadband Physical Connection: Disconnected'. It also notes 'Router has been active for 0 day(s) 4 hours 20 minutes 20 seconds' and 'LED status: No internet connection'.

verizon Basic **Advanced** Help ⓘ

Network Devices
Verizon Router

System Status Auto-refresh Refresh

Extender

Device Name
E3200-bf95354e668

Model Name
E3200

Firmware Version
3.1135

Hardware Version
1102

Serial Number
E30120071800005

MAC Address
88-FB-53-54-E6-68

System Up Time
0 day(s) 4 hours 20 minutes 29 seconds

LED Status
Normal operation

Backhaul Type
Ethernet

System Status

Date & Time

Factory Reset

LED Brightness

Open Source Software

Reboot Router

Remote Administration

System Settings

verizon Basic **Advanced** Help ⓘ

Network Devices
Verizon Router

System Status Auto-refresh Refresh

0 day(s) 4 hours 21 minutes 30 seconds

LED Status
Normal operation

Backhaul Type
Ethernet

Bit Rate
1.0 Gbps

IPv4 Address
192.168.1.100

IPv6 Address

Subnet Mask
255.255.255.0

Default Gateway
192.168.1.1

System Status

Date & Time

Factory Reset

LED Brightness

Open Source Software

Reboot Router

Remote Administration

System Settings

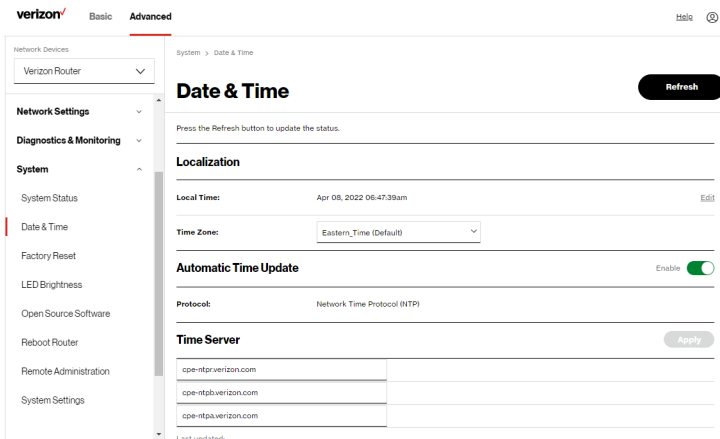
SYSTEM

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.



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. Define the time server addresses.
6. Enter the IP address or domain name of the time server, then click **Apply** to save changes.

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.

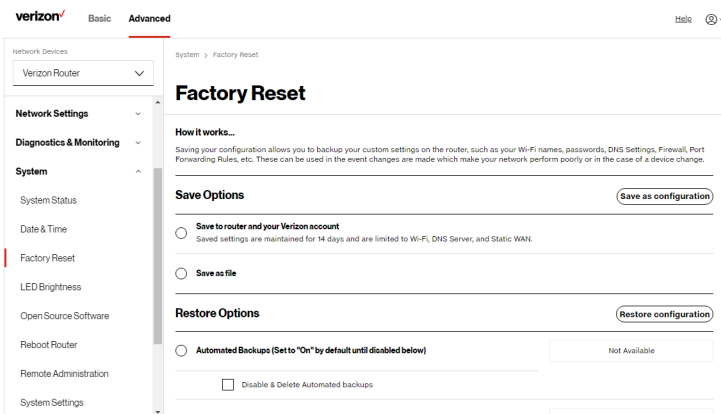
Only configuration files saved on a specific Verizon Router can be applied to that Verizon Router. You cannot transfer configuration files between Verizon Routers.

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

Save Options

To save the configuration file:

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



SYSTEM

3. Select **Save to router and your Verizon account** or **Save as file** to save the current configuration, then click **Save as configuration**.
4. If you select **Save as file**, the configuration file is saved to your web browser's download folder.

Restore Options

You can restore your configuration settings to your Verizon 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.

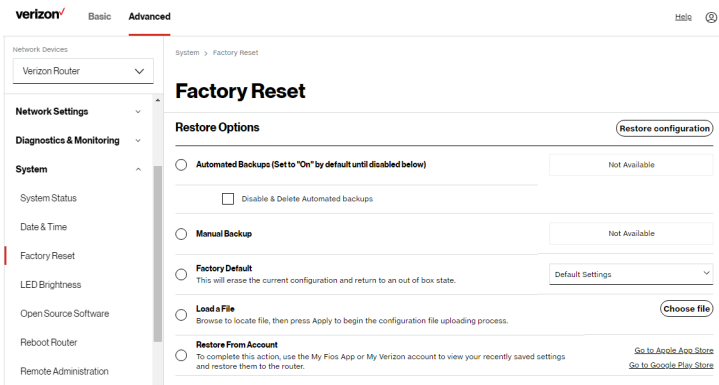
***Note:** When restoring defaults, the setting and parameters of your Verizon Router are restored to their default values. This includes the administrator password. A user-specified password will no longer be valid.*

To backup your Verizon Router's settings:

1. Select **Factory Reset** in the **System** section.
2. To take a backup of the current settings, click **Automated Backups** or **Manual Backup**. You will be prompted to save a file with the extension ".enc".
3. Click **Backup** to begin the configuration backup process.

To restore your Verizon Router's factory default settings:

1. Select **Factory Reset** in the **System** section.
2. Click **Factory Default**.



- **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 **Restore configuration** 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 **Load a File** then click **choose file**.

SYSTEM

3. Browse to the location of the file, and click **Restore configuration** button to begin the configuration uploading process.
4. Accessing the **My Verizon** app or the **My Verizon** account also allows you to restore the previously saved settings. Click **Restore From Account** and select **Go to Apple App Store/Go to Google Play Store** to restore the saved settings to the router.
5. Click **Restore configuration** button. Your Verizon Router will automatically restart with that configuration.

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 web interface. On the left is a navigation menu with sections: Network Devices (Verizon Router), Network Settings, Diagnostics & Monitoring, System (highlighted), Open Source Software, Reboot Router, Remote Administration, and System Settings. The main content area is titled 'LED Brightness' and includes a description: '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.' Below this is a slider for LED Brightness with markers at 0%, 50%, and 100%. Underneath is the 'LED Timeout' dropdown menu, which is open to show options: 5 Min, 1 Min, 5 Min, 10 Min, 15 Min, 20 Min, 30 Min, and Never. A mouse cursor is pointing at the 5 Min option. The 'Apply Changes' button is visible in the top right corner. A copyright notice 'Copyright © 2021 Verizon' is at the bottom right.

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

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 breadcrumb trail: 'System > Open Source Software'. On the left side, there is a navigation menu with categories: 'Network Devices' (showing 'Verizon Router'), 'Network Settings', 'Diagnostics & Monitoring', and 'System'. Under the 'System' category, 'Open Source Software' is highlighted. The main content area displays the title 'Open Source Software' and contains the following text: 'This product includes software made available under open source licenses. Additional information about that software, applicable licenses, and downloadable copies of source code, is available at: <https://verizon.com/opensource/>'. Below this, it states: 'All open source software contained in this product is distributed WITHOUT ANY WARRANTY. All such software is subject to the copyrights of the authors and to the terms of the applicable licenses included in the download.' and 'This information is provided for those who wish to edit or otherwise change such programs. You do not need a copy of any of such open source software source code to install or operate the device.'

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

SYSTEM

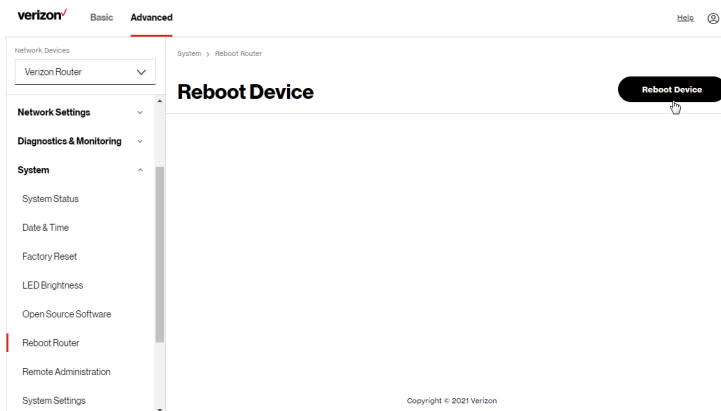
5.3f/ REBOOT VERIZON ROUTER

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

You can reboot your Verizon Router using the Reboot Router Only feature. Refer to 1.3a/ FRONT PANEL for power button options.

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 Router Status LED on the front panel turns solid white, you will automatically be sent to the web browser login page.

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:

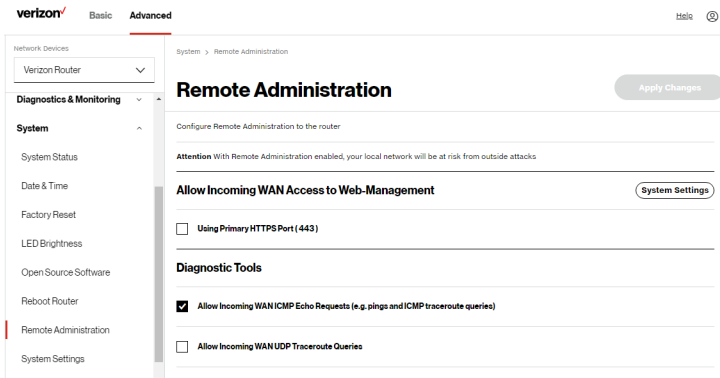
- **Allow Incoming WAN Access to Web-Management** - used to obtain access to your Verizon Router's UI and gain access to all settings and parameters through a web browser.
- **Diagnostic Tools** - used for troubleshooting and remote system management by a user or Verizon.

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.

SYSTEM



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

5.3h/ SYSTEM SETTINGS

You can configure various system and management parameters.

To configure system settings:

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

verizon Basic **Advanced** Help ⊗

Network Devices
Verizon Router

System > System Settings Apply Changes

System Settings

Router Status

Router's Hostname:

Local Domain:

Location:

User Settings

User name: Admin

Set new password: minimum 8 characters

Retype new password:

Unsuccessful Login Attempts: maximum attempts

Router

Automatic Refresh of System Monitoring Web Pages

verizon Basic **Advanced** Help ⊗

Network Devices
Verizon Router

System > System Settings Apply Changes

System Settings

Router

Automatic Refresh of System Monitoring Web Pages

Prompt for Password When Accessing via LAN

Warn User Before Configuration Changes

Session lifetime: seconds

Number of concurrent sessions that can be logged into the router:

Remote Administration

Primary HTTPS Management Port:

System Logging: **Disable**

Remote System Notify Level:

Remote Security Notify Level:

DHCP Timeout: seconds

SYSTEM

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 Wi-Fi 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.
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 Verizon 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

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 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 Router 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. Check the WAN cable connecting your Verizon Router to the internet to make sure it is properly connected on both ends.
- If the prior tips do not resolve your connection issue, try restarting (rebooting) the router portion of the Verizon Router by manually pressing the ‘red’ reset power button on the rear panel of the Verizon Router for 2-4 seconds (the Router Status LED should go off) to begin rebooting your Verizon Router. Your Verizon Router will begin rebooting and will return to service in 3 - 5 minutes depending on your network connection. Check Router Status LED and if it is solid white, try again to access the internet.
- If rebooting your router does not resolve your connection issue, try power cycling the Verizon Router by unplugging the power cable from the adapter or the wall 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 Router Status LED and 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.

TROUBLESHOOTING TIPS

- 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.

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 Verizon 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 ballpoint pen or pencil, press and hold the Reset button on the back of your Verizon Router for three seconds.
- Access the UI and navigate to the Advanced/System page. Select the Factory Reset option. After saving your configuration, if desired, click the Factory Default radio button. For additional details, refer to the 5.3c/ Factory Reset 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. However, in order to provide full synchronization to the coaxial network, disconnecting and reconnecting the power may be required.

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.

TROUBLESHOOTING TIPS

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.

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/ ROUTER STATUS LED

The Router Status LED provides a visual display of the Verizon Router's current condition. Refer to the chart below for details.

Condition Status	LED Color	Verizon Router
Normal	WHITE	Normal operation (50% solid) Setup complete (solid) Router is booting (soft blink) System restart (fast blink)
	BLUE	Pairing mode (hard blink) WPS pairing successful (fast blink)
	GREEN	Wi-Fi has been turned off (solid)

TROUBLESHOOTING TIPS

Condition Status	LED Color	Verizon Router
Issue(s)	YELLOW	No internet connection (solid)
	RED	Hardware/System failure detected (hard blink) Overheating (fast blink) WPS pairing failure (fast blink)
Power	OFF	Power off

Flash Speed

- Soft blink: 1000ms on 1000ms off
- Hard blink: 800ms on, 800ms off
- Fast blink: 200ms on, 200ms off

6.0h/ REAR LIGHTED INDICATORS

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.

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 **Users** in the **Utilities** section.
2. Click the **Edit** in the **Action** column. The **User Settings** page displays.
3. Edit the user name and set a new password.

FREQUENTLY ASKED QUESTIONS

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 panel 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.

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 7 or Windows 10, click the Windows button and select Control Panel, then click View Network Status and Tasks. In the next window, click Local Area Connection. In the Local Area Network Connection Status window, click Details.

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. Select **Expanded List** from the dropdown list to view detailed IP address information for all connected devices.

FREQUENTLY ASKED QUESTIONS

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

No. In Windows 7, 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.

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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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

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

7.0/GENERAL SPECIFICATIONS

Model Number:	CR1000B
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

	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

7.2/ ENVIRONMENTAL PARAMETERS

DIMENSIONS AND WEIGHT

Verizon Router (unit only):

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

Weight: 3.682 lbs / 1.670 kg

Complete System (inc. packaging):

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

Weight: 6.232 lbs / 2.826 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"

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)

08 /

NOTICES

8.0 Regulatory Compliance Notices

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

REGULATORY COMPLIANCE NOTICES

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 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 party responsible for compliance could void the user's authority to operate this equipment.

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.

This device is restricted for indoor use.

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.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 53cm between the radiator & your body.

REGULATORY COMPLIANCE NOTICES

8.0b/ Safety Warning:

The screen of the coaxial cable is intended to be connected to earth in the building installation.

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.

8.0c/ Alerte de sécurité:

L'écran du câble coaxial est destiné à être mis à la terre dans l'installation du bâtiment.

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 CR1000B/CE1000A.

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 metallically 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.

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

8.0e/ GENERAL PUBLIC LICENSE

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