NETGEAR®

Nighthawk X4 AC2350 Smart WiFi Router

User Manual

Model R7500v2

August 2015
202-11522-02

350 E. Plumeria Drive
San Jose, CA 95134
USA

Support

Thank you for purchasing this NETGEAR product.

After installing your device, locate the serial number on the label of your product and use it to register your product at *https://my.netgear.com*. You must register your product before you can use NETGEAR telephone support. NETGEAR recommends registering your product through the NETGEAR webiste. For prodcut updates, additional documentation, and support, visit *http://support.netgear.com*.

Phone (US & Canada only): 1-888-NETGEAR.

Phone (Other Countries): Check the list of phone numbers at *http://support.netgear.com/general/contact/default.aspx*.

Trademarks

Compliance

For regulatory compliance information, visit *http://www.netgear.com/about/regulatory*. See the regulatory compliance document before connecting the power supply.

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Hardware Setup

1

The *Nighthawk X4 AC2350 Smart WiFi Router* with four high-performance antennas and quad-stream X4 architecture combines four WiFi streams to deliver WiFi connection speeds of up to 1.73 Gbps, and a combined speed of 2.33 Gbps:

- 600 Mbps WiFi speed on the 2.4 GHz band
- 1.73 Gbps on the 5 GHz band

Nighthawk X4 is ideal for homes with a high volume of network and Internet traffic from gaming and streaming. With dynamic QoS, the router optimizes performance based on the application and the device, and automatically performs cloud updates to optimize the most popular applications and services.

Nighthawk X4 also provides fast central storage, backup, and streaming to every device in your home with two USB 3.0 ports (10 times faster than USB 2.0) and an eSATA port. Sharing content across your network is easy, from accessing stored photos and music to printing wirelessly. Stream your stored media files on any device anywhere on the network. Share your music with AirPlay-compatible devices from a USB hard drive connected to the router. Use the free NETGEAR ReadySHARE Vault app to back up your Windows computers to a USB hard drive connected to Nighthawk X4.

This chapter contains the following sections:

For more information about the topics covered in this manual, visit the support website at *http://support.netgear.com*.

Unpack Your *Router*

Your package contains the following items.

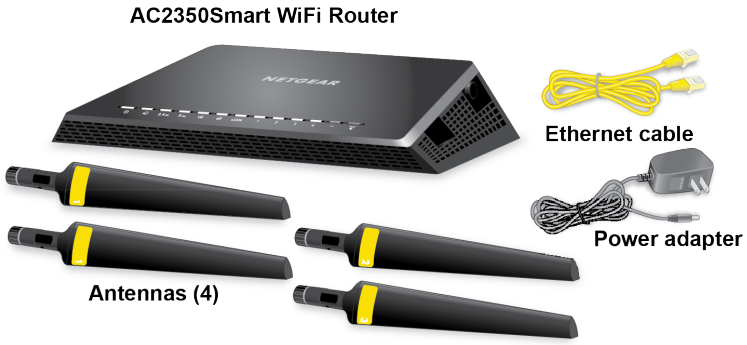


Figure 1. Package contents

Top View

The status LEDs and buttons are located on the top of the router.

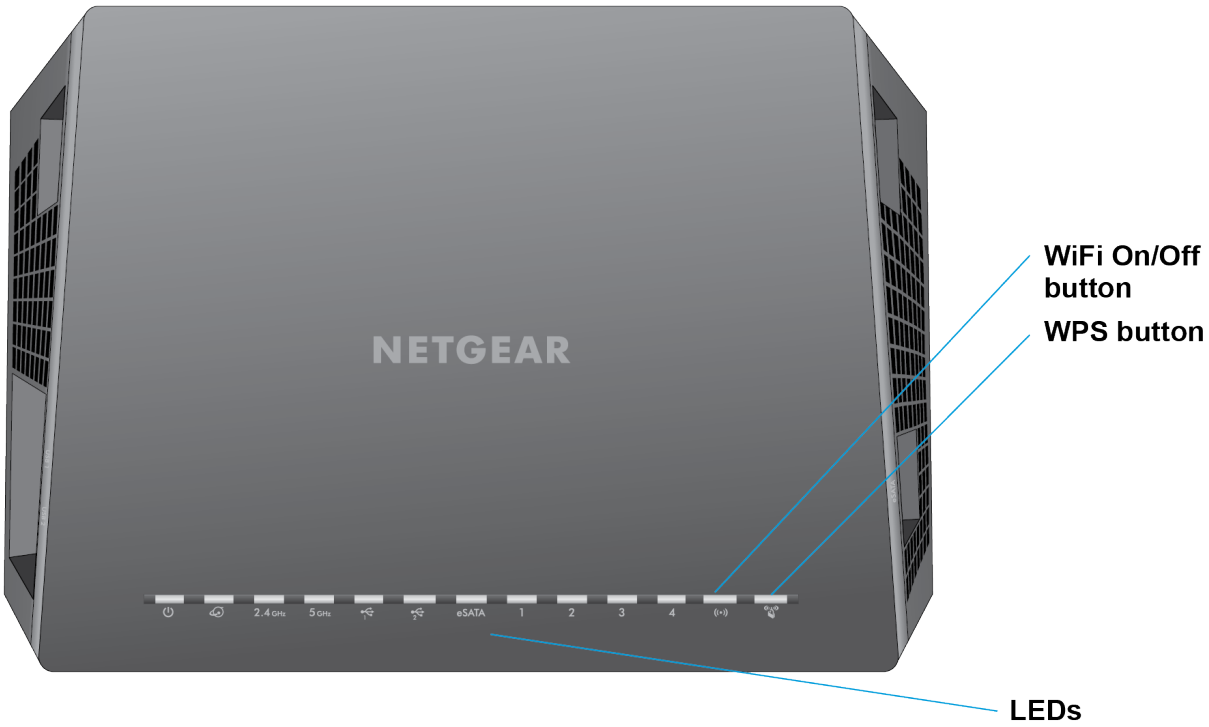
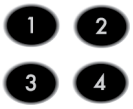


Figure 2. Router LEDs and buttons

Table 1. LED and button descriptions

LED	Description
Power 	• **Solid amber**. The *router* is starting. • **Blinking amber**. The firmware is upgrading, or the **Reset** button was pressed. • **Solid white**. The *router* is ready. • **Blinking white**. The firmware is corrupted. • **Off**. Power is not supplied to the *router*.
Internet 	• **Solid white**. The Internet connection is ready. • **Solid amber**. The *router* detected an Ethernet cable connection to the modem. • **Off**. No Ethernet cable is connected between the *router* and the modem.
2.4 GHz WiFi 	• **Solid white**. The 2.4 GHz WiFi radio is operating. • **Blinking**. The *router* is sending or receiving WiFi traffic. • **Off**. The 2.4 GHz WiFi radio is off.
5 GHz WiFi 	• **Solid white**. The 5 GHz WiFi radio is operating. • **Blinking**. The *router* is sending or receiving WiFi traffic. • **Off**. The 5 GHz WiFi radio is off.
USB 3.0 port 1 and USB 3.0 port 2 	• **Solid white**. A USB device is connected and is ready. • **Blinking**. A USB device is plugged in and is trying to connect. • **Off**. No USB device is connected, or someone clicked the **Safely Remove Hardware** button and it is now safe to remove the attached USB device.
eSATA 	• **Solid white**. An eSATA device is connected and is ready. • **Blinking**. An eSATA device is plugged in and is trying to connect. • **Off**. No eSATA device is connected.
Ethernet ports 1–4 	The LED color indicates the speed: white for Gigabit Ethernet connections and amber for 100 Mbps or 10 Mbps Ethernet connections.

LED	Description
	• **Solid**. A powered-on device is connected to the Ethernet port. • **Blinking**. The port is sending or receiving traffic. • **Off**. No device is connected to this Ethernet port.
WiFi On/Off button with LED	Pressing this button for two seconds turns the 2.4 GHz and 5 GHz WiFi radios on and off. If this LED is lit, the WiFi radios are on. If this LED is off, the WiFi radios are turned off and you cannot use WiFi to connect to the *router*.
WPS button with LED	This button lets you use WPS to join the WiFi network without typing the WiFi password. The WPS LED blinks white during this process and then lights solid white.

You can use the **LED On/Off** switch on the rear panel of the *router* to turn the LEDs on the top of the *router* on or off. See *Turn the LEDs On or Off* on page 12.

Rear Panel

The rear panel connections and buttons are shown in the following figure.

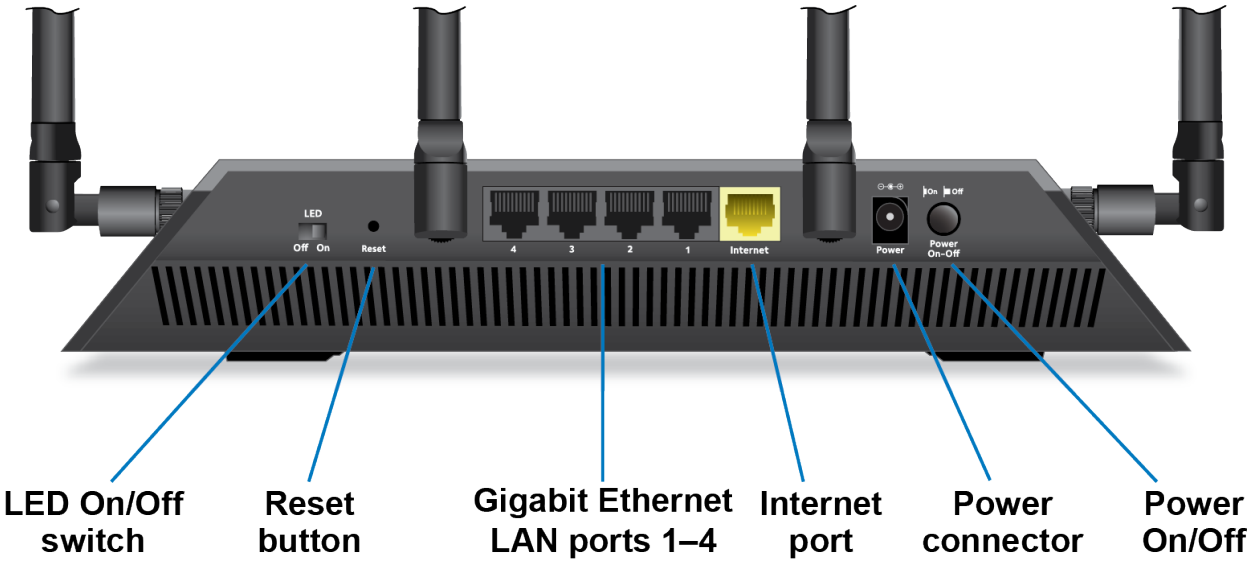


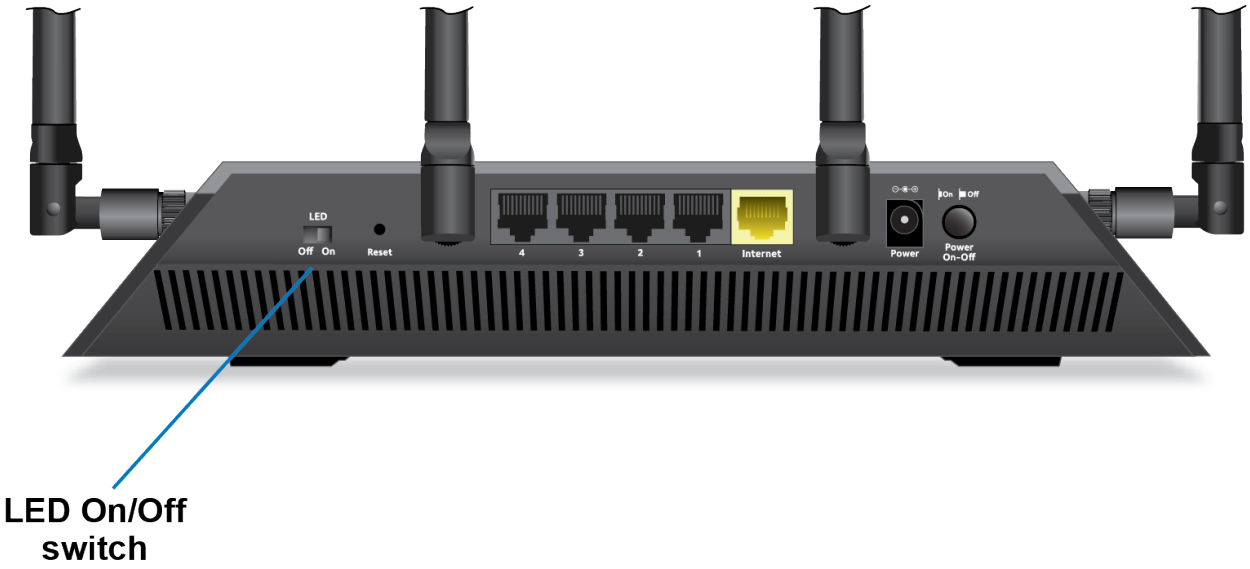
Figure 3. Router rear panel

Pressing the **Reset** button restores the factory settings. See *Factory Settings* on page 181.

Turn the LEDs On or Off

To turn the LEDs on or off:

- Slide the **LED On/Off** switch on the rear panel to the On or Off position.



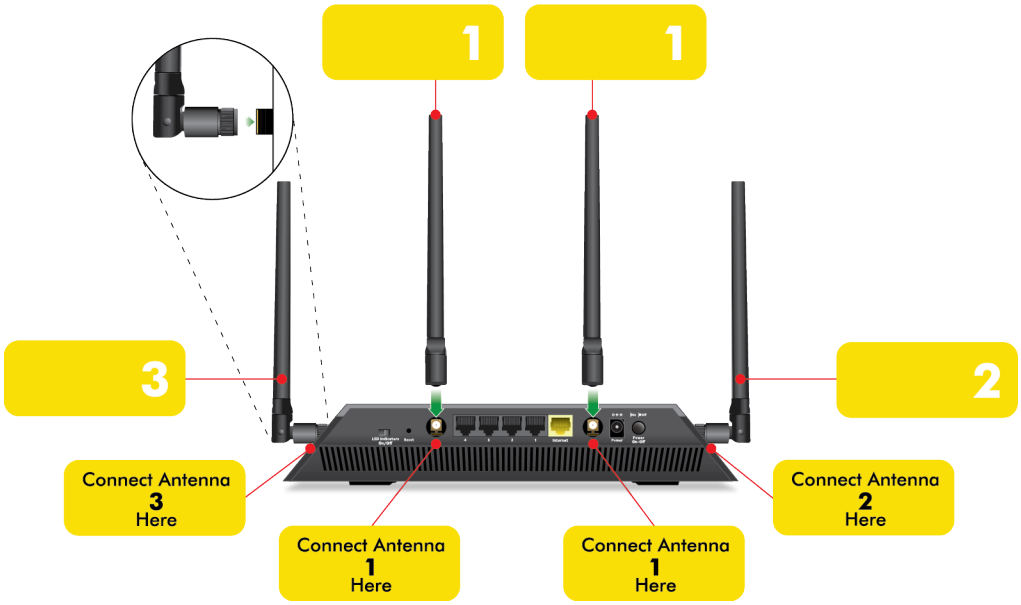
The Power LED stays lit even if the **LED On/Off** switch is in the Off position.

Attach the Antennas

The *router* comes with four antennas.

To attach the antennas:

1. To determine where to attach the antennas, match the labels on the antennas with the labels on the *router*.



2. Align the antennas with the antenna posts on the *router*.
3. Attach the antennas on the threaded antenna posts.
4. Position the antennas for the best WiFi performance.

   NETGEAR recommends that you position all of the antennas vertically, as shown.

USB Ports on the Left Panel

Two 3.0 USB ports are located on the left panel.

Figure 4. USB ports

eSATA Port on the Right Panel

An eSATA port is located on the right panel.

Figure 5. eSATA port

Connect an eSATA Device

To connect an eSATA device:

- Use an eSATA cable to connect your device to the eSATA port on the side of the *router* as shown.

Position Your *Router*

The *router* lets you access your network anywhere within the operating range of your wireless network. However, the operating distance or range of your wireless connection can vary significantly depending on the physical placement of your *router*. For example, the thickness and number of walls the wireless signal passes through can limit the range.

Additionally, other wireless access points in and around your home might affect your *router*'s signal. Wireless access points are routers, repeaters, WiFi range extenders, and any other device that emits a wireless signal for network access.

Position your *router* according to the following guidelines:

- Place your *router* near the center of the area where your computers and other devices operate, and within line of sight to your wireless devices.
- Make sure that the *router* is within reach of an AC power outlet and near Ethernet cables for wired computers.
- Place the *router* in an elevated location, minimizing the number walls and ceilings between the *router* and your other devices.
- Place the *router* away from electrical devices such as these:
  - Ceiling fans
  - Home security systems
  - Microwaves
  - Computers
  - Base of a cordless phone
  - 2.4 GHz cordless phone
- Place the *router* away from large metal surfaces, large glass surfaces, insulated walls, and items such as these:
  - Solid metal door
  - Aluminum studs
  - Fish tanks
  - Mirrors
  - Brick
  - Concrete

Cable Your *Router*

The following image shows how to cable your *router*:

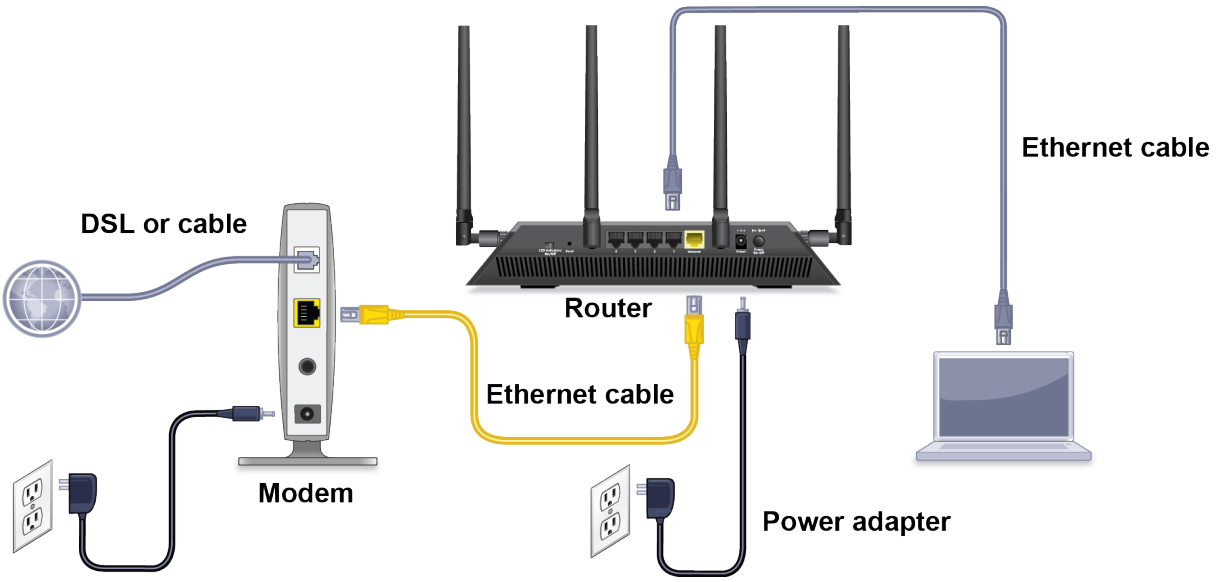


Figure 6. Router cabling

To cable your *router*:

1. Unplug your modem's power, leaving the modem connected to the wall jack for your Internet service.

   If your modem uses a battery backup, remove the battery.

2. Plug in and turn on your modem.

   If your modem uses a battery backup, put the battery back in.

3. Connect your modem to the Internet port of your *router* with the yellow Ethernet cable that came with your *router*.
4. Connect the power adapter to your *router* and plug the power adapter into an outlet.
5. Slide the **LED On/Off** switch on the rear panel to the On position.
6. Press the **Power On/Off** button on the rear panel of the *router*.

Connect to the Network and Access the *Router*

2

You can connect to the router's WiFi networks or use a wired Ethernet connection. This chapter explains the ways you can connect and how to access the router and log in.

This chapter contains the following sections:

Connect to the Network

You can connect to the *router*'s network through a wired or WiFi connection. If you set up your computer to use a static IP address, change the settings so that it uses Dynamic Host Configuration Protocol (DHCP).

Wired Connection

You can connect your computer to the *router* using an Ethernet cable and join the *router*'s local area network (LAN).

To connect your computer to the *router* with an Ethernet cable:

1. Make sure that the *router* is receiving power (its Power LED is lit).
2. Connect an Ethernet cable to an Ethernet port on your computer.
3. Connect the other end of the Ethernet cable to one of the numbered Ethernet ports.

   Your computer connects to the local area network (LAN). A message might display on your computer screen to notify you that an Ethernet cable is connected.

WiFi Connection Using WPS

You can connect to the *router*'s WiFi network with Wi-Fi Protected Setup (WPS) or you can find and select the WiFi network.

To use WPS to connect to the WiFi network:

1. Make sure that the *router* is receiving power (its Power LED is lit).
2. Check the WPS instructions for your computer or wireless device.
3. Press the **WPS** button on the *router*.
4. Within two minutes, on your computer or WiFi device, press its **WPS** button or follow its instructions for WPS connections.

   Your computer or wireless device connects to the WiFi network.

WiFi Connection

To find and select the WiFi network:

1. Make sure that the *router* is receiving power (its Power LED is lit).
2. On your computer or wireless device, find and select the WiFi network.

   The WiFi network name is on the *router*'s label.

3. Join the WiFi network and enter the WiFi password.

   The password is on the *router*'s label.

Your wireless device connects to the WiFi network.

Label

The label on the *router* shows the login information, WiFi network name and network key (password), MAC address, and serial number.

Figure 7. Router label

Types of Logins

Separate types of logins serve different purposes. It is important that you understand the difference so that you know which login to use when.

Several types of logins are associated with the *router*:

- **ISP login**. The login that your ISP gave you logs you in to your Internet service. Your service provider gave you this login information in a letter or some other way. If you cannot find this login information, contact your service provider.
- **WiFi network key or password**. Your *router* is preset with a unique wireless network name (SSID) and password for wireless access. This information is on the *router* label.
- ***Router* login**. This logs you in to the *router* interface from a web browser as admin.

Use a Web Browser to Access the *Router*

When you connect to the network (either with WiFi or with an Ethernet cable), you can use a web browser to access the *router* to view or change its settings. When you access the *router*, the software automactically checks to see if your *router* can connect to your Internet service.

Automatic Internet Setup

You can set up your *router* automatically, or you can use a web browser to access the *router* and set up your *router* manually. Before you start the setup process, get your ISP information and make sure that the computers and devices in the network are using the settings described here.

When your Internet service starts, your Internet service provider (ISP) typically gives you all the information needed to connect to the Internet. For DSL service, you might need the following information to set up your *router*:

- The ISP configuration information for your DSL account
- ISP login name and password
- Fixed or static IP address setting (special deployment by ISP; this setting is rare)

If you cannot locate this information, ask your ISP to provide it. When your Internet connection is working, you no longer need to launch the ISP login program on your computer to access the Internet. When you start an Internet application, your *router* automatically logs you in.

NETGEAR genie runs on any device with a web browser. Installation and basic setup takes about 15 minutes to complete.

To automatically set up your *router*:

1. Turn the *router* on by pressing the **On/Off** button.
2. Make sure that your computer or wireless device is connected to the *router* with an Ethernet cable (wired) or wirelessly with the preset security settings listed on the label.

   Note If you want to change the *router*'s WiFi settings, use a wired connection to avoid being disconnected when the new WiFi settings take effect.

3. Launch a web browser.

   The page that displays depends on whether you accessed the *router* before:

   - The first time you set up the Internet connection for your *router*, the browser goes to **http://www.routerlogin.net** and the Configuring the Internet Connection page displays.

   - If you already set up the Internet connection, type **http://www.routerlogin.net** in the address field for your browser to start the installation process.

4. Follow the onscreen instructions.

   The *router* connects to the Internet.

5. If the browser does not display the NETGEAR genie page, do the following:

- Make sure that the computer is connected to one of the four LAN Ethernet ports or wirelessly to the *router*.
- Make sure that the *router* is receiving power and that its Power LED is lit white.
- Close and reopen the browser or clear the browser cache.
- Browse to **http://www.routerlogin.net**.
- If the computer is set to a static or fixed IP address (this setting is uncommon), change it to obtain an IP address automatically from the *router*.

6. If the *router* does not connect to the Internet, do the following:
   a. Review your settings. Make sure that you selected the correct options and typed everything correctly.
   b. Contact your ISP to verify that you have the correct configuration information.
   c. Read *Troubleshooting* on page 170. If problems persist, register your *NETGEAR* product and contact *NETGEAR* technical support.

When the *router* connects to the Internet, you are prompted to download and install the free *NETGEAR* Desktop genie app and the free ReadySHARE Vault app.

Log In to the *Router*

When you first connect to your *router*, *NETGEAR* and launch a web browser, the browser automatically displays the *router*'s web page. If you want to view or change settings for the *router* later, you can use a browser to log in to the *router*'s web page.

To log in to the *router*:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

Change the Language

By default, the language is set to **Auto**.

To change the language:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login screen displays.

3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. In the upper right corner, select a language from the list.
5. When prompted, click the **OK** button to confirm this change.

   The screen refreshes with the language that you selected.

Access the *Router* with NETGEAR genie Apps

The genie app is the easy dashboard for managing, monitoring, and repairing your home network. The genie app can help you with the following:

- Automatically repair common wireless network problems.
- Easily manage *router* features like Live Parental Controls, guest access, Internet traffic meter, speed test, and more.

To use the genie app to access the *router*:

1. Visit the NETGEAR genie web page at *www.NETGEAR.com/genie*.
2. Follow the onscreen instructions to install the app on your smartphone, tablet, or computer.
3. Launch the genie app.

   The genie app dashboard screen displays.

Specify Your Internet Settings

3

Usually, the quickest way to set up the *router* to use your Internet connection is to allow the genie to detect the Internet connection when you first access the *router* with a web browser. You can also customize or specify your Internet settings.

This chapter contains the following sections:

Use the Internet Setup Wizard

You can use the Setup Wizard to detect your Internet settings and automatically set up your *router*. The Setup Wizard is not the same as the genie pages that display the first time you connect to your *router* to set it up.

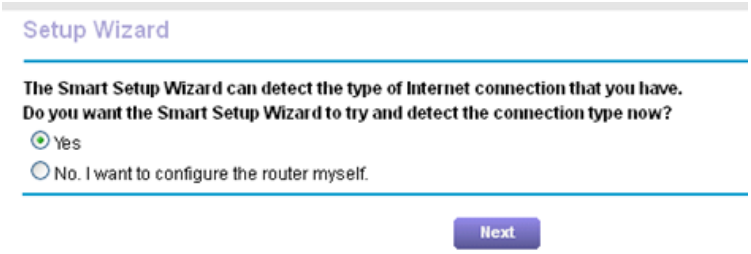
To use the Setup Wizard:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Setup Wizard**.



5. Select the **Yes** radio button.

   If you select the **No** radio button, you are taken to the Internet Setup page (see *Manually Set Up the Internet Connection* on page 24).
6. Click the **Next** button.

   The Setup Wizard searches your Internet connection for servers and protocols to determine your Internet configuration.

   When the router connects to the Internet, you are prompted to download and install the free NETGEAR Desktop genie app and the free ReadySHARE Vault app.

Manually Set Up the Internet Connection

You can view or change the *router*'s Internet connection settings.

Specify an Internet Connection Without a Login

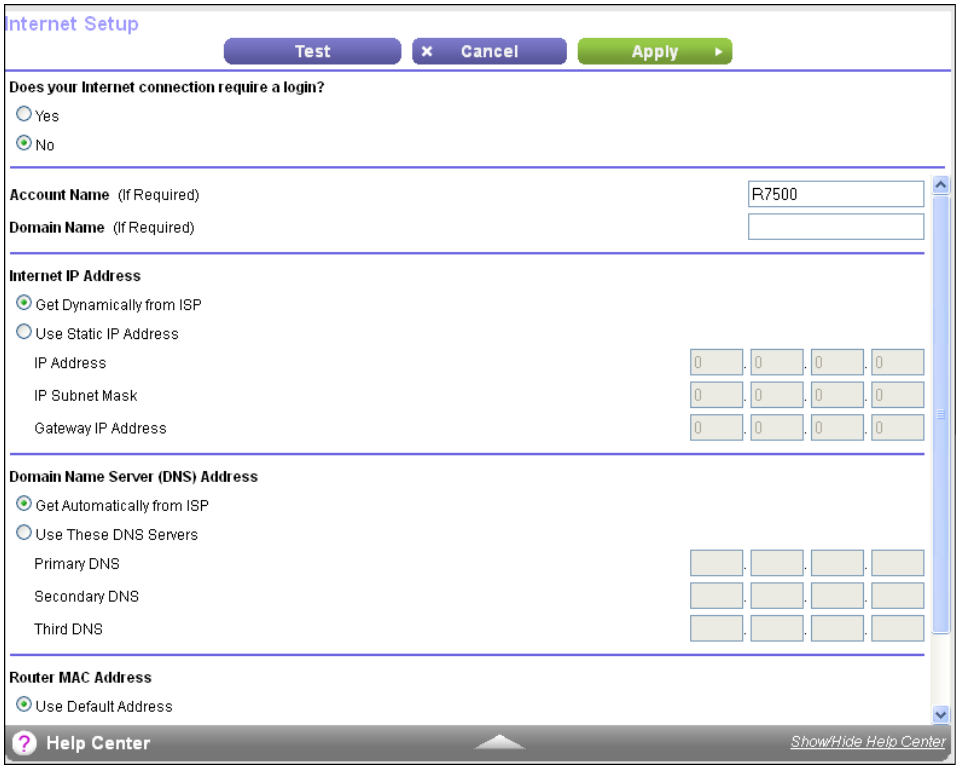
To specify the Internet connection settings:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **Internet**.



Scroll to view more settings

   Your router might display information that is different from this example.
5. For the Does your Internet connection require a login? setting, leave the **No** radio button selected.
6. If your Internet connection requires an account name or host name, type it in the **Account Name (If Required)** field.
7. If your Internet connection requires a domain name, type it in the **Domain Name (If Required)** field.

For the other sections on this page, the default settings usually work, but you can change them.

8. Select an Internet IP Address radio button:

   - **Get Dynamically from ISP**. Your ISP uses DHCP to assign your IP address. Your ISP automatically assigns these addresses.
   - **Use Static IP Address**. Enter the IP address, IP subnet mask, and the gateway IP address that your ISP assigned. The gateway is the ISP *router* to which your *router* connects.

9. Select a Domain Name Server (DNS) Address radio button:

   - **Get Automatically from ISP**. Your ISP uses DHCP to assign your DNS servers. Your ISP automatically assigns this address.
   - **Use These DNS Servers**. If you know that your ISP requires specific servers, select this option. Enter the IP address of your ISP's primary DNS server. If a secondary DNS server address is available, enter it also.

10. Select a Router MAC Address radio button:

    - **Use Default Address**. Use the default MAC address.
    - **Use Computer MAC Address**. The *router* captures and uses the MAC address of the computer that you are now using. You must use the one computer that the ISP allows.
    - **Use This MAC Address**. Enter the MAC address that you want to use.

11. Click the **Apply** button.

    Your settings are saved.

12. Click the **Test** button to test your Internet connection.

    If the *NETGEAR* website does not display within one minute, see *Troubleshooting* on page 170.

Specify an Internet Connection That Uses a Login

To view or change the basic Internet setup:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

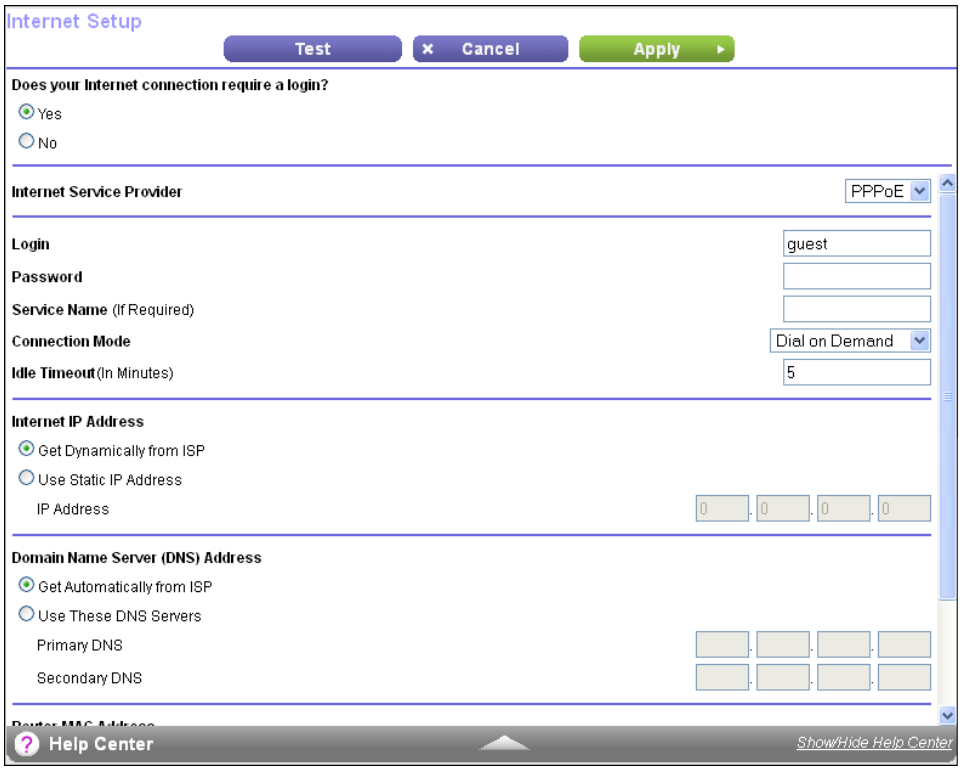
   A login window opens.

3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home page displays.

4. Select **Internet**.



5. For the Does your Internet connection require a login? setting, select the **Yes** radio button.

   The page adjusts.

6. From the **Internet Service Provider** menu, select the encapsulation method: **PPPoE**, **PPTP**, or **L2TP**.
7. In the **Login** field, enter the login name that your ISP gave you.

   This login name is often an email address.

8. In the **Password** field, type the password that you use to log in to your Internet service.
9. If your ISP requires a service name, type it in the **Service Name (if Required)** field.
10. From the **Connection Mode** menu, select **Always On**, **Dial on Demand**, or **Manually Connect**.
11. To change the number of minutes until the Internet login times out, in the **Idle Timeout (In minutes)** field, type the number of minutes.

    This is how long the *router* keeps the Internet connection active when no one on the network is using the Internet connection. A value of 0 (zero) means never log out.

12. Select an Internet IP Address radio button:

    - **Get Dynamically from ISP**. Your ISP uses DHCP to assign your IP address. Your ISP automatically assigns these addresses.

- **Use Static IP Address**. Enter the IP address, IP subnet mask, and the gateway IP address that your ISP assigned. The gateway is the ISP *router* to which your *router* connects.

13. Select a Domain Name Server (DNS) Address radio button:

    - **Get Automatically from ISP**. Your ISP uses DHCP to assign your DNS servers. Your ISP automatically assigns this address.
    - **Use These DNS Servers**. If you know that your ISP requires specific servers, select this option. Enter the IP address of your ISP's primary DNS server. If a secondary DNS server address is available, enter it also.

14. Select a Router MAC Address radio button:

    - **Use Default Address**. Use the default MAC address.
    - **Use Computer MAC Address**. The *router* captures and uses the MAC address of the computer that you are now using. You must use the one computer that the ISP allows.
    - **Use This MAC Address**. Enter the MAC address that you want to use.

15. Click the **Apply** button.

    Your settings are saved.

16. Click the **Test** button to test your Internet connection.

    If the *NETGEAR* website does not display within one minute, see *Troubleshooting* on page 170.

Specify IPv6 Internet Connections

You can set up an IPv6 Internet connection if genie does not detect it automatically.

To set up an IPv6 Internet connection:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.

3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > IPv6**.

The Basic Settings spage displays.

5. From the **Internet Connection Type** menu, select the IPv6 connection type:

   - If your ISP did not provide details, select **IPv6 Tunnel**.
   - If you are not sure, select **Auto Detect** so that the *router* detects the IPv6 type that is in use.
   - If your Internet connection does not use PPPoe or DHCP, or is not fixed, but is IPv6, select **Auto Config**.

   Your Internet service provider (ISP) can provide this information. For more information about IPv6 Internet connection, see the following sections.

   - *Use Auto Detect for an IPv6 Internet Connection* on page 30
   - *Use Auto Config for an IPv6 Internet Connection* on page 32
   - *Set Up an IPv6 6to4 Tunnel Internet Connection* on page 33
   - *Set Up an IPv6 Pass Through Internet Connection* on page 35
   - *Set Up an IPv6 Fixed Internet Connection* on page 35
   - *Set Up an IPv6 DHCP Internet Connection* on page 37
   - *Set Up an IPv6 PPPoE Internet Connection* on page 39

6. Click the **Apply** button.

   Your changes take effect.

Requirements for Entering IPv6 Addresses

IPv6 addresses are denoted by eight groups of hexadecimal quartets that are separated by colons. You can reduce any four-digit group of zeros within an IPv6 address to a single zero or omit it. The following errors invalidate an IPv6 address:

- More than eight groups of hexadecimal quartets
- More than four hexadecimal characters in a quartet
- More than two colons in a row

Use Auto Detect for an IPv6 Internet Connection

To set up an IPv6 Internet connection through auto detection:

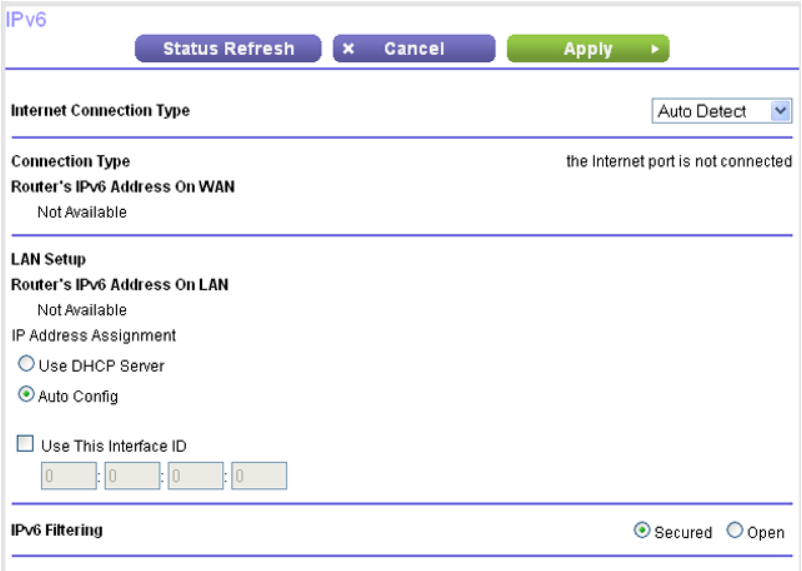
1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

   A login window opens.
3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Advanced Setup > IPv6**.

   The IPv6 page displays.
5. From the **Internet Connection Type** menu, select **Auto Detect**.



The *router* automatically detects the information in the following fields:

- **Connection Type**. This field indicates the connection type that is detected.
- **Router's IPv6 Address on WAN**. This field shows the IPv6 address that is acquired for the *router*'s WAN (or Internet) interface. The number after the slash (/) is the length of the prefix, which is also indicated by the underline (_) under the IPv6 address. If no address is acquired, the field displays Not Available.
- **Router's IPv6 Address on LAN**. This field shows the IPv6 address that is acquired for the *router*'s LAN interface. The number after the slash (/) is the length of the prefix, which is also indicated by the underline (_) under the IPv6 address. If no address is acquired, the field displays Not Available.

6. Select an IP Address Assignment radio button:

   - **Use DHCP Server**. This method passes more information to LAN devices but some IPv6 systems might not support the DHCv6 client function.
   - **Auto Config**. This is the default setting.

   This setting specifies how the *router* assigns IPv6 addresses to the devices on your home network (the LAN).

7. (Optional) Select the **Use This Interface ID** check box and specify the interface ID to be used for the IPv6 address of the *router*'s LAN interface.

   If you do not specify an ID here, the *router* generates one automatically from its MAC address.

8. Click the **Apply** button.

Your settings are saved.

Use Auto Config for an IPv6 Internet Connection

To set up an IPv6 Internet connection through auto configuration:

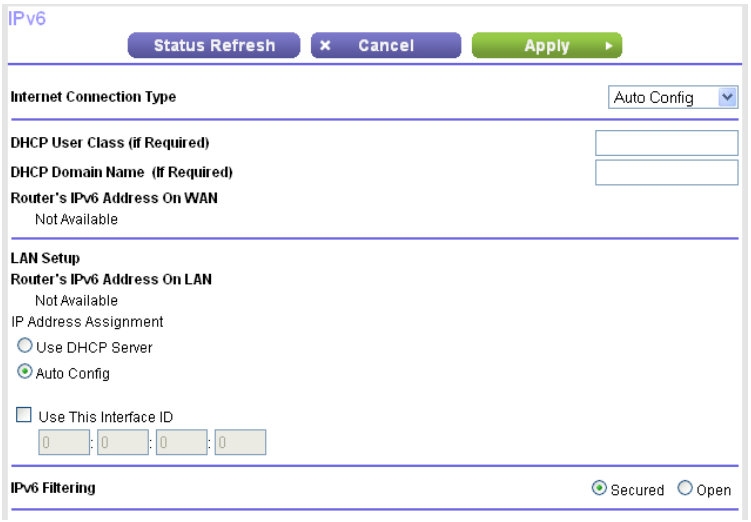
1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Advanced Setup > IPv6**.

   The IPv6 page displays.
5. From the **Internet Connection Type** menu, select **Auto Config**.



The *router* automatically detects the information in the following fields:

- **Router's IPv6 Address on WAN**. This field shows the IPv6 address that is acquired for the *router*'s WAN (or Internet) interface. The number after the slash (/) is the length of the prefix, which is also

indicated by the underline (_) under the IPv6 address. If no address is acquired, the field displays Not Available.

- **Router's IPv6 Address on LAN**. This field shows the IPv6 address that is acquired for the *router*'s LAN interface. The number after the slash (/) is the length of the prefix, which is also indicated by the underline (_) under the IPv6 address. If no address is acquired, the field displays Not Available.

6. (Optional) In the **DHCP User Class (If Required)** field, enter a host name.

   Most people can leave this field blank, but if your ISP gave you a specific host name, enter it here.

7. (Optional) In the **DHCP Domain Name (If Required)** field, enter a domain name.

   You can type the domain name of your IPv6 ISP. Do not enter the domain name for the IPv4 ISP here. For example, if your ISP's mail server is mail.xxx.yyy.zzz, type xxx.yyy.zzz as the domain name. If your ISP provided a domain name, type it in this field. For example, Earthlink Cable might require a host name of home, and Comcast sometimes supplies a domain name.

8. Select an IP Address Assignment radio button:

   - **Use DHCP Server**. This method passes more information to LAN devices but some IPv6 systems might not support the DHCv6 client function.
   - **Auto Config**. This is the default setting.

   This setting specifies how the *router* assigns IPv6 addresses to the devices on your home network (the LAN).

9. (Optional) Select the **Use This Interface ID** check box and specify the interface ID to be used for the IPv6 address of the *router*'s LAN interface.

   If you do not specify an ID here, the *router* generates one automatically from its MAC address.

10. Click the **Apply** button.

    Your settings are saved.

Set Up an IPv6 6to4 Tunnel Internet Connection

The remote relay *router* is the *router* to which your *router* creates a 6to4 tunnel. Make sure that the IPv4 Internet connection is working before you apply the 6to4 tunnel settings for the IPv6 connection.

To set up an IPv6 Internet connection by using a 6to4 tunnel:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.

3. Enter the *router* user name and password.

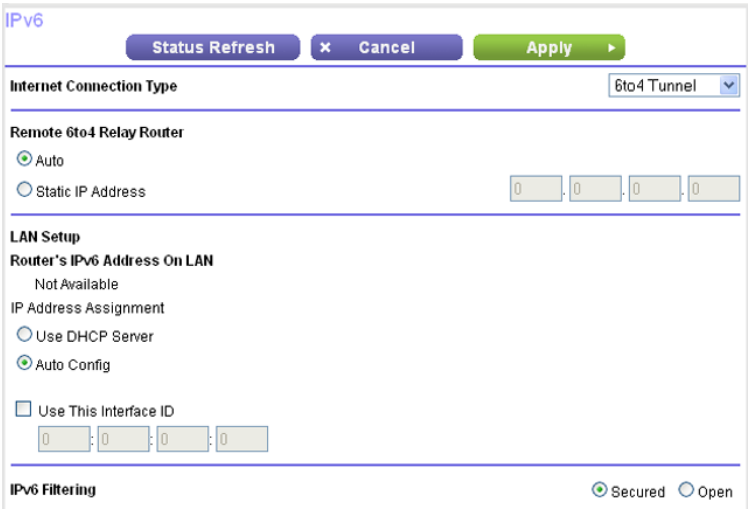
The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > IPv6**.

   The IPv6 page displays.

5. From the **Internet Connection Type** menu, select **6to4 Tunnel**.



   The *router* automatically detects the information in the Router's IPv6 Address on LAN field. This field shows the IPv6 address that is acquired for the *router*'s LAN interface. The number after the slash (/) is the length of the prefix, which is also indicated by the underline (_) under the IPv6 address. If no address is acquired, the field displays Not Available.

6. Select a Remote 6to4 Relay Router radio button:

   - **Auto**. Your *router* uses any remote relay *router* that is available on the Internet. This is the default setting.
   - **Static IP Address**. Enter the static IPv4 address of the remote relay *router*. Your IPv6 ISP usually provides this address.

7. Select an IP Address Assignment radio button:

   - **Use DHCP Server**. This method passes more information to LAN devices but some IPv6 systems might not support the DHCv6 client function.
   - **Auto Config**. This is the default setting.

This setting specifies how the *router* assigns IPv6 addresses to the devices on your home network (the LAN).

8. (Optional) Select the **Use This Interface ID** check box and specify the interface ID to be used for the IPv6 address of the *router*'s LAN interface.

   If you do not specify an ID here, the *router* generates one automatically from its MAC address.

9. Click the **Apply** button.

   Your settings are saved.

Set Up an IPv6 Pass Through Internet Connection

In pass-through mode, the *router* works as a Layer 2 Ethernet switch with two ports (LAN and WAN Ethernet ports) for IPv6 packets. The *router* does not process any IPv6 header packets.

To set up a pass-through IPv6 Internet connection:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

   A login window opens.

3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > IPv6**.

   The IPv6 page displays.

5. From the **Internet Connection Type** menu, select **Pass Through**.

   The page adjusts, but no additional fields display.

6. Click the **Apply** button.

   Your settings are saved.

Set Up an IPv6 Fixed Internet Connection

To set up a fixed IPv6 Internet connection:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

A login window opens.

3. Enter the *router* user name and password.

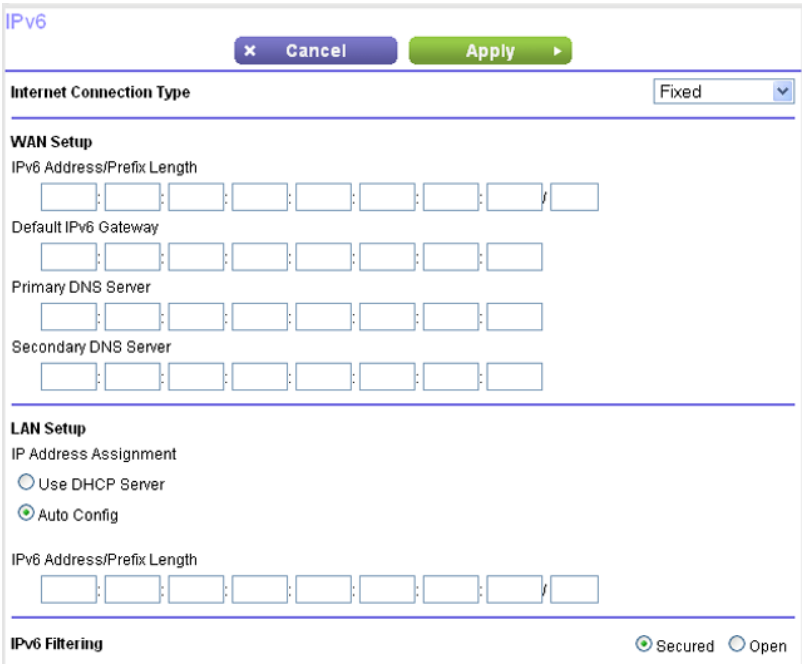
   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > IPv6**.

   The IPv6 page displays.

5. From the **Internet Connection Type** menu, select **Fixed**.



6. Configure the fixed IPv6 addresses for the WAN connection:

- **IPv6 Address/Prefix Length**. The IPv6 address and prefix length of the *router* WAN interface.
- **Default IPv6 Gateway**. The IPv6 address of the default IPv6 gateway for the *router*'s WAN interface.
- **Primary DNS Server**. The primary DNS server that resolves IPv6 domain name records for the *router*.
- **Secondary DNS Server**. The secondary DNS server that resolves IPv6 domain name records for the *router*.

Note If you do not specify the DNS servers, the *router* uses the DNS servers that are configured for the IPv4 Internet connection on the Internet Setup page. (See *Manually Set Up the Internet Connection* on page 24.)

7. Select an IP Address Assignment radio button:

   - **Use DHCP Server**. This method passes more information to LAN devices but some IPv6 systems might not support the DHCv6 client function.
   - **Auto Config**. This is the default setting.

   This setting specifies how the *router* assigns IPv6 addresses to the devices on your home network (the LAN).

8. In the **IPv6 Address/Prefix Length** fields, specify the static IPv6 address and prefix length of the *router*'s LAN interface.

   If you do not specify an ID here, the *router* generates one automatically from its MAC address.

9. Click the **Apply** button.

   Your settings are saved.

Set Up an IPv6 DHCP Internet Connection

To set up an IPv6 Internet connection with a DHCP server:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

   A login window opens.

3. Enter the *router* user name and password.

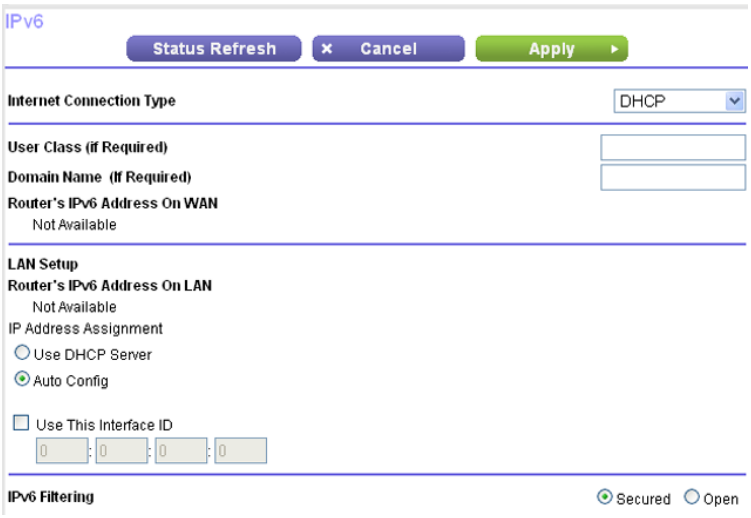
   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > IPv6**.

   The IPv6 page displays.

5. From the **Internet Connection Type** menu, select **DHCP**.



   The *router* automatically detects the information in the following fields:

   - **Router's IPv6 Address on WAN**. This field shows the IPv6 address that is acquired for the *router*'s WAN (or Internet) interface. The number after the slash (/) is the length of the prefix, which is also indicated by the underline (_) under the IPv6 address. If no address is acquired, the field displays Not Available.
   - **Router's IPv6 Address on LAN**. This field shows the IPv6 address that is acquired for the *router*'s LAN interface. The number after the slash (/) is the length of the prefix, which is also indicated by the underline (_) under the IPv6 address. If no address is acquired, the field displays Not Available.

6. (Optional) In the **User Class (If Required)** field, enter a host name.

   Most people can leave this field blank, but if your ISP gave you a specific host name, enter it here.

7. (Optional) In the **Domain Name (If Required)** field, enter a domain name.

   You can type the domain name of your IPv6 ISP. Do not enter the domain name for the IPv4 ISP here. For example, if your ISP's mail server is mail.xxx.yyy.zzz, type xxx.yyy.zzz as the domain name. If your ISP provided a domain name, type it in this field. For example, Earthlink Cable might require a host name of home, and Comcast sometimes supplies a domain name.

8. Select an IP Address Assignment radio button:

   - **Use DHCP Server**. This method passes more information to LAN devices but some IPv6 systems might not support the DHCv6 client function.

- **Auto Config**. This is the default setting.

  This setting specifies how the *router* assigns IPv6 addresses to the devices on your home network (the LAN).

9. (Optional) Select the **Use This Interface ID** check box and specify the interface ID to be used for the IPv6 address of the *router*'s LAN interface.

   If you do not specify an ID here, the *router* generates one automatically from its MAC address.

10. Click the **Apply** button.

    Your settings are saved.

Set Up an IPv6 PPPoE Internet Connection

To set up a PPPoE IPv6 Internet connection:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.

3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

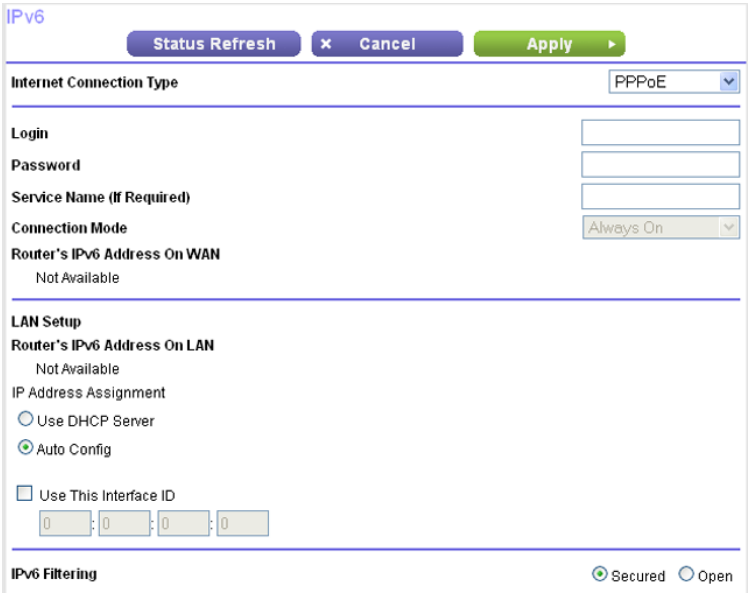
   The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > IPv6**.

   The IPv6 page displays.

5. From the **Internet Connection Type** menu, select **PPPoE**.

   The page adjusts:



The *router* automatically detects the information in the following fields:

- **Router's IPv6 Address on WAN**. This field shows the IPv6 address that is acquired for the *router*'s WAN (or Internet) interface. The number after the slash (/) is the length of the prefix, which is also indicated by the underline (_) under the IPv6 address. If no address is acquired, the field displays Not Available.
- **Router's IPv6 Address on LAN**. This field shows the IPv6 address that is acquired for the *router*'s LAN interface. The number after the slash (/) is the length of the prefix, which is also indicated by the underline (_) under the IPv6 address. If no address is acquired, the field displays Not Available.

6. In the **Login** field, enter the login information for the ISP connection.

   This is usually the name that you use in your email address. For example, if your main mail account is JerAB@ISP.com, you would type JerAB in this field. Some ISPs (like Mindspring, Earthlink, and T-DSL) require that you use your full email address when you log in. If your ISP requires your full email address, type it in this field.

7. In the **Password** field, enter the password for the ISP connection.
8. In the **Service Name** field, enter a service name.

   If your ISP did not provide a service name, leave this field blank.

Note The default setting of the **Connection Mode** menu is **Always On** to provide a steady IPv6 connection. The *router* never terminates the connection. If the connection is terminated, for example, when the modem is turned off, the *router* attempts to

reestablish the connection immediately after the PPPoE connection becomes available again.

9. Select an IP Address Assignment radio button:

   - **Use DHCP Server**. This method passes more information to LAN devices but some IPv6 systems might not support the DHCv6 client function.
   - **Auto Config**. This is the default setting.

   This setting specifies how the *router* assigns IPv6 addresses to the devices on your home network (the LAN).

10. (Optional) Select the **Use This Interface ID** check box and specify the interface ID to be used for the IPv6 address of the *router*'s LAN interface.

    If you do not specify an ID here, the *router* generates one automatically from its MAC address.

11. Click the **Apply** button.

    Your settings are saved.

Change the MTU Size

The maximum transmission unit (MTU) is the largest data packet a network device transmits. When one network device communicates across the Internet with another, the data packets travel through many devices along the way. If a device in the data path uses a lower MTU setting than the other devices, the data packets must be split or "fragmented" to accommodate the device with the smallest MTU.

The best MTU setting for *NETGEAR* equipment is often the default value. In some situations, changing the value fixes one problem but causes another. Leave the MTU unchanged unless one of these situations occurs:

- You experience problems connecting to your ISP or other Internet service, and the technical support of either the ISP or *NETGEAR* recommends changing the MTU setting. These web-based applications might require an MTU change:

- A secure website that does not open, or displays only part of a web page
- Yahoo email
- MSN portal
- America Online's DSL service

- You use VPN and experience severe performance problems.
- You used a program to optimize MTU for performance reasons and now you are experiencing connectivity or performance problems.

Note An incorrect MTU setting can cause Internet communication problems. For example, you might not be able to access certain websites, frames within websites, secure login pages, or FTP or POP servers.

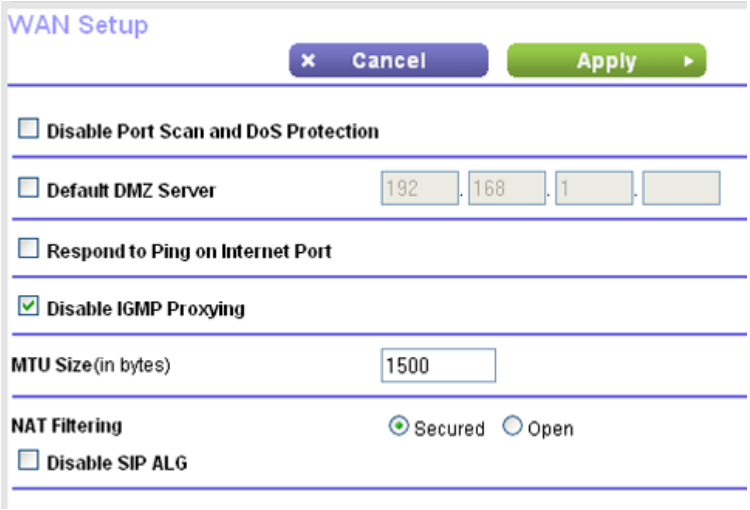
To change the MTU size:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Setup > WAN Setup**.



5. In the **MTU Size** field, enter a value from 64 to 1500.
6. Click the **Apply** button.

Your settings are saved.

If you suspect an MTU problem, a common solution is to change the MTU to 1400. If you are willing to experiment, you can gradually reduce the MTU from the maximum value of 1500 until the problem goes away. The following table describes common MTU sizes and applications.

Table 2. Common MTU sizes

MTU	Application
1500	The largest Ethernet packet size. This setting is typical for connections that do not use PPPoE or VPN and is the default value for *NETGEAR router*s, adapters, and switches.
1492	Used in PPPoE environments.
1472	Maximum size to use for pinging. (Larger packets are fragmented.)
1468	Used in some DHCP environments.
1460	Usable by AOL if you do not send or receive large email attachments, for example.
1436	Used in PPTP environments or with VPN.
1400	Maximum size for AOL DSL.
576	Typical value to connect to dial-up ISPs.

Optimize Performance

4

You can set up the router to optimize performance for applications such as Internet gaming, high definition video streaming, and VoIP communication. By default, the router uses Wi-Fi Multimedia Quality of Service (WMM QoS).

This chapter contains the following sections:

Use Dynamic QoS to Optimize Internet Traffic Management

Dynamic Quality of Service (QoS) helps improve your router's Internet traffic management capabilities through better application and device identification, bandwidth allocation, and traffic prioritization techniques. Dynamic QoS resolves traffic congestion when the Internet bandwidth is limited and different demands compete for bandwidth.

If your Internet download and upload speed is 250 Mbps or less and you like gaming and streaming video, then you can benefit from enabling Dynamic QoS.

Note If you use a Gigabit Internet connection, or your Internet download and upload speed is 300 Mbps or faster, then you don't need to use Dynamic QoS.

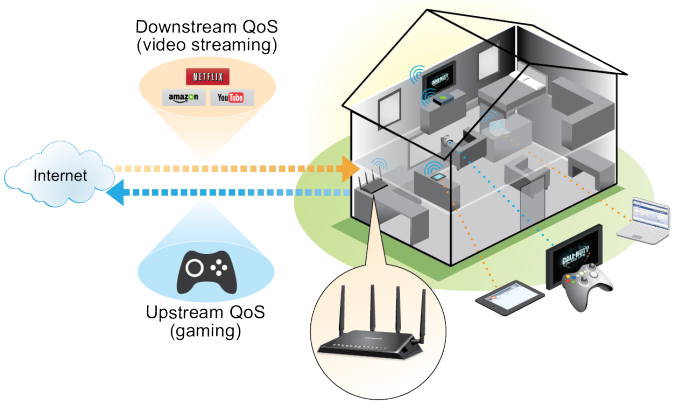


Figure 8. Dynamic QoS optimizes Internet traffic by prioritizing competing demands

Note If you use a Gigabit Internet connection (300 Mbps throughput or faster), then you don't need to use QoS.

Enable Dynamic QoS

Because not everyone uses Dynamic QoS, it is disabled by default.

To enable Dynamic QoS:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

   A login window opens.
3. Enter the *router* user name and password.

The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home page displays.

4. Select **Quality of Service**.

   The QoS Setup page displays.

5. Select the **Dynamic QoS** check box.
6. Specify your Internet bandwidth.

   You must specify your Internet bandwidth so that Dynamic QoS can perform bandwidth allocation and traffic prioritization. NETGEAR recommends that you use Speedtest to detect your Internet bandwidth.

   To use Speedtest, do the following:

   a. For more accurate Speedtest results, make sure that no other devices are accessing the Internet.
   b. Click the **Speedtest** button.

      Speedtest determines your Internet bandwidth.

7. Click the **Apply** button.

   Your settings are saved.

   A link displays on the bottom of the page to view bandwidth utilization. Clicking the link displays the Attached Devices page. For more information, see *View Devices Currently on the Network* on page 118.

Enable or Disable the Automatic QoS Database Update

The router uses a QoS database of the most popular applications and services to implement Dynamic QoS. By default, the router automatically updates this database. You can turn off this feature and manually update the database.

To enable or disable the automatic Dynamic QoS database update:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

   A login window opens.

3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **Quality of Service**.

The QoS Setup page displays.

If you are using Dynamic QoS, the **Dynamic QoS** check box is selected.

5. Select or clear the **Automatically update performance optimization database** check box.
6. Click the **Apply** button.

   Your settings are saved.

Manually Update the Dynamic QoS Database

The router uses a QoS database of the most popular applications and services to implement Dynamic QoS. By default, the router automatically updates this database when you enable Dynamic QoS, but if you turned off the automatic update feature, you can manually update the database.

To manually update the Dynamic QoS database:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

   A login window opens.

3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **Quality of Service**.

   The QoS Setup page displays. If you are using Dynamic QoS, the **Dynamic QoS** check box is selected.

5. Click the **Update Now** button.

   The router checks for the newest version of the database and downloads it.

6. Click the **Apply** button.

   Your settings are saved.

Participate in Dynamic QoS Analytics

NETGEAR uses a QoS database of the most popular applications and services to implement Dynamic QoS. As new applications and services become popular, NETGEAR updates this database and automatically updates your router if you enabled Dynamic QoS. You can opt in to share aggregate QoS information to help improve the Dynamic QoS feature.

To opt in to participate in Dynamic QoS analytics:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

   A login window opens.
3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **Quality of Service**.

   The QoS Setup page displays.
5. Make sure that the you have enabled Dynamic QoS.

   For more information about enabling Dynamic QoS, see *Enable Dynamic QoS* on page 45.
6. Select the **Help improve the Dynamic QoS feature by sharing analytics with NETGEAR** check box.

   A pop-up screen displays detailed information about sharing analytics. The **Yes** radio button is selected by default.
7. After you read the information, click the **Submit** button.
8. Click the **Apply** button.

   Your settings are saved.

Improve Network Connections With Universal Plug and Play

Universal Plug and Play (UPnP) helps devices such as Internet appliances and computers, access the network and connect to other devices as needed. UPnP devices can automatically discover the services from other registered UPnP devices on the network.

If you use applications such as multiplayer gaming, peer-to-peer connections, or real-time communications such as instant messaging or remote assistance (a feature in Windows XP), enable UPnP.

To enable Universal Plug and Play:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > UPnP**.

   The UPnP page displays.

5. Select the **Turn UPnP On** check box.

   By default, this check box is selected. UPnP for automatic device configuration can be enabled or disabled. If the **Turn UPnP On** check box is cleared, the router does not allow any device to automatically control router resources, such as port forwarding.

6. Type the advertisement period in minutes.

   The advertisement period specifies how often the router broadcasts its UPnP information. This value can range from 1 to 1440 minutes. The default period is 30 minutes. Shorter durations ensure that control points receive current device status at the expense of more network traffic. Longer durations can compromise the freshness of the device status but can significantly reduce network traffic.

7. Type the advertisement time to live in hops.

   The time to live for the advertisement is measured in hops (steps) for each UPnP packet sent. Hops are the steps a packet takes between routers. The number of hops can range from 1 to 255. The default value for the advertisement time to live is 4 hops, which should be fine for most home networks. If you notice that some devices are not being updated or reached correctly, it might be necessary to increase this value.

8. Click the **Apply** button.

   The UPnP Portmap Table displays the IP address of each UPnP device that is accessing the router and which ports (internal and external) that device opened. The UPnP Portmap Table also displays what type of port is open and whether that port is still active for each IP address.

To refresh the information in the UPnP Portmap Table, click the **Refresh** button.

Wi-Fi Multimedia Quality of Service

Wi-Fi Multimedia Quality of Service (WMM QoS) prioritizes wireless voice and video traffic over the WiFi link. WMM QoS is automatically enabled for the *router*.

WMM QoS prioritizes wireless data packets from different applications based on four access categories: voice, video, best effort, and background. For an application to receive the benefits of WMM QoS, WMM must be enabled for both it and the client running that application. Legacy applications that do not support WMM and applications that do not require QoS are assigned to the best effort category, which receives a lower priority than voice and video.

To disable WMM QoS:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

   A login window opens.

3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > Setup > QoS Setup**.

   The Quality of Service page displays.

5. Click the **WMM** tab.
6. Clear the **Enable WMM (Wi-Fi multimedia) settings (2.4 GHz b/g/n)** check box.
7. Clear the **Enable WMM (Wi-Fi multimedia) settings (5 GHz b/g/n)** check box.
8. Click the **Apply** button.

   Your changes are saved.

Control Access to the Internet

5

The *router* comes with a built-in firewall that helps protect your home network from unwanted intrusions from the Internet.

This chapter includes the following sections:

Set Up Parental Controls

The first time that you select **Parental Controls** from the BASIC Home page, your browser goes to the Live Parental Controls website, where you can learn more about Parental Controls and download the application.

To set up Parental Controls:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

   A login window opens.
3. Enter the router user name and password.

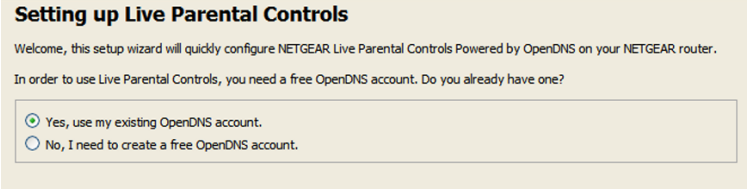
   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **Parental Controls**.

   The Parental Controls website opens.
5. Click the button for the app or version that you want to download and use.
6. Follow the onscreen instructions to download and install the genie app.
7. Open the genie app and select **Parental Controls**.

   After installation, Live Parental Controls automatically starts.
8. Click the **Next** button, read the note, and click the **Next** button again.

   Because Live Parental Controls uses free OpenDNS accounts, you are prompted to log in or create a free account.



9. Select a radio button as follows:

   - If you already own an OpenDNS account, leave the **Yes** radio button selected.
   - If you do not own an OpenDNS account, select the **No** radio button.

   If you are creating an account, the Create a free OpenDNS account page displays. Do the following:

a. Complete the fields.

b. Click the **Next** button.

After you log on or create your account, the filtering level page displays:

10. Select a filtering level and click the **Next** button.

    The Setup is complete screen displays.

11. Click the **Take me to the status screen** button.

    The Status page displays. Parental controls are now set up for the router.

12. To enable Parental Controls, click the **Enable Live Parental Controls**.

Allow or Block Access to Your Network

You can use access control to block or allow access to your network.

To set up access control:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

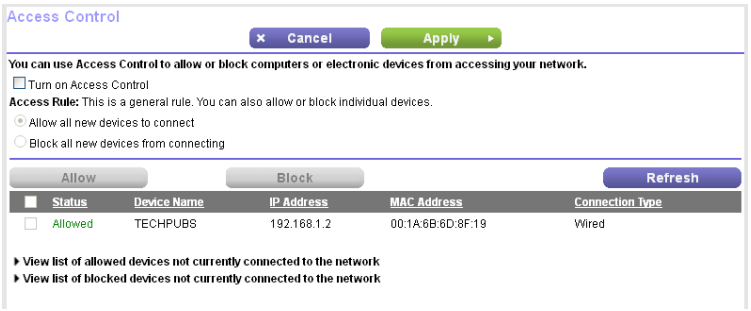
   A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > Security > Access Control**.



5. Select the **Turn on Access Control** check box.

   You must select this check box before you can specify an access rule and use the **Allow** and **Block** buttons. When this check box is cleared, all devices are allowed to connect, even if a device is in the blocked list.

6. Select an access rule:

- **Allow all new devices to connect**. With this setting, if you add a new device, it can access your network. You don’t need to enter its MAC address on this page. We recommend that you leave this radio button selected.
- **Block all new devices from connecting**. With this setting, if you add a new device, before it can access your network, you must enter its MAC address for an Ethernet connection and its MAC address for a WiFi connection in the allowed list.

The access rule does not affect previously blocked or allowed devices. It applies only to devices joining your network in the future after you apply these settings.

7. To view allowed or blocked devices that are not connected, click one of the following links:
   - **View list of allowed devices not currently connected to the network**
   - **View list of blocked devices not currently connected to the network**

   The list displays.
8. To allow the computer or device you’re currently using to continue to access the network, select the check box next to your computer or device, and click the **Allow** button.
9. Click the **Apply** button.

   Your changes take effect.

Manage Network Access Control Lists

You can use access control to block or allow access to your network.

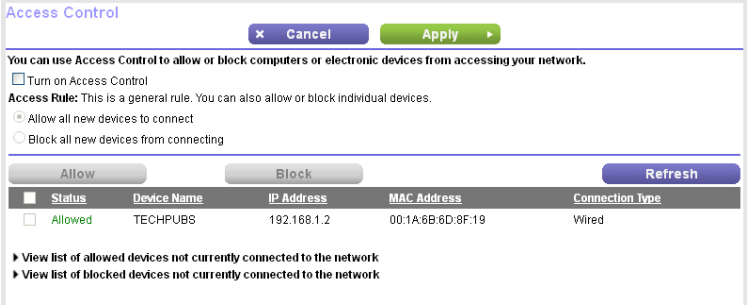
To manage devices that are allowed or blocked:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

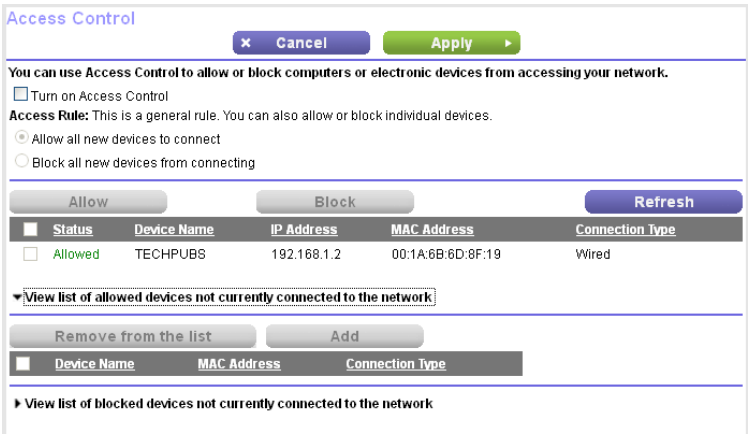
   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Security > Access Control**.



5. Click the **View list of allowed devices not currently connected to the network** link.

   The list displays.



6. Select the check box for a device.
7. Use the **Add** button, **Edit** button, and **Remove from the List** button as needed.
8. Click the **Apply** button.

   Your changes take effect.

Delete Keywords From the Blocked List

To delete keywords from the list:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **admin**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Security > Block Sites**.
5. Do one of the following:

   - To delete a single word, select it and click the **Delete Keyword** button.

     The keyword is removed from the list.
   - To delete all keywords on the list, click the **Clear List** button.

     All keywords are removed from the list.
6. Click the **Apply** button.

Your changes are saved.

Use Keywords to Block Internet Sites

You can use keywords to block certain Internet sites from your network. You can use blocking all the time or based on a schedule.

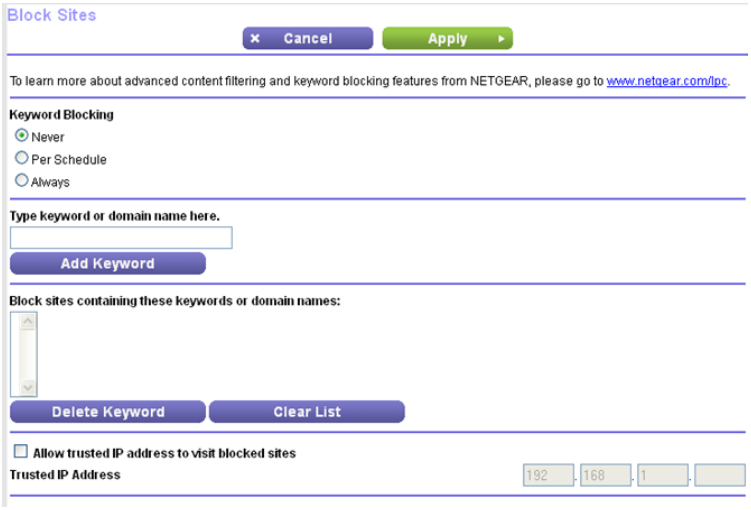
To block Internet sites:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Use the Router as a Wireless Access Point

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Security > Block Sites**.



5. Select a keyword blocking option:

   - **Per Schedule**. Turn on keyword blocking according to a schedule that you set. (See *Schedule When to Block Internet Sites and Services* on page 60.)
   - **Always**. Turn on keyword blocking all the time, independent of the Schedule screen.
6. In the **Type keyword or domain name here** field, enter a keyword or domain that you want to block.

   For example:

- Specify XXX to block http://www.badstuff.com/xxx.html.
- Specify .com if you want to allow only sites with domain suffixes such as .edu or .gov.
- Enter a period (**.**) to block all Internet browsing access.

7. Click the **Add Keyword** button.

   The keyword is added to the keyword list. The keyword list supports up to 32 entries.

8. Click the **Apply** button.

   Keyword blocking takes effect.

Block Services From the Internet

You can block Internet services on your network based on the type of service. You can block the services all the time or based on a schedule.

To block services:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

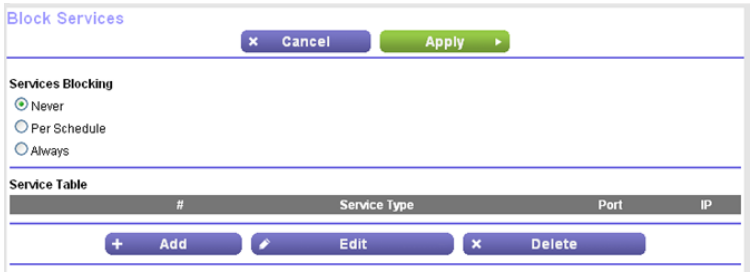
   A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > Security > Block Services**.

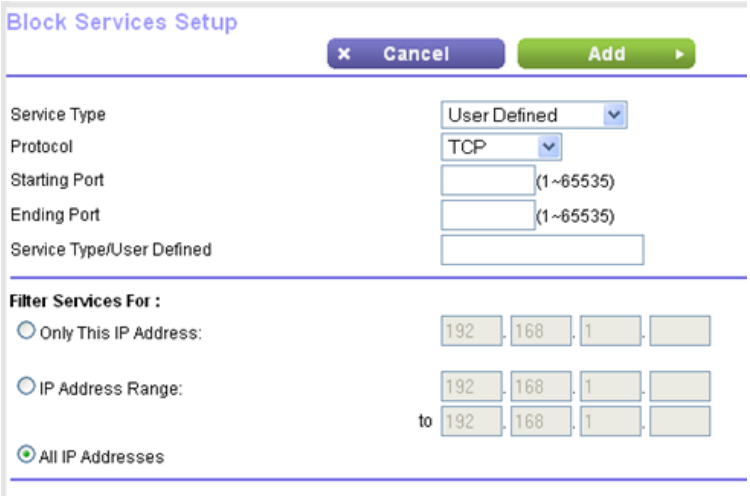


5. Specify when to block the services:

   - To block the services all the time, select the **Always** radio button.
   - To block the services based on a schedule, select the **Per Schedule** radio button.

For information about how to specify the schedule, see *Schedule When to Block Internet Sites and Services* on page 60.

6. Click the **Add** button.



7. To add a service that is in the **Service Type** menu, select the application or service.

   The settings for this service automatically display in the fields.

8. To add a service or application that is not in the menu, select **User Defined**.
   a. If you know that the application uses either TCP or UDP, select the appropriate protocol. Otherwise, select **TCP/UDP** (both).
   b. Enter the starting port and ending port numbers.

      If the service uses a single port number, enter that number in both fields. To find out which port numbers the service or application uses, you can contact the publisher of the application, ask user groups or newsgroups, or search on the Internet.

9. Select a filtering option:

   - **Only This IP Address**. Block services for a single computer.
   - **IP Address Range**. Block services for a range of computers with consecutive IP addresses on your network.
   - **All IP Addresses**. Block services for all computers on your network.

10. Click the **Add** button.

Your changes are saved.

Schedule When to Block Internet Sites and Services

When you schedule blocking, the same schedule is used to block sites and to block services. For information about how to specify what you want the router to block, see *Use Keywords to Block Internet Sites* on page 57 and *Block Services From the Internet* on page 58.

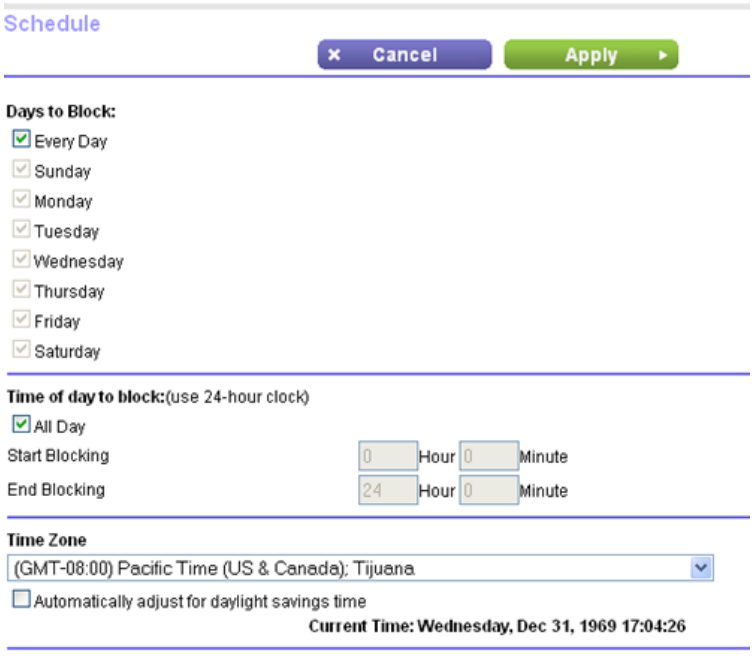
To schedule blocking:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Security > Schedule**.



5. Specify when to block keywords and services:

- **Days to Block**. Select the check box for each day that you want to block the keywords, or select the **Every Day** check box, which automatically selects the check boxes for all days.
- **Time of Day to Block**. Select a start and end time in 24-hour format, or select **All Day** for 24-hour blocking.

6. Select your time zone from the list.
7. If you live in a region that observes daylight saving time, select the **Automatically adjust for daylight savings time** check box.
8. Click the **Apply** button.

   Your settings are saved.

Avoid Blocking on a Trusted Computer

You can exempt one trusted computer from blocking. The computer you exempt must be assigned a fixed IP address. You can use the reserved IP address feature to specify the IP address. See *Manage Reserved LAN IP Addresses* on page 132.

To specify a trusted computer:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > Security > Block Sites**.
5. Scroll down and select the **Allow trusted IP address to visit blocked sites** check box.
6. In the **Trusted IP Address** field, enter the IP address of the trusted computer.
7. Click the **Apply** button.

   Your changes are saved.

Set Up Security Event Email Notifications

The router can email you its logs of router activity. The log records router activity and security events such as attempts to access blocked sites or services.

To set up email notifications:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

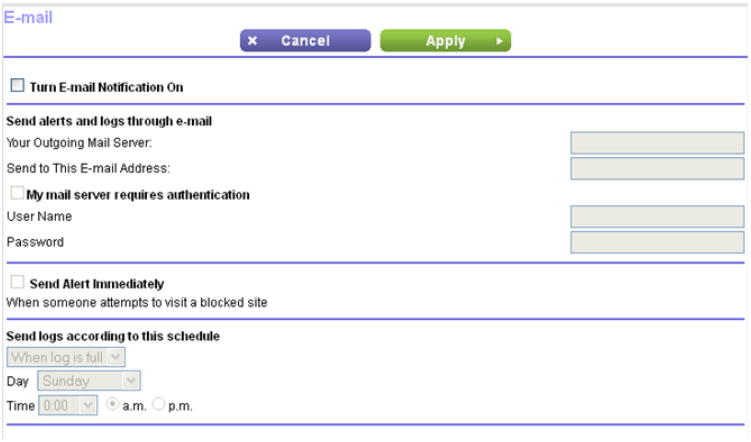
A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > Security > E-mail**.



5. Select the **Turn E-mail Notification On** check box.
6. In the **Your Outgoing Mail Server** field, enter the name of your ISP outgoing (SMTP) mail server (such as mail.myISP.com).

   You might be able to find this information in the configuration window of your email program. If you leave this field blank, log and alert messages are not sent.

7. In the **Send to This E-mail Address** field, type the email address to which logs and alerts are to be sent.

   This email address is also used for the From address. If this field is blank, log and alert messages are not sent.

8. If your outgoing email server requires authentication, select the **My Mail Server requires authentication** check box, and do the following:
   a. In the **User Name** field, type the user name for the outgoing email server.
   b. In the **Password** field, type the password for the outgoing email server.
9. To send alerts when someone attempts to visit a blocked site, select the **Send Alerts Immediately** check box.

   Email alerts are sent immediately when someone attempts to visit a blocked site.

10. To send logs based on a schedule, specify these settings:

a. From **Send logs according to this schedule** menu, select the schedule type.
b. From the **Day** menu, select the day.
c. From the **Time** menu, select the time, and select the **am** or **pm** radio button.

11. Click the **Apply** button.

    Your settings are saved.

    Logs are sent automatically according to the schedule that you set. If the log fills before the specified time, it is sent. After the log is sent, it is cleared from the *router* memory. If the *router* cannot email the log and the log buffer fills, the *router* overwrites the log.

Share Storage Devices Attached to the Router

6

This chapter describes how to access and manage storage devices attached to your *router*. ReadySHARE lets you access and share storage devices, such as a USB or eSATA storage device, connected to the router. (If your storage device uses special drivers, it is not compatible.)

Note The USB ports on the *router* can be used only to connect USB storage devices like flash drives or hard drives or a printer. Do not connect computers, USB modems, CD drives, or DVD drives to the *router* USB port.

This chapter contains the following sections:

For more information about ReadySHARE features, visit *www.netgear.com/readyshare*.

Connect an eSATA Device to the Router

You can connect an eSATA device to the eSATA port located on the right side of the router.

Figure 9. eSATA port

USB Device Requirements

The *router* works with most USB-compliant external flash and hard drives. For the most up-to-date list of USB devices that the router supports, visit *http://kbserver.netgear.com/readyshare*.

Some USB external hard drives and flash drives require you to load the drivers onto the computer before the computer can access the USB device. Such USB devices do not work with the router.

The router supports the following file system types for full read/write access:

- FAT16
- FAT32
- NTFS
- NTFS with compression format enabled
- Ext2
- Ext3
- Ext4
- HFS
- HFS+

Connect a USB Device to the Router

ReadySHARE lets you access and share a USB device connected to the router USB port. (If your USB device uses special drivers, it is not compatible.)

Figure 10. Two 3.0 USB ports are located on the side of the router

To connect a USB device:

1. Insert your USB storage drive into a USB port on the side panel of the router.
2. If your USB device uses a power supply, connect it.

   You must use the power supply when you connect the USB device to the router.

   When you connect the USB device to the router USB port, it might take up to two minutes before it is ready for sharing. By default, the USB device is available to all computers on your local area network (LAN).

Access a Storage Device That Is Connected to the Router From a Mac

From a computer or device on the network, you can access a storage device that is connected to the *router*.

To access the device from a Mac:

1. Connect a USB or eSATA storage device to the appropriate port on the router.

   If your storage device uses a power supply, you must use it when you connect the device to the router.

   When you connect the storage device to the router's port, it might take up to two minutes before it is ready for sharing. By default, the device is available to all computers on your local area network (LAN)

2. On a Mac that is connected to the network, select **Go > Connect to Server**.
3. In the **Server Address** field, enter **smb://readyshare**.
4. When prompted, select the **Guest** radio button.

   If you set up access control on the router and you allowed your Mac to access the network, select the **Registered User** radio button and enter **admin** for the name and **password** for the password. For

more information about access control, see the user manual, which is available online at *http://downloadcenter.netgear.com* or through a link in the router's user interface.

5. Click the **Connect** button.

   A window automatically opens and displays the files and folders on the device.

Access a Storage Device Connected to the Router From a Windows Computer

To access the device from a Windows computer:

1. Connect a USB or eSATA storage device to the appropriate port on the router.

   If your storage device uses a power supply, you must use it when you connect the device to the router.

   When you connect the storage device to the router's port, it might take up to two minutes before it is ready for sharing. By default, the device is available to all computers on your local area network (LAN).

2. Select **Start > Run**.
3. Enter **\\readyshare** in the dialog box.
4. Click the **OK** button.

   A window automatically opens and displays the files and folders on the device.

Map a USB Device to a Windows Network Drive

To map the USB device to a Windows network drive:

1. Connect a USB or eSATA storage device to the appropriate port on the router.

   If your storage device uses a power supply, you must use it when you connect the device to the router.

   When you connect the storage device to the router's port, it might take up to two minutes before it is ready for sharing. By default, the device is available to all computers on your local area network (LAN).

2. Select **Start > Run**.
3. Enter **\\readyshare** in the dialog box.
4. Click the **OK** button.
5. Right-click the USB device and select **Map network drive**.
6. Select the drive letter to map to the new network folder.
7. Click the **Finish** button.

   The USB device is mapped to the drive letter that you specified.

8. To connect to the USB storage device as a different user, select the **Connect using different credentials** check box, click the **Finish** button, and do the following:

a. Type the user name and password.
b. Click the **OK** button.

The USB device is mapped to the drive letter that you specified.

Back Up Windows Computers With ReadySHARE Vault

Your router comes with free backup software for all the Windows computers in your home. Connect a USB hard disk drive (HDD) or an eSATA storage device to the router for centralized, continuous, and automatic backup.

The following operating systems support ReadySHARE Vault:

- Windows XP SP3
- Windows 7
- Windows 8
- Windows 8.1

To back up your Windows computer:

1. Connect a USB HDD or eSATA storage device to the appropriate port on the router.
2. Download ReadySHARE Vault from *http://www.netgear.com/readyshare* and install it on each Windows computer.
3. Launch ReadySHARE Vault.
4. Use the dashboard or the **Backup** tab to set up and run your backup.

Back Up Mac Computers With Time Machine

You can use Time Machine to back up your Mac computers onto a USB hard drive that is connected to one of the router's USB ports or an eSATA storage device connected to the router's eSATA port. You can access the connected storage device from your Mac with a wired or wireless connection to your router.

Set Up a USB Hard Drive on a Mac

NETGEAR recommends that you use a new USB HDD or eSATA storage device, or format your old USB HDD or eSATA storage device to do the Time Machine backup for the first time. Use a blank partition to prevent some issues during backup using Time Machine. The router supports GUID or MBR partitions.

To format your USB hard disk drive and specify partitions:

1. Physically connect the USB HDD or eSATA storage device to your Mac.
2. On your Mac, go to **Spotlight** (or the magnifying glass) at the top right of the page and search for **Disk Utility**.
3. Open the Disk Utility, select your USB HDD or eSATA storage device, click the **Erase** tab, and click the **Erase** button.
4. Click the **Partition** tab.
5. In the **Partition Layout** menu, set the number of partitions that you want to use.
6. Click the **Options** button.

   The Partition schemes display.
7. Select the **GUID Partition Table** or **Master Boot Record** radio button.
8. In the **Format** menu, select **Mac OS Extended (Journaled)**.
9. Click the **OK** button.
10. Click the **Apply** button.

    Your settings are saved.

Prepare to Back Up a Large Amount of Data

Before you back up a large amount of data with Time Machine, NETGEAR recommends that you follow this procedure.

To prepare to back up a large amount of data:

1. Upgrade the operating system of the Mac computer.
2. Verify and repair the backup disk and the local disk.
3. Verify and repair the permissions on the local disk.
4. Set Energy Saver:
   a. From the **Apple** menu, select **System Preferences**.
      The System Preferences window displays.
   b. Select **Energy Saver**.
      The Energy Saver page displays.
   c. Click the **Power Adapter** tab.
   d. Select the **Wake for Wi-Fi network access** check box.
   e. Click the **back arrow** to save the changes and exit the screen.
5. Modify your security settings:
   a. From the **System Preferences** window, select **Security & Privacy**.
      The Security & Privacy page displays.
   b. Click the **Advanced** button at the bottom of the page.

If the Advanced button is grayed out, click the lock icon so that you can change the settings.

c. Clear the **Log out after minutes of inactivity** check box.

d. Click the **OK** button.
Your changes are saved.

Use Time Machine to Back Up Onto a Storage Device

You can use Time Machine to back up your Mac computers onto a USB hard disk drive (HDD) that is connected to one of the router's USB ports or an eSATA storage device that is connected to the router's eSATA port.

To back up your Mac onto a USB hard drive:

1. Prepare your USB HDD or eSATA storage device with a compatible format and partitions.

   For more information, see *Set Up a USB Hard Drive on a Mac* on page 69.

2. If you plan to back up a large amount of data, see *Prepare to Back Up a Large Amount of Data* on page 70.
3. Connect your USB HDD or eSATA storage device to the appropriate port on the router.

   Note If your USB HDD or eSATA storage device uses a power supply, you must use it when you connect the USB HDD or eSATA storage device to the router.

   When you connect the USB HDD or eSATA storage device to the router, it might take up to two minutes before it is ready for sharing. By default, the USB HDD or eSATA storage device is available to all computers on your local area network (LAN).

4. On a Mac computer that is connected to the network, launch Finder and select **Go > Connect to Server**.

   The Connect to Server window displays.

5. Type **smb://routerlogin.net** and click the **Connect** button.
6. When prompted, select the **Registered User** radio button.
7. Enter **admin** for the name and **password** for the password and click the **Connect** button.

   A list of USB devices connected to your router displays.

8. From the **Apple** menu, select **System Preferences**.

   The System Preferences window displays.

9. Select Time Machine.
   The Time Machine window displays.
10. Click the **Select Backup Disk** button and select your USB device from the list.
11. Click the **Use Disk** button.

Note If you do not see the USB partition that you want in the Time Machine disk list, go to Mac Finder and click that USB partition. It displays in the Time Machine list.

12. When prompted, select the **Registered User** radio button.
13. Enter **admin** for the name and **password** for the password and click the **Connect** button.

    When the setup is complete, the Mac automatically schedules a full back up. You can back up immediately if you want.

Control Access to a Storage Device

You can specify the device name, workgroups, and network folders for storage devices connected to the router USB ports and eSATA port.

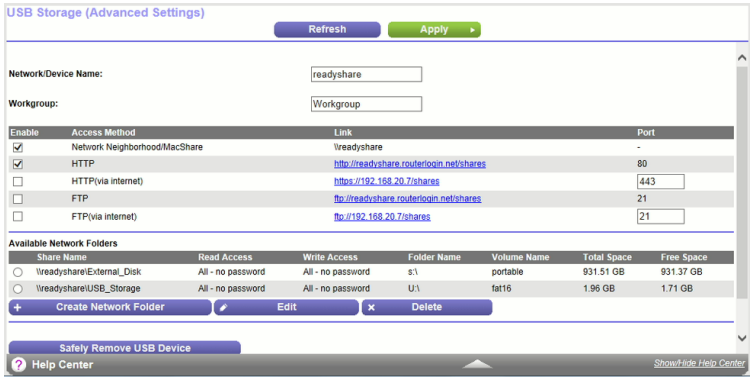
To specify the storage device access settings:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type**http://www.routerlogin.net**.

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > ReadySHARE > Advanced Settings**.



5. Specify access to the storage device:

a. **Network Device Name**. This is the name used to access the device connected to the *router*.
b. **Workgroup**. If you are using a Windows workgroup rather than a domain, the workgroup name displays here. The name works only in an operating system that supports NetBIOS, such as Microsoft Windows.
c. **Access Method**. Select the check boxes for the access methods that you want:
   - **Network Neighborhood/MacShare**. Enabled by default.
   - **HTTP**. Enabled by default. You can type **http://readyshare.routerlogin.net/shares** to access the storage device.
   - **HTTP (via Internet)**. Disabled by default. If you enable this feature, remote users can type **http://***<public IP address/shares>* (for example, http://1.1.10.102/shares) or a URL domain name to access the device over the Internet. This feature supports file uploading only.
   - **FTP**. Disabled by default.
   - **FTP (via Internet)**. Disabled by default. If you select this check box, remote users can access the device through FTP over the Internet. This feature supports both downloading and uploading of files.

6. If you changed the settings, click the **Apply** button.

   Your settings are saved.

Use FTP Within the Network

File Transfer Protocol (FTP) lets you send and receive large files faster.

To set up FTP access:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

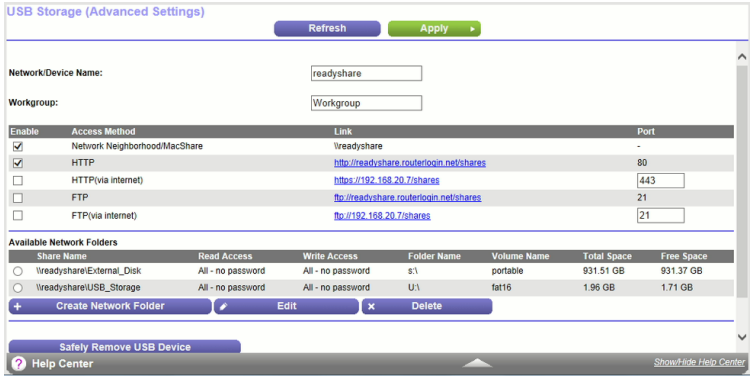
   A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > ReadySHARE > Advanced Settings**.



5. Select the **FTP** check box.
6. Click the **Apply** button.

   Your settings are saved.

View or Change Network Folders on a Device

You can view or change the network folders on an eSATA device or a USB storage device connected to the router.

To view or change network folders:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

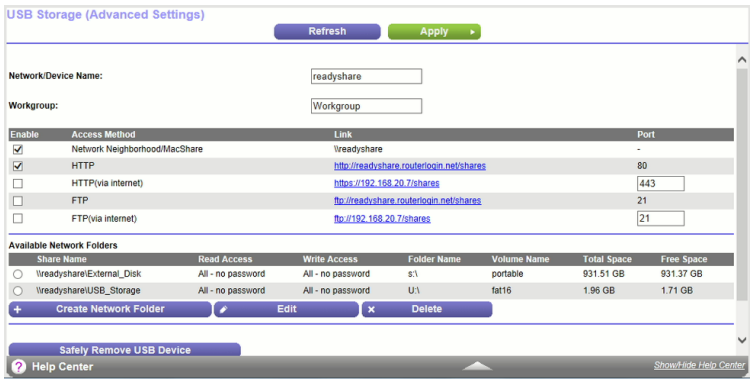
   A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > ReadySHARE > Advanced Settings**.



5. Scroll down to the Available Networks Folder section of the screen and adjust the following settings:
   - **Share Name**. If only one USB device is connected, the default share name is USB_Storage. The default share name for an eSATA device is External_Disk.

     You can click the name or you can type it in the address field of your web browser. If Not Shared is shown, the default share was deleted and no other share for the root folder exists. Click the link to change this setting.
   - **Read Access and Write Access**. Show the permissions and access controls on the network folder. All–no password (the default) allows all users to access the network folder. The password for admin is the same one that you use to log in to the *router*.
   - **Folder Name**. Full path of the network folder.
   - **Volume Name**. Volume name from the storage device.
   - **Total Space and Free Space**. Show the current utilization of the storage device.

Add a Network Folder on a Storage Device

You can add network folders on a storage device connected to the router USB ports and eSATA port.

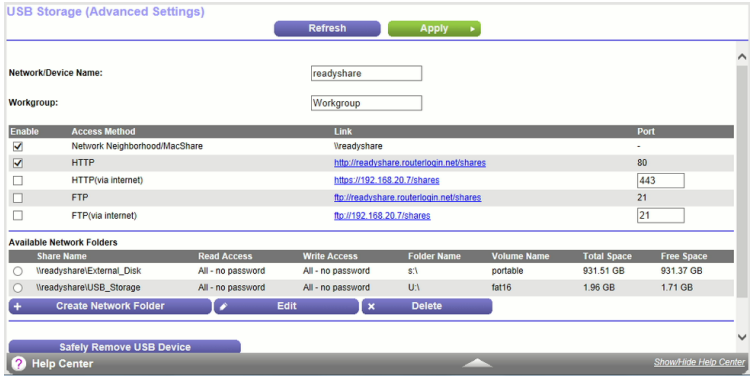
To add a network folder:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

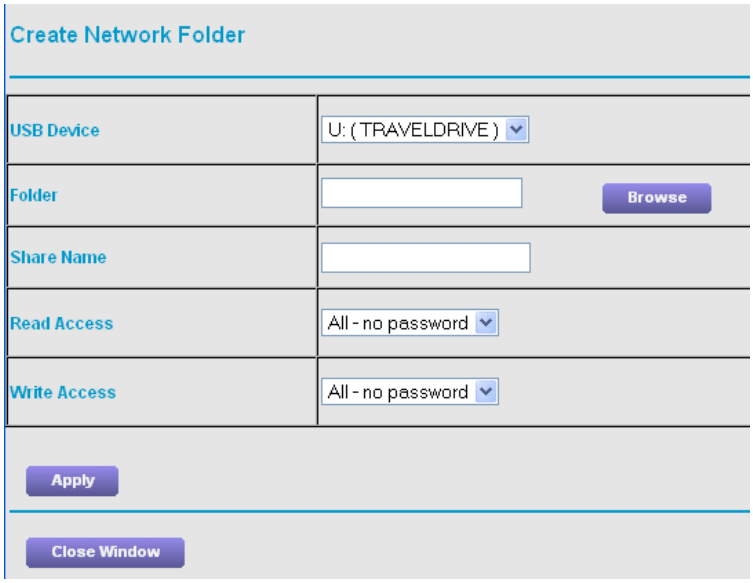
   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > ReadySHARE > Advanced Settings**.



5. Select a device.
6. Click the **Create Network Folder** button.



If this window does not open, your web browser might be blocking pop-ups. If it is, change the browser settings to allow pop-ups.

7. Complete the fields.

   The user name (account name) for All–no password is guest. The password for admin is the same one that is used to log in to the *router*. By default, it is password.

8. Click the **Apply** button.

   The folder is added on the storage device.

Edit a Network Folder on a Storage Device

You can edit network folders on storage devices connected to the router USB ports and eSATA port.

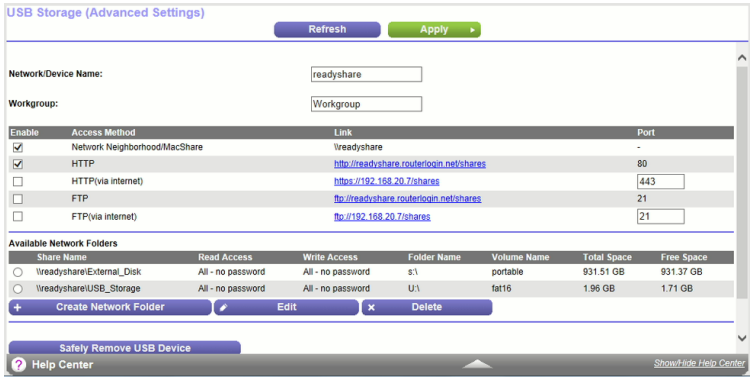
To edit a network folder:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > ReadySHARE> Advanced Settings**.



5. Click the **Edit** button.

   The Edit Network Folder window opens.
6. Change the settings in the fields as needed.
7. Click the **Apply** button.

   Your changes are saved.

Approve USB Devices

For more security, you can set up the *router* to share only USB devices that you approve.

To approve USB devices:

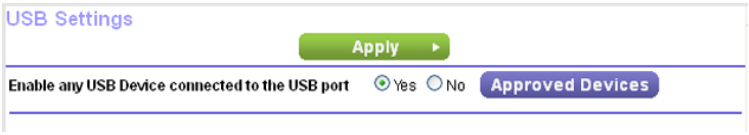
1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

   A login window opens.
3. Enter the router user name and password.

The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

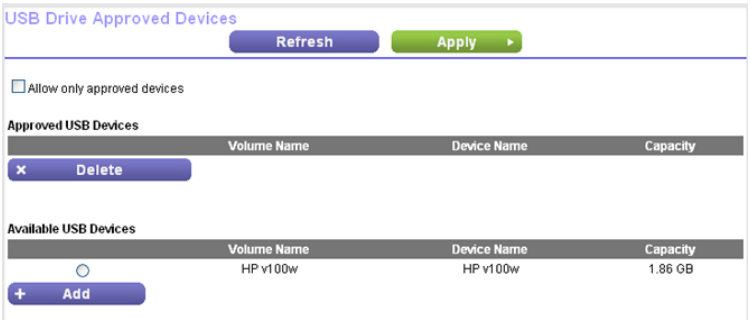
The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > USB Settings**.



By default the Enable any USB Device connection to the USB port radio button is selected. This setting lets you connect and access all your USB devices.

5. Select the **No** radio button.
6. Click the **Approved Devices** button.



The approved and available USB devices display.

7. In the Available USB Devices list, select the device that you want to approve.
8. Click the **Add** button.

The USB device is added to the Approved USB Devices list.

9. Select the **Allow only approved devices** check box.
10. Click the **Apply** button.

Your settings are saved.

11. To work with another USB device, first click the **Safely Remove USB Device** button for the currently connected USB device. Connect the other USB device, and repeat this process.

Safely Remove a USB Device

Before you physically disconnect a USB device from the router USB port, log in to the router and take the drive offline.

To remove a USB disk drive safely:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type**http://www.routerlogin.net**.

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **USB Storage > Basic Settings**.

   The USB Settings page displays.
5. Click the **Safely Remove USB Device** button.

   This takes the device offline.
6. Physically disconnect the USB device.

Access Storage Devices Through the Internet

7

With Dynamic DNS, you can use the Internet to access an eSATA drive attached to the router's eSATA port and USB hard drives attached to the router's USB ports when you're not home. This chapter includes the following sections:

For information about how to connect the device and specify its settings, see *Share Storage Devices Attached to the Router* on page 64.

Access Storage Devices Through the Internet

You can access eSATA and USB devices through the Internet when you're not home.

To access devices from a remote computer:

1. Launch a web browser on a computer that is not on your home network.
2. Connect to your home router:

   - To connect with Dynamic DNS, type the DNS name.

     To use a Dynamic DNS account, you must enter the account information on the Dynamic DNS page. See *Dynamic DNS* on page 83.

   - To connect without Dynamic DNS, type the *router*'s Internet port IP address.

     You can view the *router*'s Internet IP address on the BASIC Home page.

You can use FTP to share files on a USB device connected to the router.

Set Up FTP Access Through the Internet

To set up FTP access:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > ReadySHARE > Advanced Settings**.

   The ReadySHARE Advanced Settings page displays.
5. Select the **FTP (via Internet)** check box.
6. Click the **Apply** button.

   Your changes are saved.
7. To limit access to the admin user, click the **Edit** button.

   The Edit page displays.
8. In the **Read Access** list, select **admin**.
9. In the **Write Access** list, select **admin**.
10. Click the **Apply** button.

    Your changes are saved.

Access Storage Devices Through the Internet with FTP

You must first set up FTP through Internet access as described in *Set Up FTP Access Through the Internet* on page 82.

To access a USB device with FTP from a remote computer:

1. To download, launch a web browser.
2. To upload, use an FTP client such as filezilla.
3. Type **ftp://** and the Internet port IP address in the address field of the browser.

   For example, type **ftp://10.1.65.4**.

   If you are using Dynamic DNS, type the DNS name.

For example, type **ftp://MyName.mynetgear.com**.

4. When prompted, log in:

   - To log in as admin, in the **user name** field, enter **admin** and in the **password** field, type the same password that you use to log in to the router.
   - To log in as guest, in the **user name** field, enter **guest**.

     The guest user name does not need a password. To restrict access to the USB device, you can specify that only the admin user can access it. See *Control Access to a Storage Device* on page 72.

   The files and folders that your account can access on this USB device display. For example, you might see share/partition1/directory1.

Dynamic DNS

Internet service providers (ISPs) assign numbers called IP addresses to identify each Internet account. Most ISPs use dynamically assigned IP addresses. This means that the IP address can change at any time. You can use the IP address to access your network remotely, but most people don't know what their IP addresses are or when this number changes.

To make it easier to connect, you can get a free account with a Dynamic DNS service that lets you use a domain name to access your home network. To use this account, you must set up the router to use Dynamic DNS. Then the router notifies the Dynamic DNS service provider whenever its IP address changes. When you access your Dynamic DNS account, the service finds the current IP address of your home network and automatically connects you.

If your ISP assigns a private WAN IP address (such as 192.168.x.x or 10.x.x.x), the Dynamic DNS service does not work because private addresses are not routed on the Internet.

Your Personal FTP Server

With your customized free URL, you can use FTP to access your network when you aren't home through Dynamic DNS. To set up your FTP server, you must register for a NETGEAR Dynamic DNS (DDNS) service account and specify the account settings. See *Set Up a New Dynamic DNS Account* on page 84.

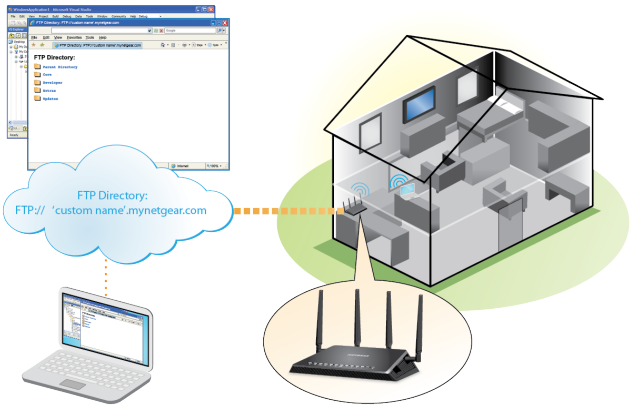


Figure 11. You can access your network through the Internet when you're not home

Note The router supports only basic DDNS, and the login and password might not be secure. You can use DDNS with a VPN tunnel for a secure connection.

Set Up a New Dynamic DNS Account

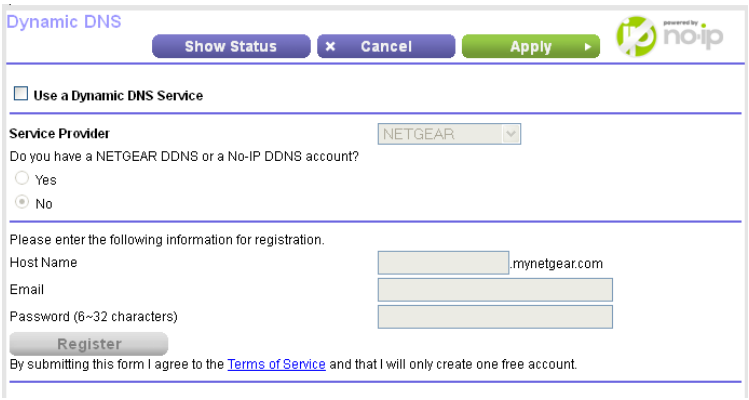
To set up Dynamic DNS and register for a free NETGEAR account:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Advanced Setup > Dynamic DNS**.



5. Select the **Use a Dynamic DNS Service** check box.
6. From the **Service Provider** menu, select **NETGEAR**.
7. Select the **No** radio button.
8. In the **Host Name** field, type the name that you want to use for your URL.

   The host name is sometimes called the domain name. Your free URL includes the host name that you specify and ends with mynetgear.com. For example, specify *MyName*.mynetgear.com.
9. In the **Email** field, type the email address for your account.
10. In the **Password (6-32 characters)** field, type the password for your account.
11. Click the **Register** button.
12. Follow the onscreen instructions to register for your NETGEAR Dynamic DNS service.

Specify a DNS Account That You Already Created

If you already created a Dynamic DNS account with NETGEAR No-IP, or Dyn, you can set up the router to use your account.

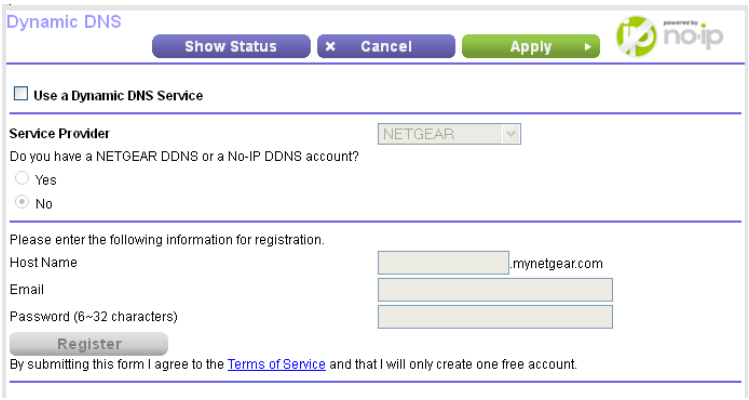
To set up Dynamic DNS if you already created an account:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Advanced Setup > Dynamic DNS**.



5. Select the **Use a Dynamic DNS Service** check box.
6. From the **Service Provider** menu, select your provider.
7. Select the **Yes** radio button.

   The page adjusts and displays the **Show Status**, **Cancel**, and **Apply** buttons.

8. In the **Host Name** field, type the host name (sometimes called the domain name) for your account.
9. For a No-IP or Dyn account, in the **User Name** field, type the user name for your account.
10. For a NETGEAR account at No-IP, in the **Email** field, type the email address for your account.
11. In the **Password (6-32 characters)** field, type the password for your DDNS account.
12. Click the **Apply** button.

    Your changes are saved.

13. To verify that your Dynamic DNS service is enabled in the router, click the **Show Status** button.

    A message displays the Dynamic DNS status.

Change the Dynamic DNS Settings

You can change the settings for your Dynamic DNS account.

To change your settings:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > Dynamic DNS**.

   The Dynamic DNS page displays.

5. Change your DDNS account settings as necessary.
6. Click the **Apply** button.

   Your settings are saved.

Set Up Your Personal FTP Server

To set up your personal account and use FTP:

1. Get your NETGEAR Dynamic DNS domain name.

   See *Set Up FTP Access Through the Internet* on page 82.

2. Make sure that your Internet connection is working.

   Your router must use a direct Internet connection. It cannot connect to a different router to access the Internet.

3. Connect a storage device to the router.

   You can connect an eSATA device to the eSATA port and you can connect USB hard disk drives to the USB ports on the router.

4. Set up FTP access in the router.

   See *Set Up FTP Access Through the Internet* on page 82.

5. On a remote computer with Internet access, you can use FTP to access your router using ftp://yourname.mynetgear.com.

Use the *Router* as a Media Server

8

The router comes set up to work as a ReadyDLNA media server. You can set up the router to play music from iTunes Server and media from TiVo.

This chapter contains the following sections:

Specify ReadyDLNA Media Server Settings

By default, the router acts as a ReadyDLNA media server, which lets you view movies and photos on DLNA/UPnP AV-compliant media players, such as Xbox360, Playstation, and NETGEAR media players.

To specify media server settings:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > ReadySHARE > Media Server**.

   The Media Server Settings page displays.
5. Specify the settings:

   - **Enable DLNA Media Server**. Select this check box to enable this device to act as a media server.
   - **Enable TiVo support**. Select this check box if you want to play ReadyNAS media on your TiVo device. See *Play Media From a USB Device on TiVo* on page 91.
   - **Media Server Device Name**. Specify the name of the media server.
6. Click the **Apply** button.

   Your changes are saved.

Play Music From a Storage Device With iTunes Server

iTunes Server lets you play music with your Windows or Mac iTunes app from a storage device that is connected to the router. You can also use the Apple Remote app from an iPhone or iPad to play music on any AirPlay devices, such as Apple TV or AirPlay-supported receivers.

Figure 12. Play music on a USB device with iTunes

Supported music file formats are MP3, AAC, and FLAC. The maximum number of music files supported is 10,000.

To specify iTunes server settings:

1. On your iPhone or iPad, find and connect to the WiFi network.
2. Launch the Remote app.
3. Click the **Add a Device** button.

   A passcode displays.

4. Specify the passcode in the router:
   a. Launch a web browser from a computer or wireless device that is connected to the network.
   b. Type **http://www.routerlogin.net** .

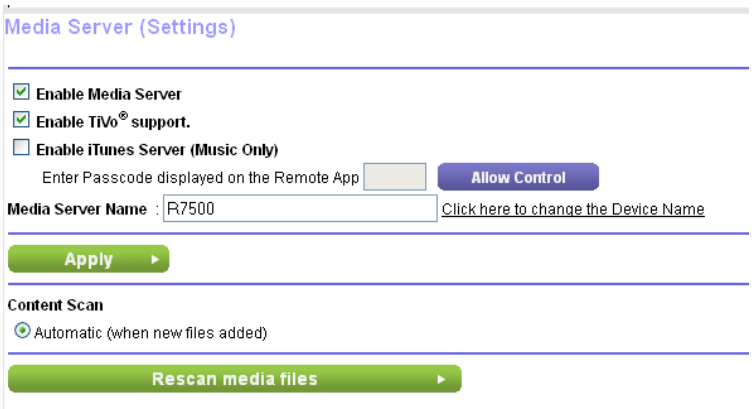
      A login window opens.

   c. Enter the router user name and password.

      The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

      The BASIC Home page displays.

   d. Select **ADVANCED > ReadySHARE Storage > Media Server**.



e. Make sure that the **Enable iTunes Media Server (Music Only)** check box is selected.

f. Enter the passcode.

g. Click the **Allow Control** button.

h. Click the **Apply** button.

Your changes are saved.

On your iPhone or iPad, the ReadySHARE music library displays in the Remote app. You can play this music on AirPlay devices.

Play Media From a USB Device on TiVo

You can set up your TiVo to access media files stored on a USB device that is connected to your router. The TiVo must be on the same network as the router. This feature supports the following file formats:

- **Video**. See and play mpeg1, and mpeg2 files.
- **Music**. See and play MP3 files.
- **Pictures**. View images in .jpg format.

You can use the TiVo (Series 2 and up) Home Media Option to play photos and music on your Windows or Mac computer in your TiVo user interface.

Set Up the *Router* to Work With TiVo

To set up the *router* to work with TiVo:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home page displays.

4. Select **ADVANCED > ReadySHARE Storage > Media Server**.

   The Media Server Settings page displays.

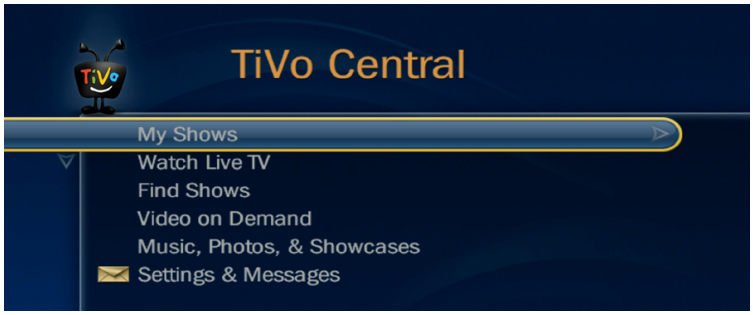
5. Make sure that the **Enable TiVo support** check box is selected.
6. If you changed the setting, click the **Apply** button.

   Your settings are saved.

Play Videos

To play videos:

1. On the TiVo, select **TiVo Central > My Shows**.



2. Go to the bottom of the list and select the *R7500v2*.

Play Music or View Photos

To play music or view photos:

1. On the TiVo, select **TiVo Central > Music, Photos, & Showcases**.

2. Select an item to play or watch.

Copy TiVo Files to a Computer

To copy TiVo files to a computer:

- Use the TiVo Desktop accessory, available at *https://www3.tivo.com/store/accessories-software.do*.

Share a USB Printer

9

The ReadySHARE Printer utility lets you share a USB printer that is connected to the USB port on your *router*. You can share this USB printer among the Windows and Mac computers on your network.

This chapter contains the following sections:

Install the Printer Driver and Cable the Printer

Some USB printer manufacturers (for example, HP and Lexmark) request that you do not connect the USB cable until the installation software prompts you to do so.

To install the driver and cable the printer:

1. On each computer on your network that shares the USB printer, install the driver software for the USB printer.

   If the printer driver is not installed, contact the printer manufacturer.

2. Use a USB printer cable to connect the USB printer to a *router* USB port.

Download the ReadySHARE Printer Utility

The utility works on Windows and Mac computers.

To download the utility:

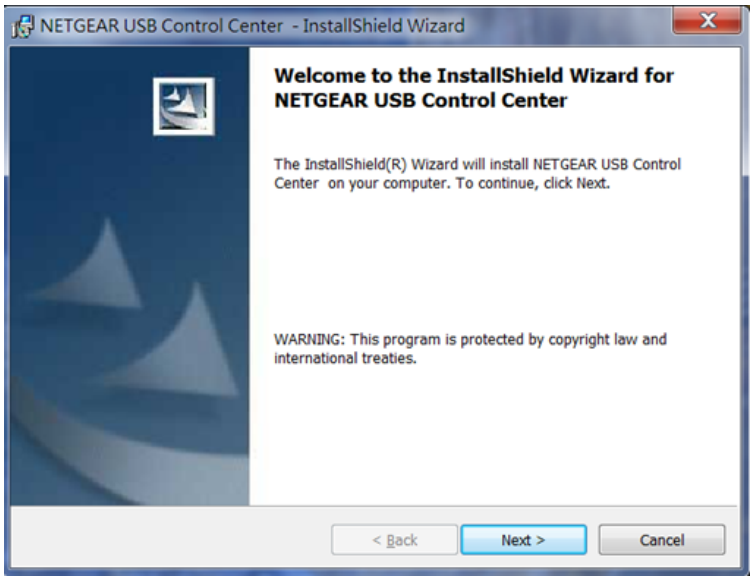
1. Visit *www.netgear.com/readyshare*.
2. Scroll down to the Print From the Comfort of Your Home Network section at the bottom of the screen.
3. Click one of the following links.
   - **Download PC installer and get started**. This is the utility for Windows computers.
   - **Download Mac installer and get started**. This is the utility for MAC computers.
   - **Download the genie App and get started**. This is the utility for smart phones and tablets.
4. Follow the onscreen instructions to download the ReadySHARE Printer utility setup file.

Install the ReadySHARE Printer Utility

You must install the ReadySHARE Printer utility on each computer that will share the printer. After you install it, the utility displays as NETGEAR USB Control Center on your computer.

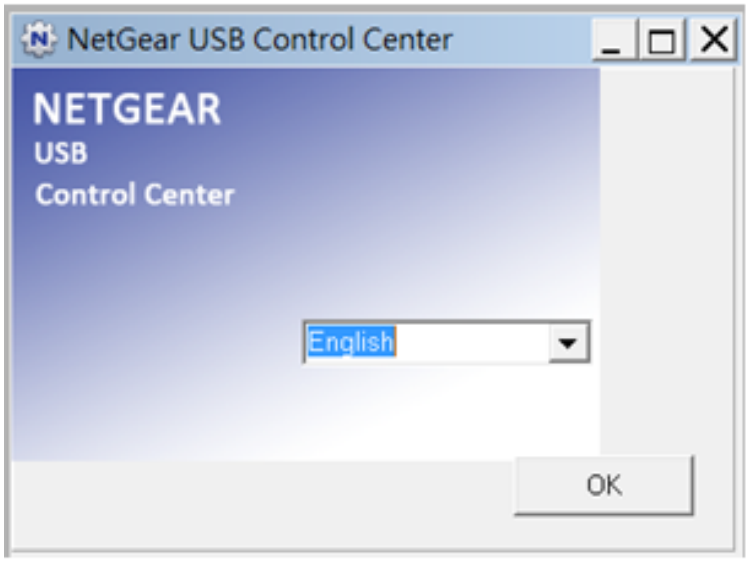
To install the utility:

1. Double-click the ReadySHARE Printer utility setup file that you downloaded.

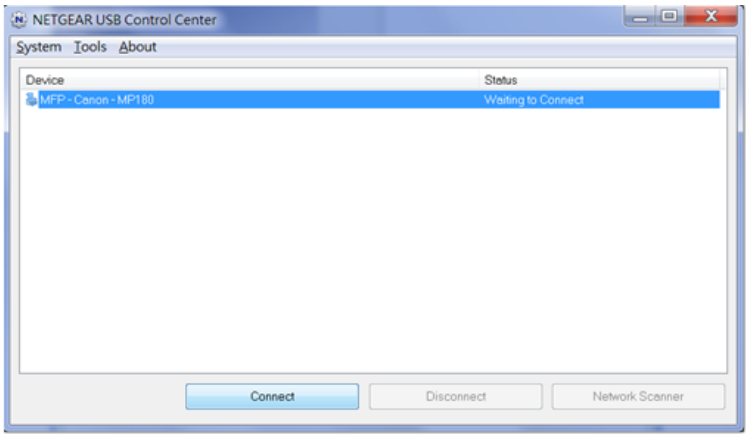


2. Follow the wizard instructions to install NETGEAR USB Control Center.

   After the InstallShield Wizard completes the installation, the NETGEAR USB Control Center prompts you to select a language:



3. Select a language from the menu and click the **OK** button.



Some firewall software, such as Comodo, blocks NETGEAR USB Control Center from accessing the USB printer. If you do not see the USB printer displayed on the page, you can disable the firewall temporarily to allow the utility to work.

4. Select the printer and click the **Connect** button.

   The printer status changes to Manually connected by *Mycomputer*. Now only your computer can use the printer.

5. Click the **Disconnect** button.

   The status changes to Available. Now all computers on the network can use the printer.

6. To exit the utility, select **System > Exit**.

Use the Shared Printer

For each computer, after you click the **Connect** and **Disconnect** buttons once, the utility automatically manages the printing queue and handling. By default, the utility starts automatically whenever you log on to Windows and runs in the background.

To manually connect and print:

1. Click the **NETGEAR USB Control Center** icon 

.

   The main page displays.

2. Click the **Connect** button.

   The printer status changes to Manually connected by *Mycomputer*. Now only the computer you are using can use this printer.

3. Use the print feature in your application to print your document.
4. To release the printer so that all computers on the network can use it, click the **Disconnect** button.

Print Using the Shared Printer

To print and release the printer to any computer on the network:

1. To print your document, use the print feature in your application.

   The NETGEAR USB Control Center automatically connects your computer to the USB printer and prints the document. If another computer is already connected to the printer, your print job goes into a queue to wait to be printed.

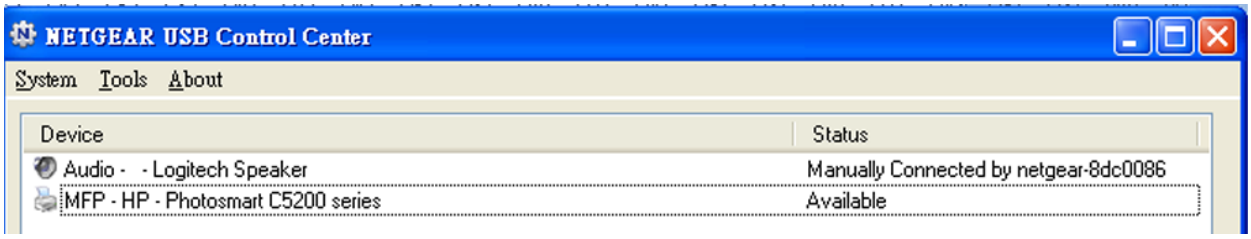
2. If your document does not print, use the NETGEAR USB Control Center to check the status.

   See *View or Change the Status of a Printer* on page 98.

View or Change the Status of a Printer

To view or change the status:

1. Click the **NETGEAR USB Control Center** icon 
.



   The Status column shows the status for each device:

   - **Available**. No print jobs are in progress. You can use the USB printer from any computer in the network.
   - **Connected**. Your computer is connected to the printer and will be released when your print job is done.
   - **Manually Connected by**. Only the connected computer can use the printer.
   - **Waiting to Connect**. Your computer is not connected to the shared printer yet.

2. To print from your computer when the status shows Manually connected by *another computer*, click the **Disconnect** button.

   The printer is released from the connection and the status changes to Available.

3. To print from your computer when the status shows Waiting to Connect, do the following:
   a. Click the **Connect** button.

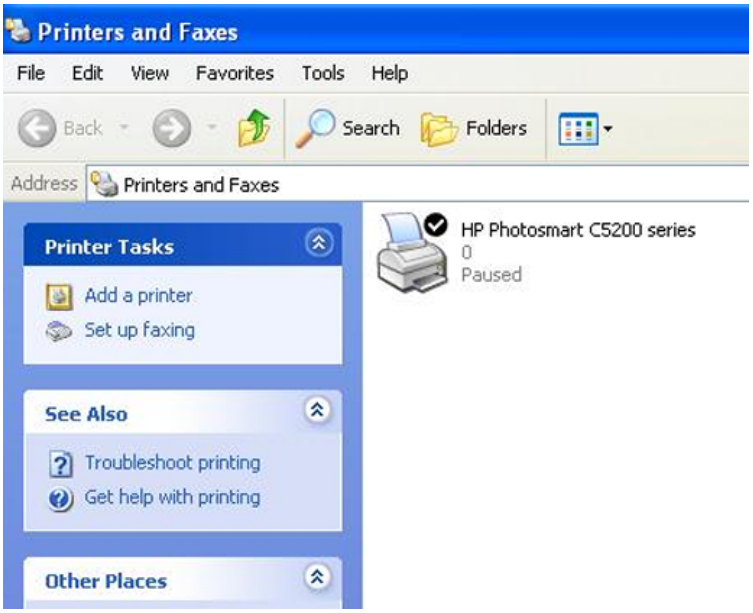
The printer status changes to Manually connected by *Mycomputer*. Now only your computer can use the printer.

b. To allow the printer to be shared, click the **Disconnect** button.

The printer is released from the connection and the status changes to Available.

Use the Scan Feature of a Multifunction USB Printer

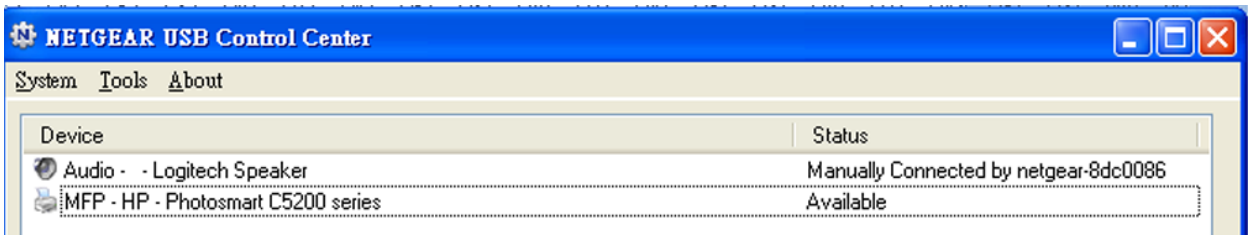
If your USB printer supports scanning, you can also use the USB printer for scanning. For example, the USB printer displayed in the Windows Printers and Faxes window is ready for print jobs.



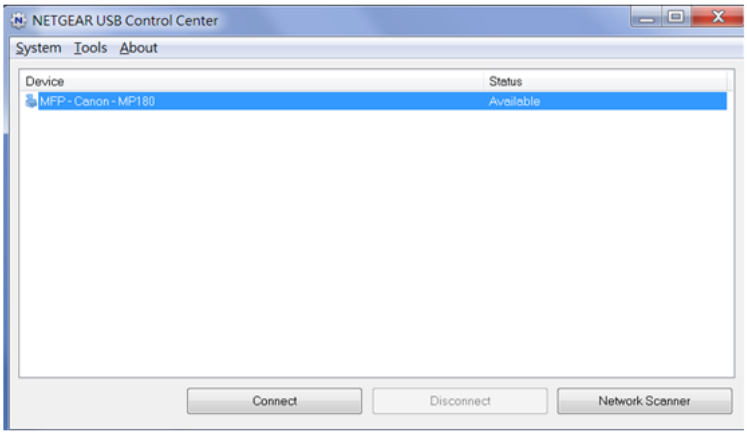
To use the scan feature of a multifunction USB printer:

1. Click the **NETGEAR USB Control Center** icon 

.



2. Make sure that the printer status shows as Available.
3. Click the **Network Scanner** button.



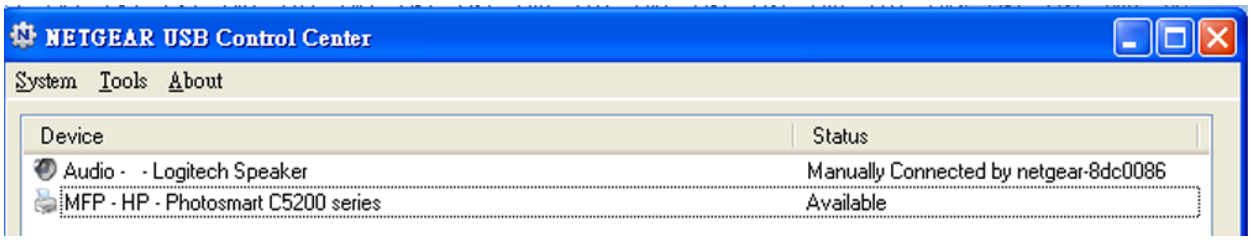
The scanner page displays so that you can use the USB printer for scanning.

Change NETGEAR USB Control Center Settings

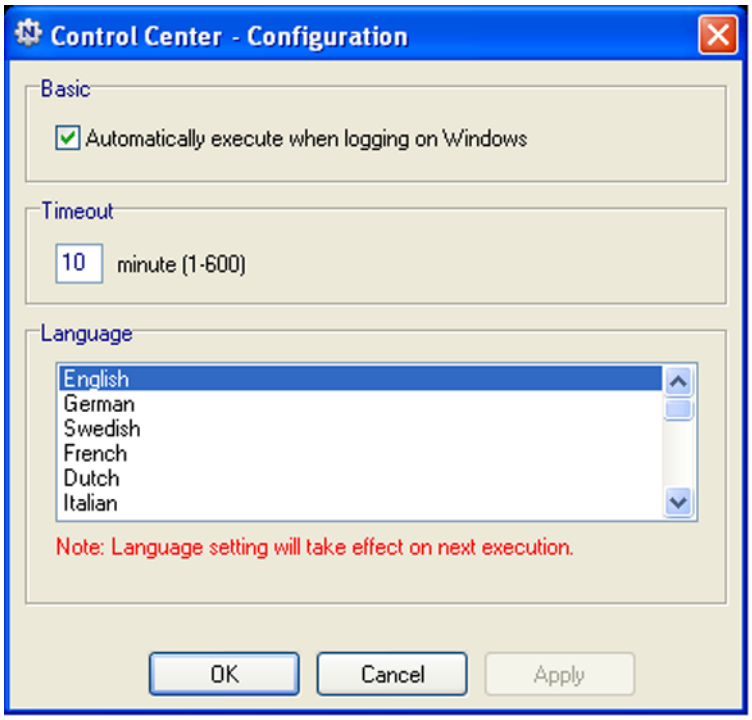
You can stop the NETGEAR USB Control Center from starting automatically when you log in to Windows. You can also change the language and specify the time-out to release the printer connection.

To turn off automatic NETGEAR USB Control Center startup:

1. Click the **NETGEAR USB Control Center** icon 
.



2. Select **Tools > Configuration**.



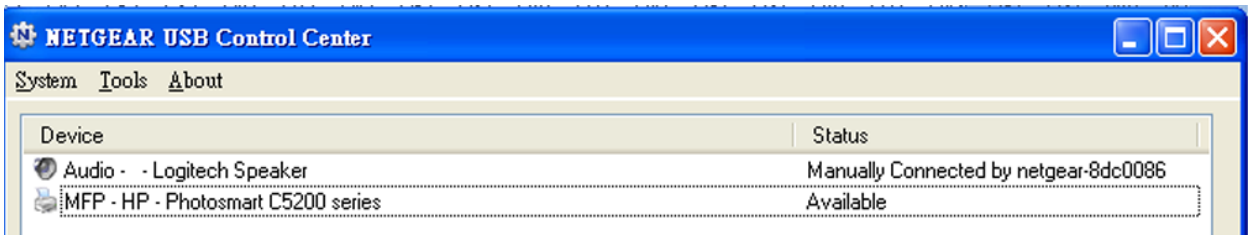
3. Clear the **Automatically execute when logging on Windows** check box.
4. Click the **OK** button.

   Your change is saved.

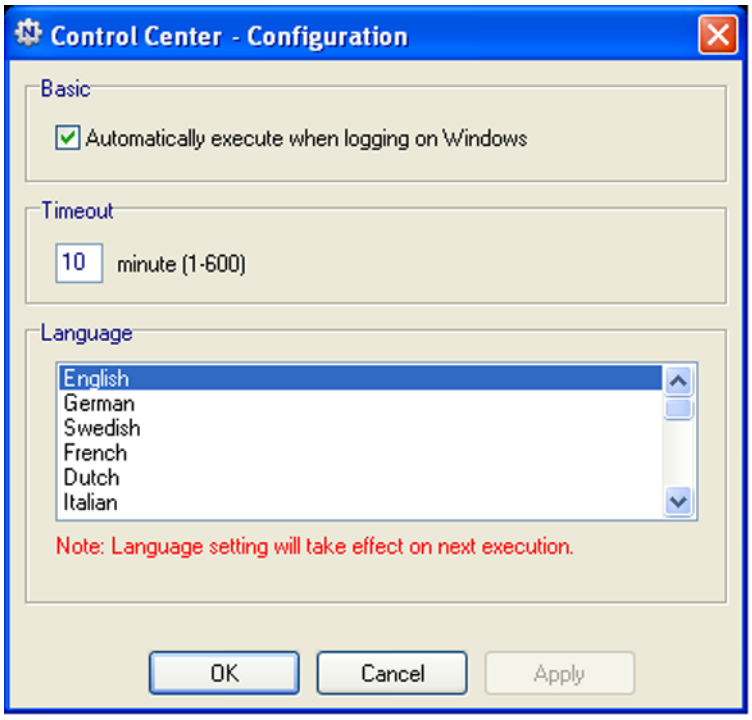
Change the Language

To change the language:

1. Click the **NETGEAR USB Control Center** icon 



2. Select **Tools > Configuration**.



3. From the **Language** menu, select a language.
4. Click the **OK** button.

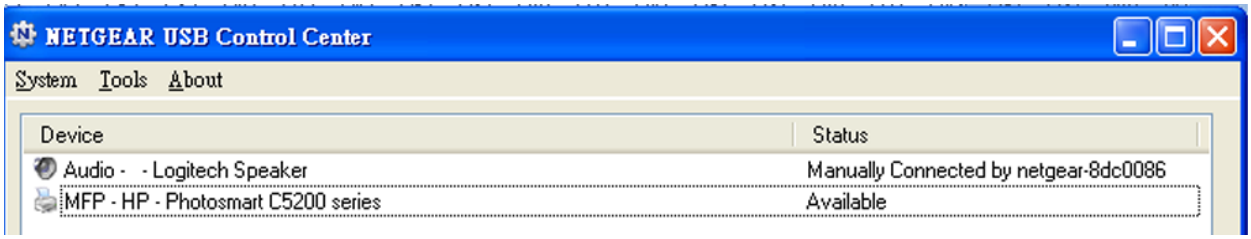
The next time NETGEAR USB Control Center starts, the language changes.

Specify the Time-Out

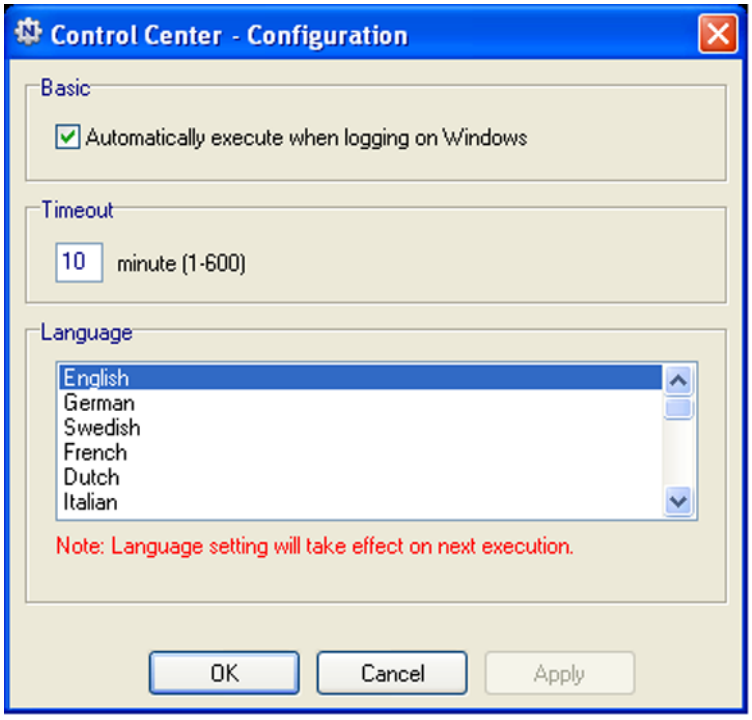
To specify the time-out:

1. Click the **NETGEAR USB Control Center** icon 

.



2. Select **Tools > Configuration**.



3. In the **Timeout** field, type the number of minutes.

   The time-out is the number of minutes that a computer holds its connection to the printer when the connection isn't being used.

4. Click the **OK** button.

Your change is saved.

Manage Your Network

10

This chapter describes the *router* settings for administering and maintaining your *router* and home network.

This chapter includes the following sections:

Update the *Router* Firmware

The *router* firmware (routing software) is stored in flash memory. You might see a message at the top of the genie screens when new firmware is available. You can respond to that message to update the firmware or you can check to see if new firmware is available and update your product.

To check for new firmware and update your *router*:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Administration > Firmware Update**.

   The Router Update page displays.
5. Click the **Check** button.

   The *router* finds new firmware information if any is available and displays a message asking if you want to download and install it.
6. Click the **Yes** button.

   The *router* locates and downloads the firmware and begins the update.

Warning

To avoid the risk of corrupting the firmware, do not interrupt the upgrade. For example, do not close the browser, click a link, or load a new page. Do not turn off the router.

When the upload is complete, your *router* restarts. The upgrade process typically takes about one minute. Read the new firmware release notes to find out if you need to reconfigure the *router* after upgrading.

Change the admin Password

This feature let you change the default password that is used to log in to the *router* with the user name admin. This password is not the one that you use for WiFi access.

Note Be sure to change the password for the user name admin to a secure password. The ideal password contains no dictionary words from any language and contains uppercase and lowercase letters, numbers, and symbols. It can be up to 30 characters.

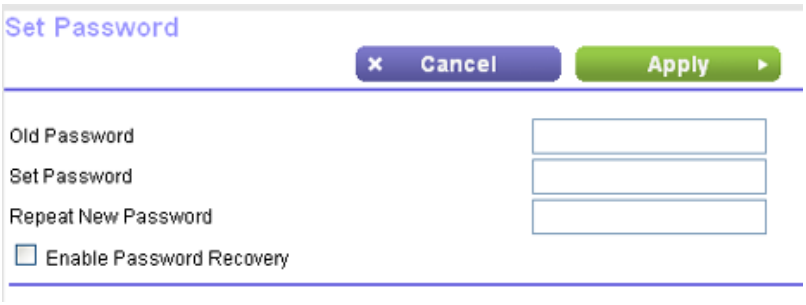
To set the password for the user name admin:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Administration > Set Password**.



5. Type the old password, and type the new password twice.
6. To be able to recover the password, select the **Enable Password Recovery** check box.

   NETGEAR recommends that you enable password recovery.
7. Click the **Apply** button.

   Your settings are saved.

Set Up Password Recovery

NETGEAR recommends that you enable password recovery if you change the password for the router user name admin. Then you can recover the password if it is forgotten. This recovery process is supported in Internet Explorer, Firefox, and Chrome browsers but not in the Safari browser.

To set up password recovery:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Administration > Set Password**.

   The Set Password page displays.
5. Select the **Enable Password Recovery** check box.
6. Select two security questions and provide answers to them.
7. Click the **Apply** button.

   Your settings are saved.

Recover the admin Password

To recover your password:

1. In the address field of your browser, type **http://www.routerlogin.net**.

   A login window opens.
2. Click the **Cancel** button.

   If password recovery is enabled, you are prompted to enter the serial number of the *router*.

   The serial number is on the product label.
3. Enter the serial number of the *router*.
4. Click the **Continue** button.

   A window opens requesting the answers to your security questions.
5. Enter the saved answers to your security questions.
6. Click the **Continue** button.

   A window opens and displays your recovered password.
7. Click the **Login again** button.

A login window opens.

8. With your recovered password, log in to the *router*.

View Router Status

To view *router* status and usage information:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

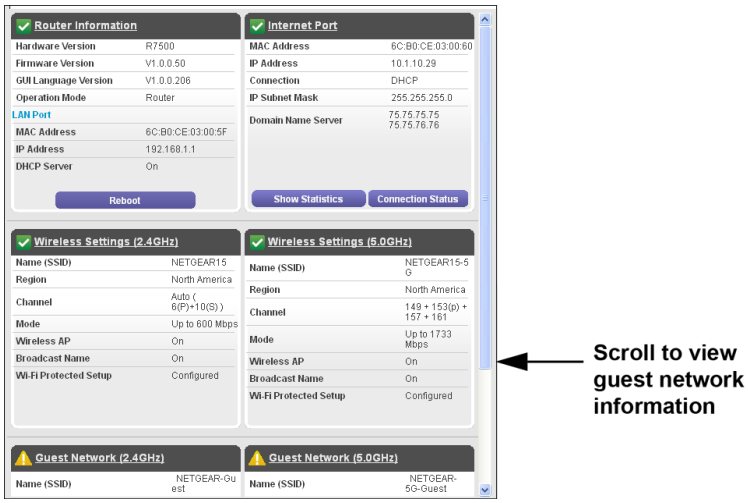
   A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Click the **ADVANCED** tab.



Your router might display information that is different from this example.

Display Internet Port Statistics

To display Internet port statistics:

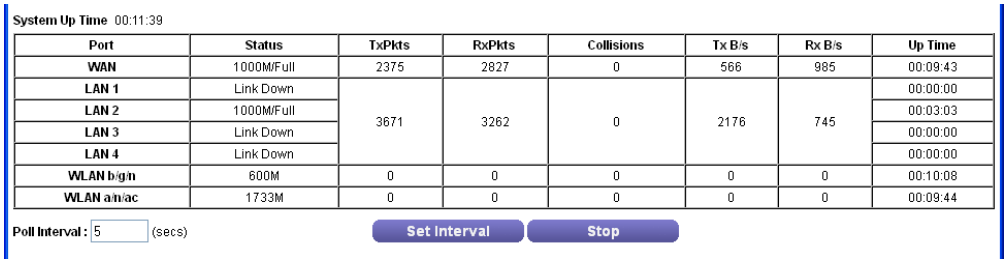
1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Click the **ADVANCED** tab.

   The ADVANCED Home page displays.
5. In the Internet Port pane, click the **Show Statistics** button.



   The following information displays:

   - **System Up Time**. The time elapsed since the *router* was last restarted.
   - **Port**. The statistics for the WAN (Internet) and LAN (Ethernet) ports. For each port, the screen displays the following information:
     - **Status**. The link status of the port.
     - **TxPkts**. The number of packets transmitted on this port since reset or manual clear.
     - **RxPkts**. The number of packets received on this port since reset or manual clear.
     - **Collisions**. The number of collisions on this port since reset or manual clear.
     - **Tx B/s**. The current transmission (outbound) bandwidth used on the WAN and LAN ports.
     - **Rx B/s**. The current reception (inbound) bandwidth used on the WAN and LAN ports.
     - **Up Time**. The time elapsed since this port acquired the link.
     - **Poll Interval**. The interval at which the statistics are updated in this screen.
6. To change the polling frequency, enter a time in seconds in the **Poll Interval** field and click the **Set Interval** button.

To stop the polling entirely, click the **Stop** button.

Check the Internet Connection Status

To check the Internet connection status:

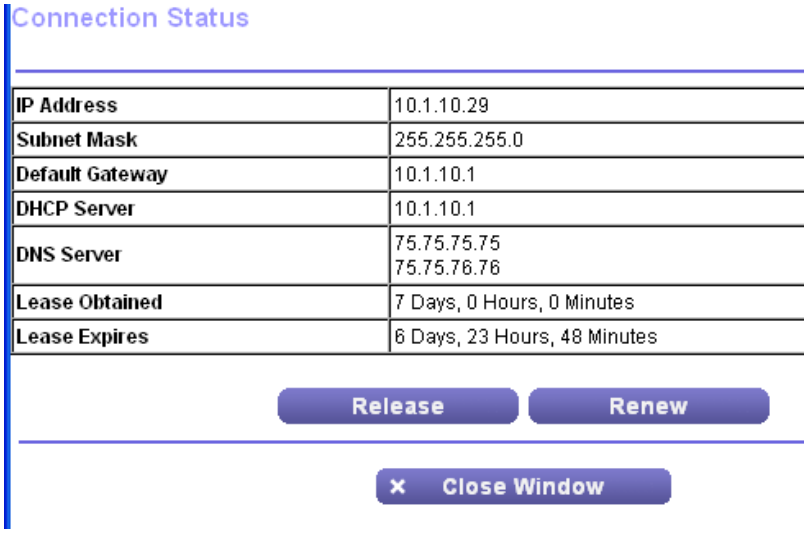
1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Click the **ADVANCED** tab.

   The ADVANCED Home page displays.
5. In the Internet Port pane, click the **Connection Status** button.



The following information displays:

- **IP Address**. The IP address that is assigned to the *router*.
- **Subnet Mask**. The subnet mask that is assigned to the *router*.
- **Default Gateway**. The IP address for the default gateway that the *router* communicates with.
- **DHCP Server**. The IP address for the Dynamic Host Configuration Protocol server that provides the TCP/IP configuration for all the computers that are connected to the *router*.
- **DNS Server**. The IP address of the Domain Name Service server that provides translation of network names to IP addresses.
- **Lease Obtained**. The date and time when the lease was obtained.
- **Lease Expires**. The date and time that the lease expires.

6. To return the status of all items to 0, click the **Release** button.
7. To refresh the screen, click the **Renew** button.
8. To exit the screen, click the **Close Window** button.

View and Manage Logs of Router Activity

The log is a detailed record of the websites you accessed or attempted to access and other router actions. Up to 256 entries are stored in the log.

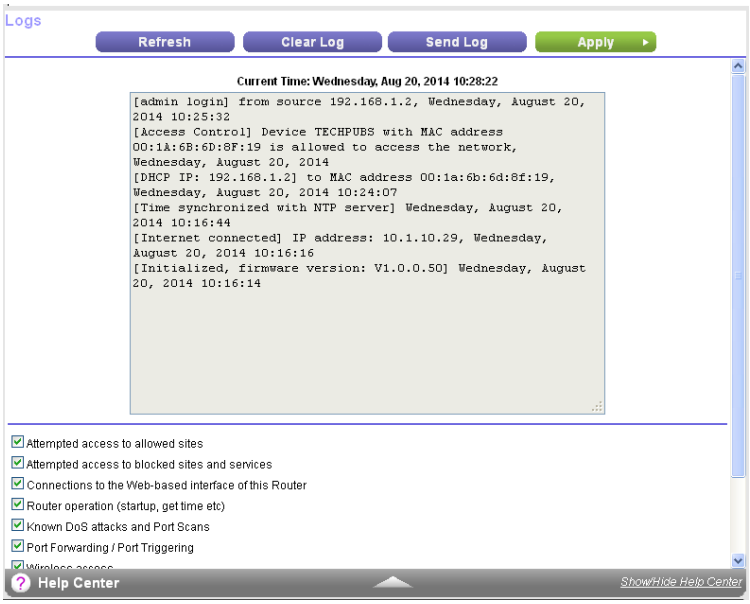
To view and manage logs:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Administration > Logs**.



The Logs screen shows the following information:

- **Action**. The action that occurred, such as whether Internet access was blocked or allowed.
- **Source IP**. The IP address of the initiating device for this log entry.
- **Target address**. The name or IP address of the website or news group visited or to which access was attempted.
- **Date and time**. The date and time the log entry was recorded.

5. To customize the logs, scroll down and clear or select the check boxes.
6. To refresh the log screen, click the **Refresh** button.
7. To clear the log entries, click the **Clear Log** button.
8. To email the log immediately, click the **Send Log** button.

Monitor Internet Traffic

Traffic metering allows you to monitor the volume of Internet traffic that passes through the *router* Internet port. You can set limits for traffic volume.

To monitor Internet traffic:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

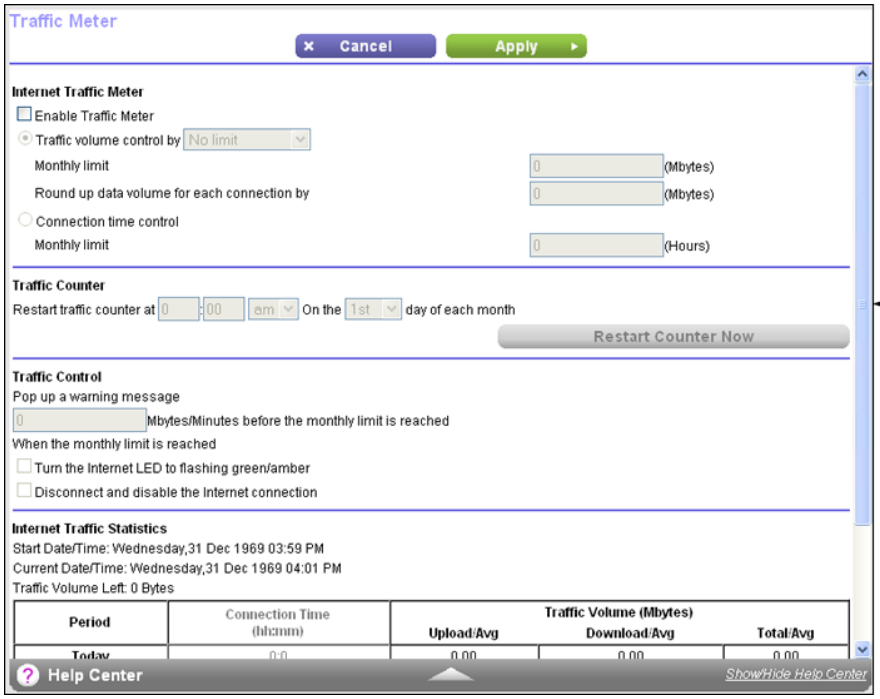
   A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > Traffic Meter**.



Scroll to view more settings

5. Select the **Enable Traffic Meter** check box.
6. (Optional) Control the volume of Internet traffic.

   You can use either the traffic volume control feature or the connection time control feature:

   - Select the **Traffic volume control by** radio button and then select one of the following options:
     - **No Limit**. No restriction is applied when the traffic limit is reached.
     - **Download only**. The restriction is applied to incoming traffic only.
     - **Both Directions**. The restriction is applied to both incoming and outgoing traffic.
   - Select the **Connection time control** radio button and enter the allowed hours in the **Monthly limit** field.

7. (Optional) If your ISP charges for extra data volume when you make a new connection, enter the extra data volume in MB in the **Round up data volume for each connection by** field.
8. In the Traffic Counter section, set the traffic counter to begin at a specific time and date.

   If you want the traffic counter to start immediately, click the **Restart Counter Now** button.

9. In the Traffic Control section, specify whether the router should issue a warning message before the monthly limit of Mbytes or hours is reached.

By default, the value is 0 and no warning message is issued. You can select one of the following to occur when the limit is attained:

- The Internet LED blinks white or amber.
- The Internet connection is disconnected and disabled.

10. Click the **Apply** button.

    The Internet Traffic Statistics section helps you to monitor the data traffic.

11. To update the Traffic Statistics section, click the **Refresh** button.
12. To display more information about the data traffic on your router and to change the poll interval, click the **Traffic Status** button.

Custom Static Routes

Typically, you do not need to add static routes unless you use multiple *router*s or multiple IP subnets on your network.

As an example of when a static route is needed, consider the following case:

- Your main Internet access is through a cable modem to an ISP.
- Your home network includes an ISDN router for connecting to the company where you are employed. This *router*'s address on your LAN is 192.168.1.100.
- Your company's network address is 134.177.0.0.

When you set up your *router*, two implicit static routes were created. A default route was created with your ISP as the gateway, and a second static route was created to your local network for all 192.168.1.x addresses. With this configuration, if you try to access a device on the 134.177.0.0 network, your *router* forwards your request to the ISP. The ISP forwards your request to the company where you are employed, and the company firewall is likely to deny the request.

In this case you must define a static route, telling your *router* to access 134.177.0.0 through the ISDN *router* at 192.168.1.100. Here is an example:

- The **Destination IP Address** and **IP Subnet Mask** fields specify that this static route applies to all 134.177.x.x addresses.
- The **Gateway IP Address** field specifies that all traffic for these addresses will be forwarded to the ISDN *router* at 192.168.1.100.
- A metric value of 1 works because the ISDN *router* is on the LAN.
- The **Private** check box is selected only as a precautionary security measure in case RIP is activated.

Set Up a Static Route

To set up a static route:

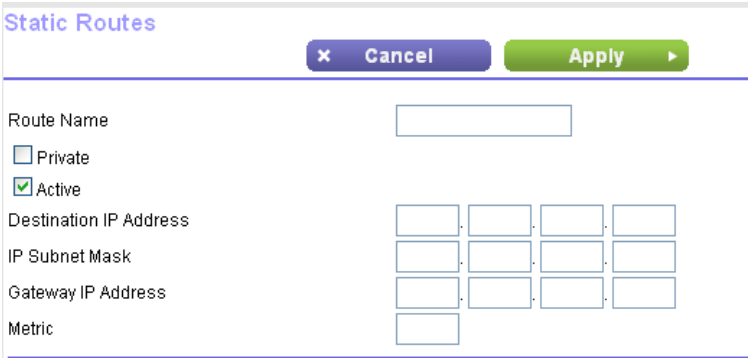
1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Advanced Setup > Static Routes**.

   The Static Routes page displays.
5. Click the **Add** button.



6. In the **Route Name** field, type a name for this static route (for identification purposes only).
7. Select the **Private** check box if you want to limit access to the LAN only.

   If the **Private** check box is selected, the static route is not reported in RIP.
8. Select the **Active** check box to make this route effective.
9. Type the IP address of the final destination.
10. Type the IP subnet mask for this destination.

If the destination is a single host, type **255.255.255.255**.

11. Type the gateway IP address, which must be on the same LAN segment as the *router*.
12. Type a number from 1 through 15 as the metric value.

    This value represents the number of *router*s between your network and the destination. Usually, a setting of 2 or 3 works, but if this is a direct connection, set it to **1**.

13. Click the **Apply** button.

    The static route is added.

Edit a Static Route

To edit a static route:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > Static Routes**.

   The Static Routes pag displays.

5. In the table, select the radio button for the route.
6. Click the **Edit** button.

   The Static Routes page adjusts.

7. Edit the route information.
8. Click the **Apply** button.

   Your changes are saved.

Delete a Static Route

To delete a static route:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > Static Routes**.

   The Custom Static Routes page displays.

5. In the table, select the radio button for the route.
6. Click the **Delete** button.

   The route is removed from the table.

View Devices Currently on the Network

You can view all computers or devices that are currently connected to your network.

To view devices on the network:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **Attached Devices**.

   The Attached Devices page displays devices that are connected to the *router* through Ethernet (using a wired connection) or connected to a WiFi band in the WiFi network.

   Depending on your router model, the page displays a list or device icons. Clicking a device icon displays more details about the device. The IP address can change because the router assigns an IP

address to each device when it joins the network. The unique MAC address for each device does not change.

5. To update this screen, click the **Refresh** button.

Manage the Router Configuration File

The configuration settings of the *router* are stored within the *router* in a configuration file. You can back up (save) this file to your computer, restore it, or reset it to the factory default settings.

Back Up Settings

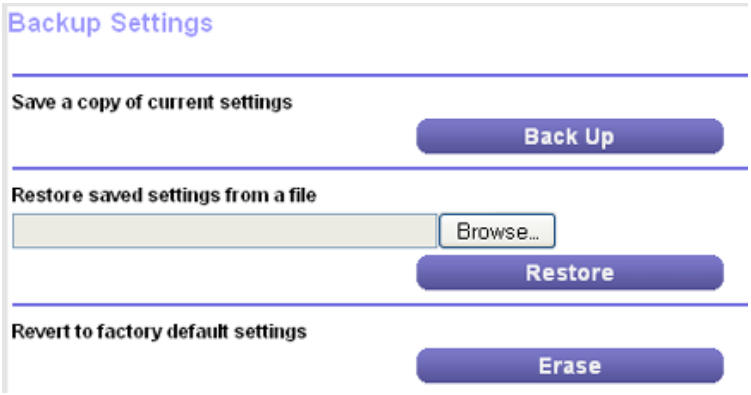
To back up the *router*'s configuration settings:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Administration > Backup Settings**.



5. Click the **Back Up** button.
6. Follow the direction of your browser to save the file.

A copy of the current settings is saved in the location you specified.

Restore Configuration Settings

To restore configuration settings that you backed up:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Administration > Backup Settings**.

   The Backup Settings page displays.
5. Click the **Browse** button to find and select the .cfg file.
6. Click the **Restore** button.

   The file is uploaded to the *router* and the *router* reboots.

Warning

Do not interrupt the reboot process.

Erase the Current Configuration Settings

You can erase the current configuration and restore the factory default settings. You might want to do this if you move the *router* to a different network. (See *Factory Settings* on page 181.)

To erase the configuration settings:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home page displays.

4. Select **ADVANCED > Administration > Backup Settings**.

   The Backup Settings page displays.

5. Click the **Erase** button.

   The factory default settings are restored. The user name is admin, the password is password, and the LAN IP address is 192.168.1.1. DHCP is enabled.

Remote Management

You can access your *router* over the Internet to view or change its settings. You must know the router's WAN IP address to use this feature. For information about remote access using Dynamic DNS, see *Access Storage Devices Through the Internet* on page 80.

> **Note** Be sure to change the password for the user name admin to a secure password. The ideal password contains no dictionary words from any language and contains uppercase and lowercase letters, numbers, and symbols. It can be up to 30 characters. See *Change the admin Password* on page 106.

To set up remote management:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

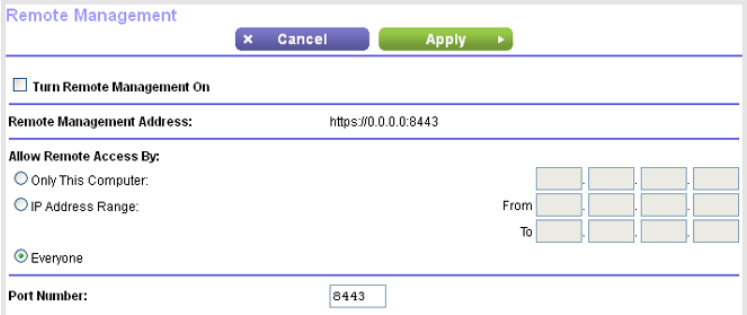
   A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > Remote Management**.



5. Select the **Turn Remote Management On** check box.
6. In the Allow Remote Access By section, specify the external IP addresses to be allowed to access the *router*'s remote management.

> **Note** For enhanced security, restrict access to as few external IP addresses as practical.

Select one of the following:

- **Only This Computer**. Allow access from a single IP address on the Internet. Enter the IP address to be allowed access.
- **IP Address Range**. Allow access from a range of IP addresses on the Internet. Enter a beginning IP address and an ending IP address to define the allowed range.
- **Everyone**. Allow access from any IP address on the Internet.

7. Specify the port number for accessing the web management interface.

   Normal web browser access uses the standard HTTP service port 80. For greater security, enter a custom port number for the remote web management interface. Choose a number from 1024 to 65535, but do not use the number of any common service port. The default is 8080, which is a common alternate for HTTP.

8. Click the **Apply button**.

   Your changes take effect.

Use Remote Access

To use remote access:

1. Launch a web browser on a computer that is not on your home network.
2. Type your *router*'s WAN IP address into your browser's address or location field followed by a colon (:) and the custom port number.

   For example, if your external address is 134.177.0.123 and you use port number 8080, enter **http://134.177.0.123:8080** in your browser.

Network Settings 11

The router comes ready for WiFi, Ethernet, and USB connections. You can customize the router's network settings. NETGEAR recommends that you install the router and connect it to the Internet before you change its network settings.

This chapter includes the following sections:

View or Change WAN Settings

You can view or configure wide area network (WAN) settings for the Internet port. You can set up a DMZ (demilitarized zone) server, change the maximum transmit unit (MTU) size, and enable the *router* to respond to a ping to its WAN (Internet) port.

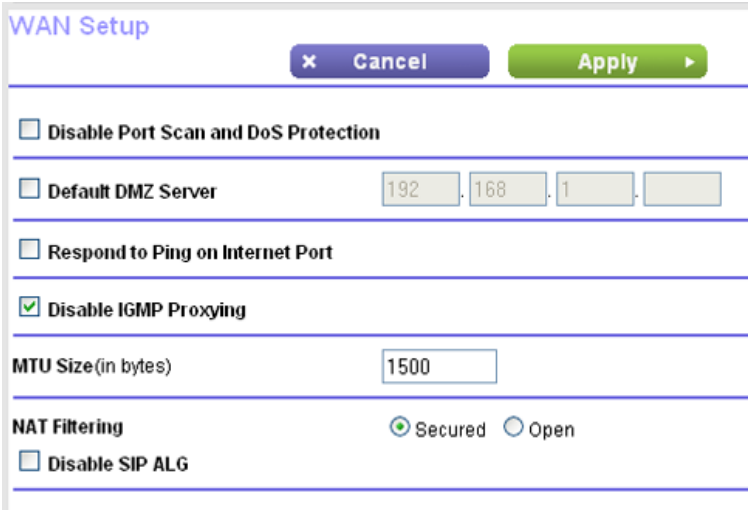
To view or change the WAN settings:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Setup > WAN Setup**.



The following settings display:

- **Disable Port Scan and DoS Protection**. DoS protection protects your LAN against denial of service attacks such as Syn flood, Smurf Attack, Ping of Death, and many others. Select this check box only in special circumstances.
- **Default DMZ Server**. This feature is sometimes helpful when you are playing online games or videoconferencing, but it makes the firewall security less effective. See *Set Up a Default DMZ Server* on page 126.
- **Respond to Ping on Internet Port**. This feature allows your router to be discovered. Use this feature only as a diagnostic tool or for a specific reason.
- **Disable IGMP Proxying**. IGMP proxying allows a computer on the local area network (LAN) to receive the multicast traffic it is interested in from the Internet. If you do not need this feature, you can select this check box to disable it.
- **MTU Size (in bytes)**. The normal MTU (maximum transmit unit) value for most Ethernet networks is 1500 bytes, or 1492 bytes for PPPoE connections. Change the MTU only if you are sure that it is necessary for your ISP connection. See *Change the MTU Size* on page 41.
- **NAT Filtering**. Network Address Translation (NAT) determines how the *router* processes inbound traffic. Secured NAT protects computers on the LAN from attacks from the Internet but might prevent some Internet games, point-to-point applications, or multimedia applications from working. Open NAT provides a much less secured firewall but allows almost all Internet applications to work.

5. Click the **Apply** button.

   Your changes are saved.

Set Up a Default DMZ Server

The default DMZ server feature is helpful when you are using some online games and videoconferencing applications that are incompatible with Network Address Translation (NAT). The *router* is programmed to recognize some of these applications and to work correctly with them, but other applications might not function well. In some cases, one local computer can run the application correctly if the IP address for that computer is entered as the default DMZ server.

Warning

DMZ servers pose a security risk. A computer designated as the default DMZ server loses much of the protection of the firewall and is exposed to exploits from the Internet. If compromised, the DMZ server computer can be used to attack other computers on your network.

The router usually detects and discards incoming traffic from the Internet that is not a response to one of your local computers or a service that you configured on the Port Forwarding/Port Triggering page. Instead of discarding this traffic, you can specify that the router forwards the traffic to one computer on your network. This computer is called the default DMZ server.

To set up a default DMZ server:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

   A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > Setup > WAN Setup**.

   The WAN Setup page displays.

5. Select the **Default DMZ Server** check box.
6. Type the IP address.
7. Click the **Apply** button.

   Your change takes effect.

Change the Router's Device Name

The router's default device name is based on its model number, such as R7500 or *R7500v2*. This device name displays in the file manager when you browse your network.

To change the router's device name:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > Setup > LAN Setup**.

   The LAN Setup page displays.

5. In the **Device Name** field, type a new name.
6. Click the **Apply** button.

Your change is saved.

Change the LAN TCP/IP Settings

The *router* is preconfigured to use private IP addresses on the LAN side and to act as a DHCP server. The *router*'s default LAN IP configuration is as follows:

- **LAN IP address**. 192.168.1.1
- **Subnet mask**. 255.255.255.0

These addresses are part of the designated private address range for use in private networks and are suitable for most applications. If your network requires a different IP addressing scheme, you can change these settings.

You might want to change these settings if you need a specific IP subnet that one or more devices on the network use, or if you use competing subnets with the same IP scheme.

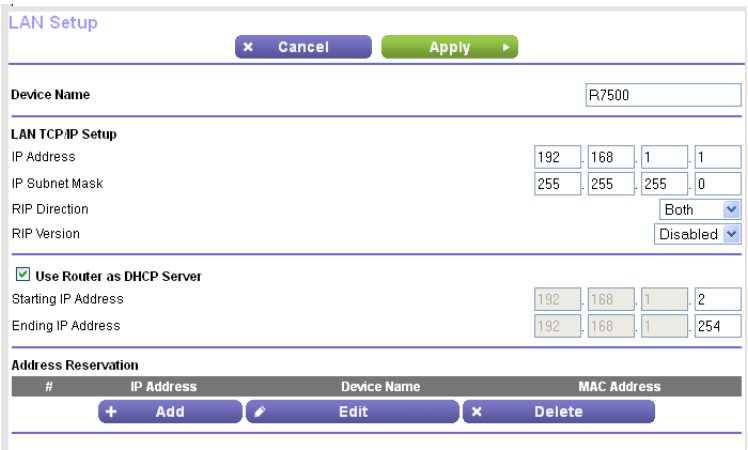
To change the LAN TCP/IP settings:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Setup > LAN Setup**.



Your router might display information that is different from this example.

5. In the **IP Address** field, type the IP address.
6. In the **IP Subnet Mask**, type the subnet mask of the *router*.

   The IP address and subnet mask identify which addresses are local to a specific device and which must be reached through a gateway or *router*.

7. Change the RIP settings.

   Router Information Protocol (RIP) allows a router to exchange routing information with other routers.

   a. Select a RIP direction:

   - **Both**. The router broadcasts its routing table periodically and incorporates information that it receives.
   - **Out Only**. The router broadcasts its routing table periodically.
   - **In Only**. The router incorporates the RIP information that it receives.

   b. Select a RIP version:

   - **Disabled**. This is the default setting.
   - **RIP-1**. This format is universally supported. It is adequate for most networks, unless you are using an unusual network setup.
   - **RIP-2**. This format carries more information. Both RIP-2B and RIP-2M send the routing data in RIP-2 format. RIP-2B uses subnet broadcasting. RIP-2M uses multicasting.

8. Click the **Apply** button.

   Your changes are saved.

If you changed the LAN IP address of the *router*, you are disconnected when this change takes effect.

9. To reconnect, close your browser, relaunch it, and log in to the router

Specify the IP Addresses That the Router Assigns

By default, the *router* acts as a Dynamic Host Configuration Protocol (DHCP) server. The router assigns IP, DNS server, and default gateway addresses to all computers connected to the LAN. The assigned default gateway address is the LAN address of the *router*.

These addresses must be part of the same IP address subnet as the *router*'s LAN IP address. Using the default addressing scheme, define a range between 192.168.1.2 and 192.168.1.254, although you can save part of the range for devices with fixed addresses.

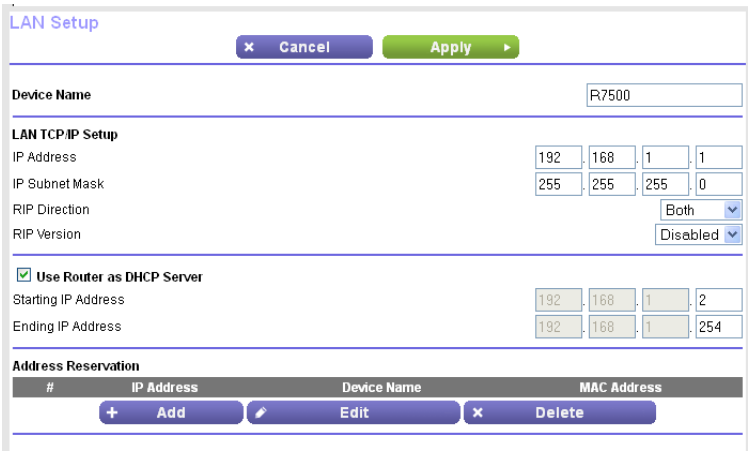
To specify the pool of IP addresses that the router assigns:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Setup > LAN Setup**.



   Your router might display information that is different from this example.
5. Make sure that the **Use Router as DHCP Server** check box is selected.
6. Specify the range of IP addresses that the router assigns:
   a. In the **Starting IP Address** field, type the lowest number in the range.

This IP address must be in the same subnet as the *router*.

b. In the **Ending IP Address** field, type the number at the end of the range of IP addresses.

This IP address must be in the same subnet as the *router*.

7. Click the **Apply** button.

Your settings are saved.

The *router* delivers the following parameters to any LAN device that requests DHCP:

- An IP address from the range that you define
- Subnet mask
- Gateway IP address (the *router*'s LAN IP address)
- DNS server IP address (the *router*'s LAN IP address)

Disable the DHCP Server Feature in the Router

By default, the *router* acts as a DHCP server. The router assigns IP, DNS server, and default gateway addresses to all computers connected to the LAN. The assigned default gateway address is the LAN address of the *router*.

You can use another device on your network as the DHCP server or specify the network settings of all your computers.

To disable the DHCP server feature in the *router*:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Setup > LAN Setup**.

   The LAN Setup page displays.
5. Clear the **Use Router as DHCP Server** check box.
6. Click the **Apply** button.

Your settings are saved.

7. (Optional) If this service is disabled and no other DHCP server is on your network, set your computer IP addresses manually so that the computers can access the *router*.

Manage Reserved LAN IP Addresses

When you specify a reserved IP address for a computer on the LAN, that computer always receives the same IP address each time it accesses the *router*'s DHCP server. Assign reserved IP addresses to computers or servers that require permanent IP settings.

Reserve an IP Address

To reserve an IP address:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** ..

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Setup > LAN Setup**.

   The LAN Setup page displays.
5. In the Address Reservation section, click the **Add** button.
6. In the **IP Address** field, type the IP address to assign to the computer or server.

   Choose an IP address from the *router*'s LAN subnet, such as 192.168.1.x.
7. Type the MAC address of the computer or server.

   Tip If the computer is already on your network, you can copy its MAC address from the Attached Devices page and paste it here.
8. Click the **Apply** button.

   The reserved address is entered into the table.

The reserved address is not assigned until the next time the computer contacts the *router*'s DHCP server. Reboot the computer, or access its IP configuration and force a DHCP release and renew.

Edit a Reserved IP Address

To edit a reserved address entry:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > Setup > LAN Setup**.

   The LAN Setup page displays.

5. Select the radio button next to the reserved address.
6. Click the **Edit** button.
7. Change the settings.
8. Click the **Apply** button.

   Your changes are saved.

Delete a Reserved IP Address Entry

To delete a reserved address entry:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > Setup > LAN Setup**.

   The LAN Setup page displays.

5. Select the radio button next to the reserved address.
6. Click the **Delete** button.

The address is removed.

Use the WPS Wizard for WiFi Connections

The WPS Wizard helps you add a wireless computer or device to your WiFi network without typing the WiFi password.

To use the WPS Wizard:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > WPS Wizard**.

   A note explaining WPS displays.
5. Click the **Next** button.

   The WPS page displays.
6. Select a setup method:

   - **Push button**. Click the **WPS** button on this screen.
   - **PIN Number**. The screen adjusts. Enter the client security PIN and click the **Next** button.
7. Within two minutes, go to the client device and use its WPS software to connect to the WiFi network.

   The WPS process automatically sets up your wireless computer with the network password when it connects. The *router* WPS screen displays a confirmation message.

Specify Basic WiFi Settings

The *router* comes with preset security. This means that the WiFi network name (SSID), network key (password), and security option (encryption protocol) are preset in the factory. You can find the preset SSID and password on the router label.

Note The preset SSID and password are uniquely generated for every device to protect and maximize your wireless security.

NETGEAR recommends that you do not change your preset security settings. If you change your preset security settings, make a note of the new settings and store it in a safe place where you can easily find it.

If you use a wireless computer to change the SSID or other wireless security settings, you are disconnected when you click the **Apply** button. To avoid this problem, use a computer with a wired connection to access the *router*.

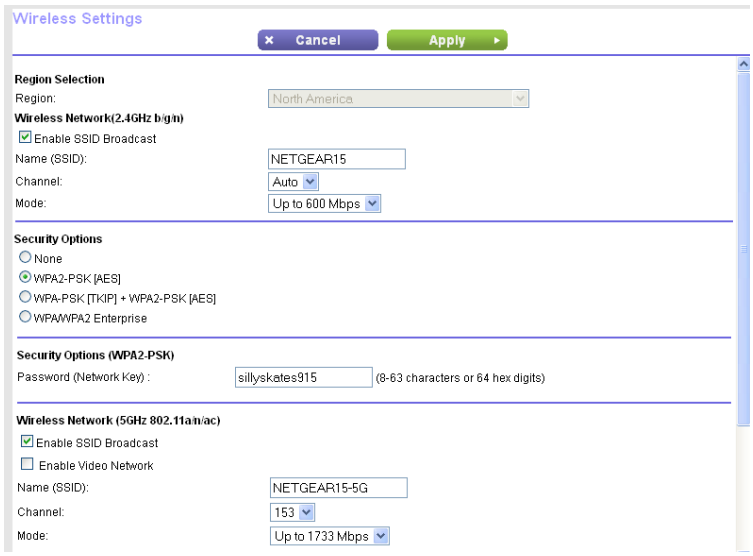
To specify basic WiFi settings:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **Wireless**.



You can specify the settings for the 2.4 GHz band and for the 5 GHz band.

Your router might display information that is different from this example.

5. From the **Region** menu, select your region.

In some locations, you cannot change this setting.

6. To control the SSID broadcast, select or clear the **Enable SSID Broadcast** check box.

   When this check box is selected, the *router* broadcasts its network name (SSID) so that it displays when you scan for local WiFi networks on your computer or wireless device.

7. To change the network name (SSID), type a new name in the **Name (SSID)** field.

   The name can be up to 32 characters long and it is case-sensitive. The default SSID is randomly generated and is on the router's label. If you change the name, make sure to write down the new name and keep it in a safe place.

8. To change the wireless channel, select a number from the **Channel** menu.

   In some regions, not all channels are available. Do not change the channel unless you experience interference (shown by lost connections or slow data transfers). If this happens, experiment with different channels to see which is the best.

   When you use multiple access points, it is better if adjacent access points use different channels to reduce interference. The recommended channel spacing between adjacent access points is four channels (for example, use Channels 1 and 5, or 6 and 10).

9. Click the **Apply** button.

   Your settings are saved.

   If you connected wirelessly to the network and you changed the SSID, you are disconnected from the network.

10. Make sure that you can connect wirelessly to the network with its new settings.

    If you cannot connect wirelessly, check the following:

    - Is your computer or wireless device connected to another wireless network in your area? Some wireless devices automatically connect to the first open network without wireless security that they discover.
    - Is your computer or wireless device trying to connect to your network with its old settings (before you changed the settings)? If so, update the wireless network selection in your computer or wireless device to match the current settings for your network.

Change the WiFi Mbps Settings

The data rate for high-speed transmissions is commonly identified as megabits per second (Mbps). By default, the router is set to operate with up to 600 Mbps in the 2.4 GHz WiFi band and up to 1,733 Mbps in the 5 GHz WiFi band. You can select slower settings.

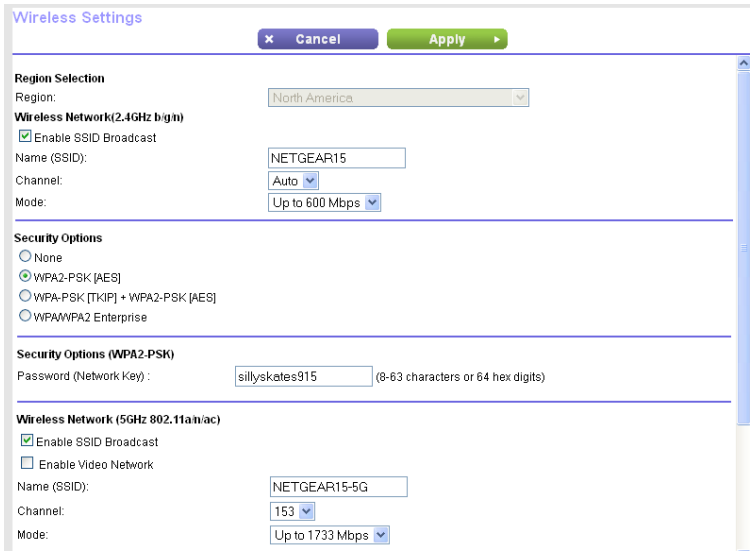
To change the WiFi Mbps settings:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **Wireless**.



   Your router might display information that is different from this example.
5. For the 2.4 GHz WiFi band, in the Wireless Network (2.4 GHz b/gn/n) section, select a setting from the **Mode** menu.

   Up to 600 Mbps is the default setting. The other settings are **Up to 289 Mbps** and **Up to 54 Mbps**.
6. For the 5GHz WiFi band, select a setting from the **Mode** menu.

Up to 1733 Mbps is the default setting, which allows 802.11ac and 802.11a wireless devices to join the network. The other settings are **Up to 800 Mbps** and **Up to 347 Mbps**.

7. Click the **Apply** button.

   Your settings are saved.

Change the WiFi Password or Security Level

Your router comes with preset WPA2 or WPA security. The password that you enter to connect to your network is unique to your router and is on the router label. *We recommend that you use the preset security, but you can change the settings. Do not disable security*.

To change the WPA settings:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **Wireless**.

   The Wireless Settings page displays.

5. Under Security Options, select a WPA option.

   The WPA2 options use the newest standard for the strongest security and is the default setting.

   The **Passphrase** field displays.

6. In the **Passphrase** field, enter the network key (password).

   It is a text string from 8 to 63 characters.

7. Write down the new password and keep it in a secure place for future reference.
8. Click the **Apply** button.

Your settings are saved.

Enable a WiFi Video Network

Guest networks allows visitors at your home to use the Internet without using your wireless security key. For optimal HD streaming performance for your guests, you can enable a 5 GHz guest video network. When this the video network feature is enabled, the router uses video reliability algorithms to reduce jitter and packet loss during video streaming.

To enable a WiFi video network:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **Wireless**.

   The Wireless Setup screen displays.
5. Scroll down to the Wireless Network (5 GHz 802.11a/n/ac) section of the screen.
6. Select the **Enable Video Network** check box.
7. Click the **Apply** button.

   Your settings are saved.

Set Up a Guest WiFi Network

Guest networks allow visitors at your home to use the Internet without using your wireless security key. You can add a guest network for the 2.4 GHz WiFi band and the 5.0 GHz WiFi band.

To set up a guest network:

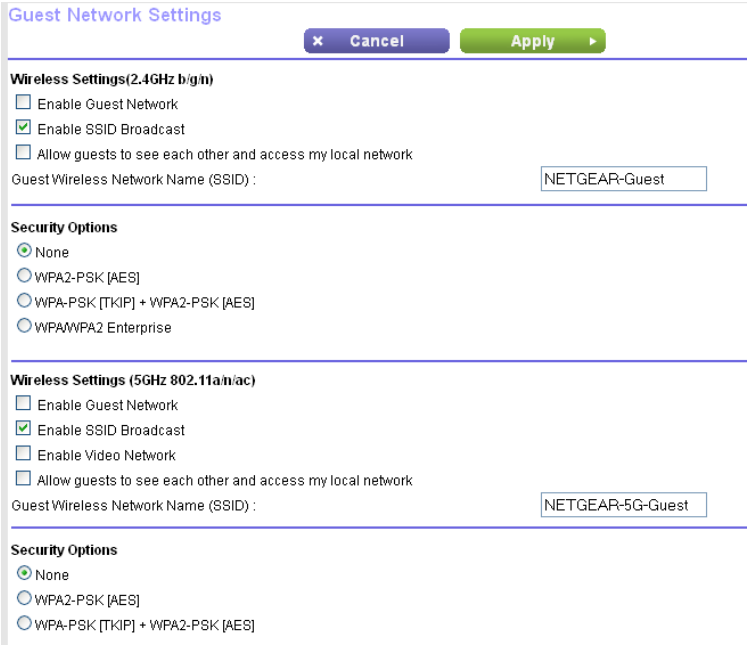
1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home page displays.

4. Select **Guest Network**.



Your router might display information that is different from this example.

5. Scroll to the section of the screen for the guest WiFi network that you want to set up.

   The default guest wireless network names (SSIDs) are as follows:

   - **NETGEAR-Guest** is for the 2.4 GHz WiFi band.
   - **NETGEAR-5G-Guest** is for the 5 GHz WiFi band.

6. Leave the **Enable SSID Broadcast** check box selected.

   Allowing the router to broadcast its wireless network name (SSID) makes it easier to find your network and connect to it. If you clear this check box, that creates a hidden network.

7. Give the guest network a name.

   The guest network name is case-sensitive and can be up to 32 characters. You then manually configure the wireless devices in your network to use the guest network name in addition to the main SSID.

8. For the wireless channel and mode, leave the default settings selected.
9. Select a security option.

   The WPA2 options use the newest standard for the strongest security. WPA2 is the default setting.

10. Click the **Apply** button.

Your settings are saved.

Enable a Video Guest WiFi Network

Guest networks allow visitors at your home to use the Internet without using your wireless security key. For optimal HD streaming performance for your guests, you can enable a 5 GHz guest video network. When this the video network feature is enabled, the router uses video reliability algorithms to reduce jitter and packet loss during video streaming.

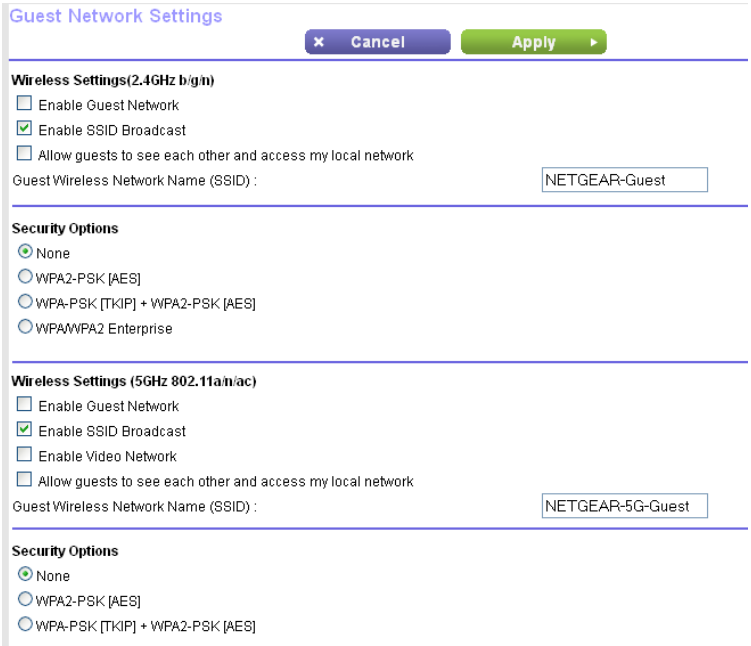
To set up a guest network:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **Guest Network**.



   Your router might display information that is different from this example.
5. Scroll to the Wireless Network (5 GHz 802.11a/n/ac) section.
6. Select the **Enable Video Network** check box.
7. Click the **Apply** button.

Your settings are saved.

Control the Wireless Radios

The *router*'s internal wireless radios broadcast signals in the 2.4 GHz and 5 GHz range. By default, they are on so that you can connect wirelessly to the *router*. When the wireless radios are off, you can still use an Ethernet cable for a LAN connection to the *router*.

You can turn the wireless radios on and off with the **WiFi On/Off** button on the*router*, or you can log in to the *router* and enable or disable the wireless radios. If you are close to the *router*, it might be easier to press its **WiFi On/Off** button. If you are away from the *router* or have already logged in it might be easier to enable or disable them. You can also turn the WiFi radios off and on based on a schedule. (See *Set Up a Wireless Schedule* on page 143.)

Use the WiFi On/Off Button

To turn the wireless radios off and on with the WiFi On/Off button:

- Press the **WiFi On/Off** button on the top of the *router* for two seconds.

  If you turned off the wireless radios, the WiFi On/Off LED and the WPS LED turn off. If you turned on the wireless radios, the WiFi On/Off LED and the WPS LED light.

Enable or Disable the Wireless Radios

If you used the **WiFi On/Off** button to turn off the wireless radios, you can't log in to the *router* to turn them back on. You must press the **WiFi On/Off** button again for two seconds to turn the wireless radios back on.

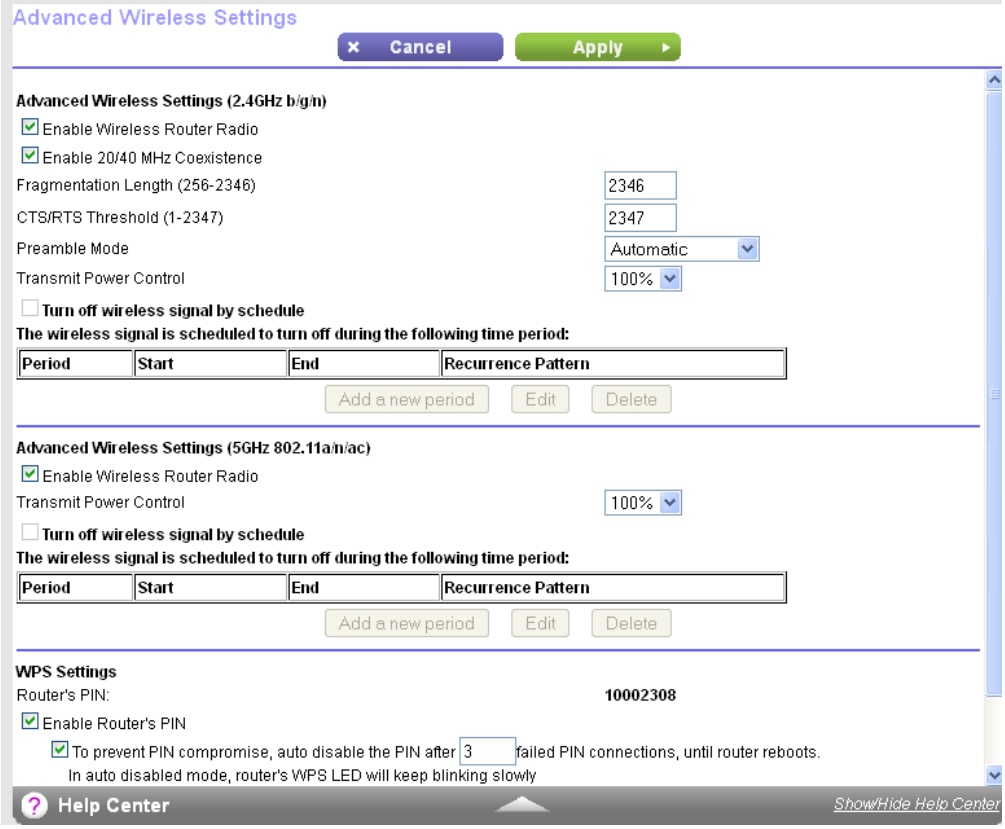
To enable or disable the wireless radios:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Advanced Setup > Wireless Settings**.



Your *router* might display information that is different from this example.

5. In the 2.4 GHz and 5 GHz sections of the screen, select or clear the **Enable Wireless Router Radio** check boxes.

   Clearing these check boxes turns off the WiFi feature of the *router* for each band.

6. Click the **Apply** button.

   If you turned off both wireless radios, the WiFi On/Off LED and the WPS LED turn off. If you turned on the wireless radios, the WiFi On/Off LED and the WPS LED light.

Set Up a Wireless Schedule

You can turn off the wireless signal from your *router* at times when you do not need a wireless connection. For example, you might turn it off for the weekend if you leave town.

To set up the wireless schedule:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

A login window opens.

3. Enter the *router* user name and password.

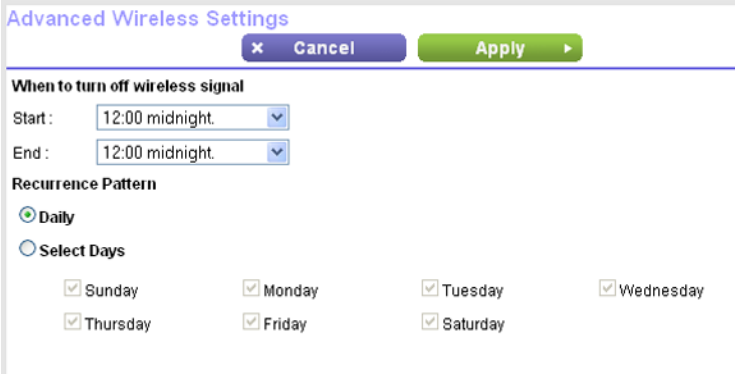
   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > Wireless Settings**.

   The Advanced Wireless Settings page displays.

5. Click the **Add a new period** button.



6. Use the menus, radio buttons, and check boxes to set up a period during which you want to turn off the wireless signal.
7. Click the **Apply** button.

   The Advanced Wireless Settings page displays.

8. Select the **Turn off wireless signal by schedule** check box to activate the schedule.
9. Click the **Apply** button.

   Your settings are saved.

Specify WPS Settings

Wi-Fi Protected Setup (WPS) lets you join the WiFi network without typing the WiFi password.

To specify WPS Settings:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net**.

   A login screen displays.

3. Enter the router user name and password.

The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home screen displays.

4. Select **ADVANCED > Advanced Setup > Wireless Settings**.

   The Router's PIN field displays the PIN that you use on a registrar (for example, from the Network Explorer on a Vista Windows computer) to configure the *router*'s wireless settings through WPS.

5. (Optional) Select or clear the **Enable Router's PIN** check box.

   The PIN function might temporarily be disabled when the *router* detects suspicious attempts to break into the *router*'s wireless settings by using the *router*'s PIN through WPS. You can manually enable the PIN function by selecting the **Enable Router's PIN** check box.

6. (Optional) Select or clear the **Keep Existing Wireless Settings** check box.

   By default, the **Keep Existing Wireless Settings** check box is selected. NETGEAR recommends that you leave this check box selected.

   If you clear this check box, the next time a new wireless client uses WPS to connect to the *router*, the *router* wireless settings change to an automatically generated random SSID and security key.

7. Click the **Apply** button.

   Your changes are saved.

Use the Router as a Wireless Access Point

You can set up the router to run as an access point (AP) on the same local network as another router.

To set up the router as an AP:

1. Use an Ethernet cable to connect the Internet port of this router to a LAN port in the other router.

2. Launch a web browser from a computer or wireless device that is connected to the network.
3. Type **http://www.routerlogin.net** .

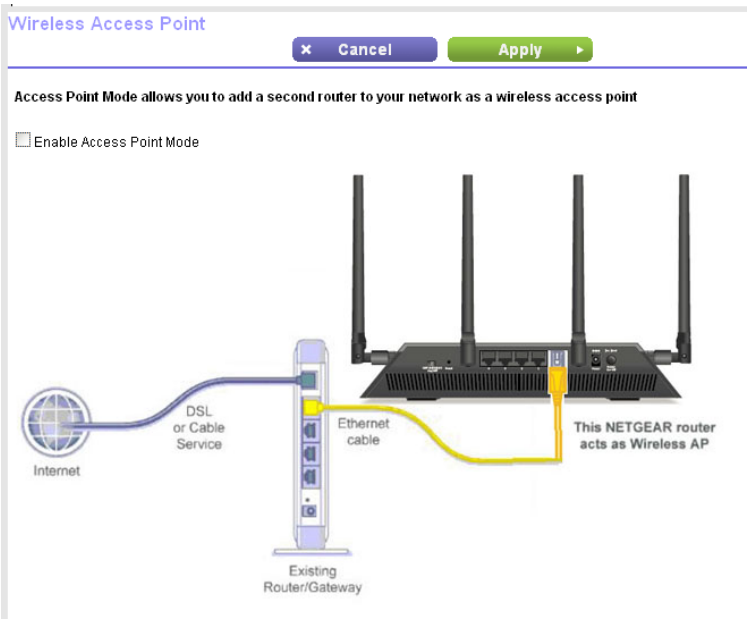
   A login window opens.

4. Enter the router user name and password.

The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home page displays.

5. Select **ADVANCED > Advanced Setup > Wireless AP**.



6. Select the **Enable AP Mode** check box.
7. Scroll down and select an IP address setting:

   - **Get dynamically from existing router**. The other router on the network assigns an IP address to this router while this router is in AP mode.
   - **Enable fixed IP settings on this device (not recommended)**. Use this setting if you want to manually assign a specific IP address to this router while it is in AP mode. Using this option effectively requires advanced network experience.

Note To avoid interference with other routers or gateways in your network, NETGEAR recommends that you use different wireless settings on each router. You can also turn off the wireless radio on the other router or gateway and use the *R7500v2* router only for wireless client access.

8. Click the **Apply** button.

The IP address of the router changes, and you are disconnected.

9. To reconnect, close and restart your browser and typeType **http://www.routerlogin.net** .

Use the Router in Bridge Mode

You can use your router in bridge mode to connect multiple devices with WiFi at the faster 802.11ac speed. To do this, you need two WiFi routers: one set up as a router and the other set up as a bridge.

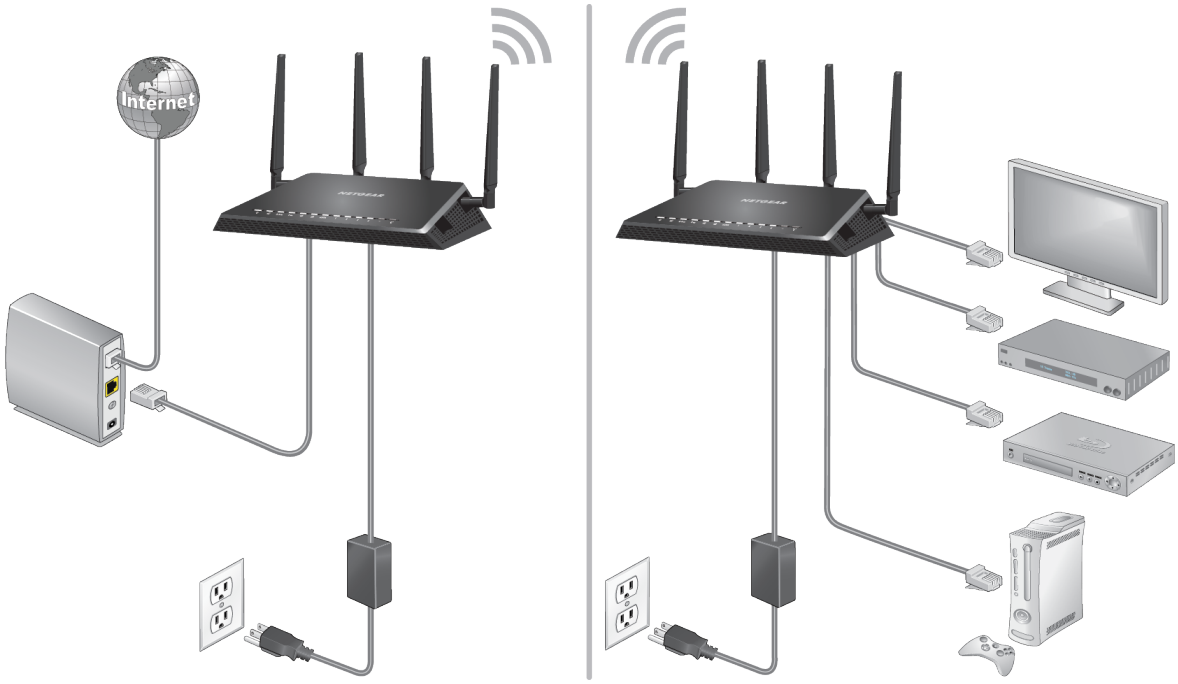


Figure 13. Router in bridge mode with an 802.11ac WiFi connection

Installing your router as a bridge offers the following benefits:

- You can take advantage of gigabit WiFi speeds on current devices.
- Use gigabit WiFi for applications like video and gaming.
- Connect multiple devices like NAS, Smart TV, NeoTV, Blu-ray player, and game consoles at gigabit WiFi speeds using a WiFi link.
- Avoid the need for separate WiFi adapters for each device.

For example, you could install the first router in a room such as a home office where your Internet connection is located.

Then set up the second router in bridge mode. Place the router in bridge mode in a different room such as the room where your home entertainment center is located. Cable the router in bridge mode to your Smart TV, DVR, game console, or Blu-ray player, and use its 802.11ac WiFi connection to the first router.

To set up bridge mode:

1. Make a note of the WiFi settings of the other router to which this router will connect.

   You must know the SSID, WiFi security mode, wireless password, and operating frequency (either 2.4 GHz or 5 GHz).

2. Launch a web browser from a computer or wireless device that is connected to the network of the router that will run in bridge mode.
3. Type **http://www.routerlogin.net** .

   A login window opens.

4. Enter the router user name and password.

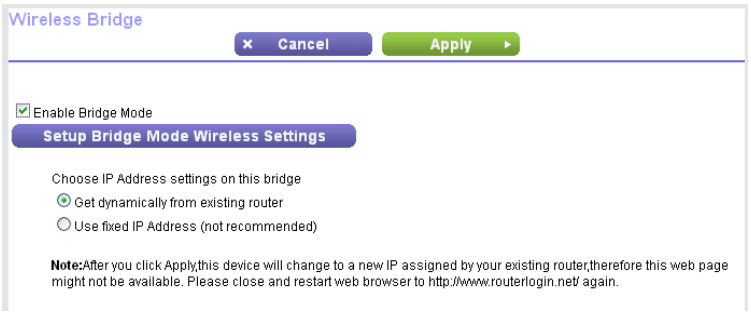
   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

5. Select **ADVANCED > Advanced Setup > Wireless Bridge**.

   The Wireless Bridge page displays.

6. Select the **Enable Bridge Mode** check box.



7. Click the **Setup Bridge Mode Wireless Settings** button.
8. Enter the settings of the other router:
   a. Select the wireless network frequency (**2.4 GHz** or **5 GHz**).
   b. For 802.11ac mode, select **5 GHz**.
   c. In the **Name (SSID)** field, enter the wireless network name (SSID).
   d. In the Security Option section, select a radio button.
   e. If prompted, type the passphrase (the WiFi password that you use to connect with WiFi to the other router).
9. Click the **Apply** button.

   The settings for the other router are saved and the Advanced Wireless Settings page displays.

10. Click the **Apply** button on the Advanced Wireless Settings page.

Your settings are saved.

Use VPN to Access Your Network

12

You can use OpenVPN software to remotely access your router using virtual private networking (VPN). This chapter explains how to set up and use VPN access.

The chapter includes the following sections:

Set Up a VPN Connection

A virtual private network (VPN) lets you use the Internet to securely access your network when you aren't home.

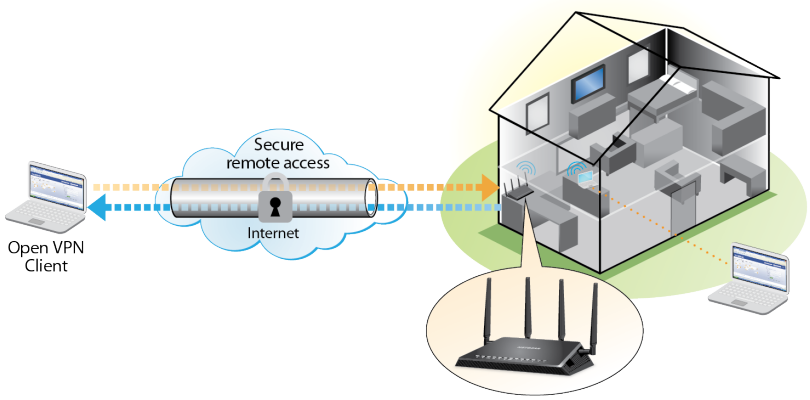


Figure 14. VPN provides a secure tunnel between your home network and a remote computer

This type of VPN access is called a client-to-gateway tunnel. The computer is the client, and the router is the gateway. To use the VPN feature, you must log in to the router and enable VPN, and you must install and run VPN client software on the computer.

Note The router currently does not support iOS or Android VPN client software.

VPN uses DDNS or a static IP address to connect with your router.

To use a DDNS service, register for an account with a host name (sometimes called a domain name). You use the host name to access your network. The router supports these accounts: NETGEAR, No-IP, and Dyn.

If your Internet service provider (ISP) assigned a static WAN IP address (such as 50.196.x.x or 10.x.x.x) that never changes to your Internet account, the VPN can use that IP address to connect to your home network.

Specify VPN Service in the *Router*

You must specify the VPN service settings in the router before you can use a VPN connection.

To specify the VPN service:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

A login window opens.

3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > VPN Service**.

   The VPN Service page displays.

5. Select the **Enable VPN Service** check box.

   By default, the VPN uses the UDP service type and uses port 12974. If you want to customize the service type and port, NETGEAR recommends that you change these settings before you install the OpenVPN software.

6. To change the service type, scroll down and select the **TCP** radio button.
7. To change the port, scroll down to the **Service Port** field, and type the port number that you want to use.
8. To specify when VPN clients use the VPN service, select a Clients will use this VPN connection to access radio button:
   - **Auto**. The *router* checks the Internet connection and makes its best effort to use the VPN service only to access Internet sites and services that cannot be directly accessed without VPN.
   - **All sites on the Internet & Home Network**. The VPN client uses the VPN to access all Internet sites and services, including those that are accessible to you without using VPN.

     If you are traveling outside of your home region, this setting can allow you to access sites that have geographical restrictions in your home region. Because all Internet access goes through VPN, this setting reduces the access speed for the Internet sites and services without geographic restrictions that you access using VPN.
   - **Home Network Only**. The VPN client can access only the home network through the VPN service.
9. Click the **Apply** button.

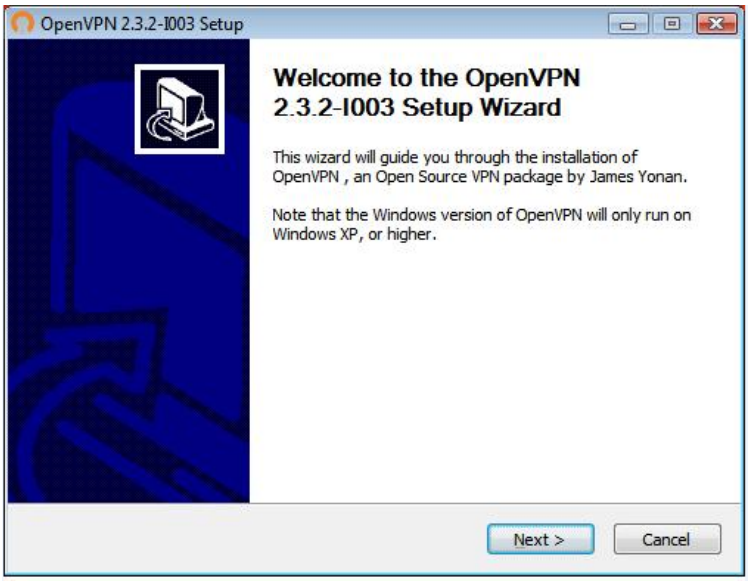
   Your changes are saved. VPN is enabled in the *router* but you must install and set up OpenVPN software on your computer before you can use a VPN connection.

Install OpenVPN Software on Your Computer

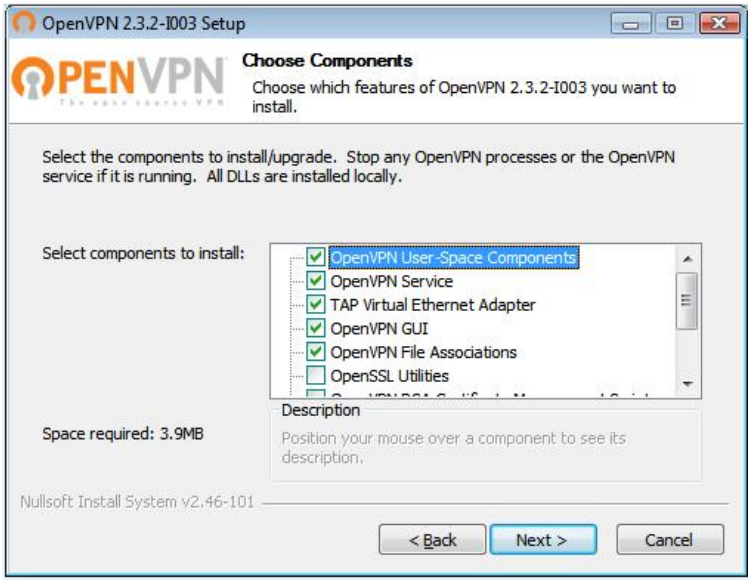
You must install this software on each computer that you plan to use for VPN connections to your router.

To install VPN client software:

1. Visit *http://openvpn.net/index.php/download/community-downloads.html*.
2. In the Windows Installer section of the screen, double-click the openVPN-install-xxx.exe link.
3. Download the file.
4. To install the Open VPN software on your computer, click the openVPN-install-xxx.exe file.



5. Click the **Next** button.
6. Read the License Agreement and click the **I Agree** button.



7. Leave the check boxes selected as shown, and click the **Next** button.
8. To specify the destination folder, click the **Browse** button and select a destination folder.

9. Click the **Install** button.

   The window displays the progress of the installation and then displays the final installation page.

10. Click the **Finish** button.
11. Unzip the configuration files that you downloaded and copy them to the folder where the VPN client is installed on your device.

    For a client device with Windows 64-bit system, the VPN client is installed at C:\Program files\OpenVPN\config\ by default.

12. For a client device with Windows, modify the VPN interface name to **NETGEAR-VPN**:
    a. In Windows, select **Control Panel > Network and Internet > Network Connections**.
    b. In the local area connection list, find the local area connection with the device name **TAP-Windows Adapter**.
    c. Select the local area connection and change its name (not its device name) to **NETGEAR-VPN**.

    If you do not change the VPN interface name, the VPN tunnel connection will fail.

Use a VPN Tunnel

After you set up the *router* to use VPN and install the OpenVPN application on your computer, you can open a VPN tunnel from your computer to your *router* over the Internet.

For the VPN tunnel to work, the local LAN IP address of the remote *R7500* router must use a different LAN IP scheme from that of the local LAN where your VPN client computer is connected. If both networks use the same LAN IP scheme, when the VPN tunnel is established, you cannot access your home router or your home network with the OpenVPN software.

The default LAN IP address scheme for the *R7500* router is 192.x.x.x. The most common IP schemes are 192.x.x.x, 172.x.x.x, and 10.x.x.x. If you experience a conflict, change the IP scheme either for your home network or for the network with the client VPN computer. For information about changing these settings, see *Change the LAN TCP/IP Settings* on page 128.

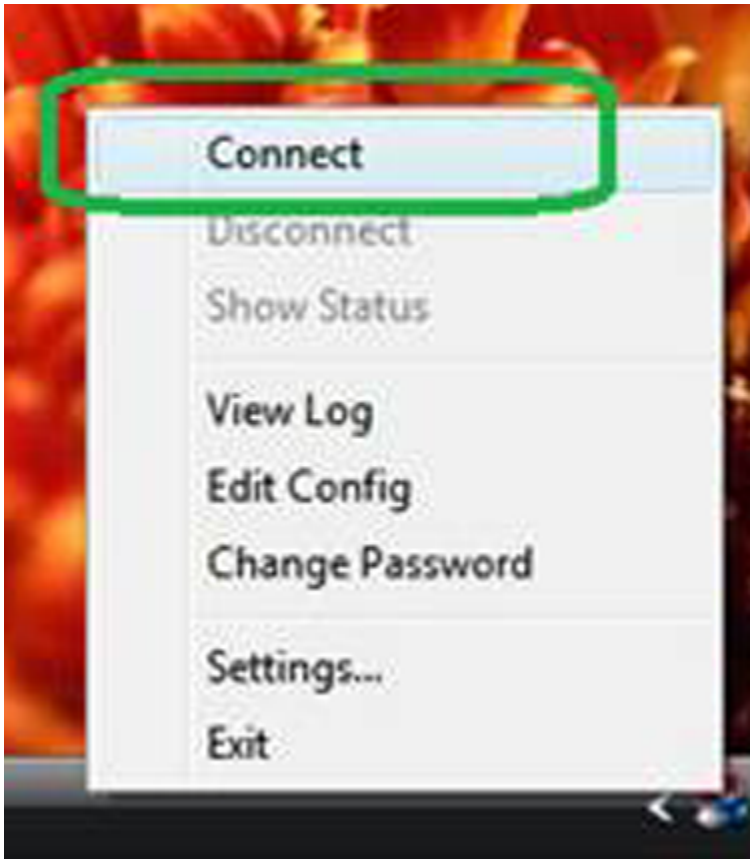
To open a VPN tunnel:

1. Launch the OpenVPN application with administrator privileges.

The **OpenVPN** icon displays in the Windows taskbar.

Tip You can create a shortcut to the VPN program, then use the shortcut to access the settings and select the **run as administrator** check box.Then every time you use this shortcut, OpenVPN automatically runs with administrator privileges.

2. Right-click the **OpenVPN** icon.



3. Select **Connect**.

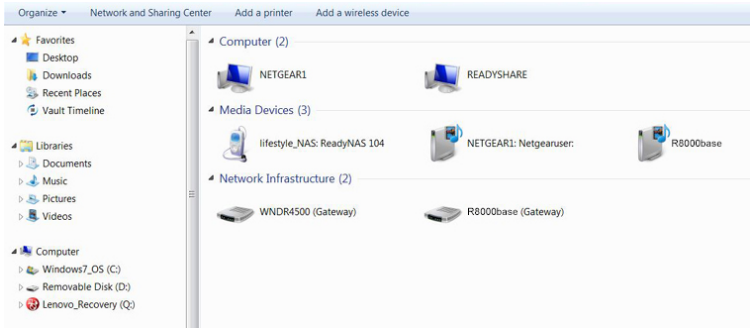
   The VPN connection is established. You can do the following:

   - Launch a web browser and log in to your router.
   - Use Windows file manager to access the router's USB device and download files.

Use VPN to Access the Router's USB Device and Media

To access a USB device and download files:

1. In Windows file manager, select the **Network** folder.



The network resources display. The **ReadySHARE** icon is in the Computer section and the remote *R7500* icon is in the Media Devices section (if DLNA is enabled in the router).

2. If the icons do not display, click the **Refresh** button to update the screen.

   If the local LAN and the remote LAN are using the same IP scheme, the remote *R7500* icon does not display in the Media Devices and Network Infrastructure sections.

3. To access the USB device, click the **ReadySHARE** icon.
4. To access media on the router's network, click the *R7500* icon.

Use VPN to Access Your Internet Service at Home

When you're away from home and you access the Internet, you usually use a local Internet service provider. For example, at a coffee shop you might be given a code that lets you use the coffee shop's Internet service account to surf the web.

Nighthawk lets you use a VPN connection to access your own Internet service when you're away from home. You might want to do this if you travel to a geographic location that doesn't support all the Internet services that you use at home. For example, your Netflix account might work at home but not in a different country.

Set Up VPN Client Internet Access in the Router

By default, the router is set up to allow VPN connections only to your home network but you can change the setting to allow Internet access. Accessing the Internet remotely through a VPN might be slower than accessing the Internet directly.

To allow VPN clients to use your home Internet service:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > VPN Service**.

   The VPN screen displays.

5. Select the **Enable VPN Service** radio button.
6. Scroll down to the Clients will use this VPN connection to access section, and select the **All sites on the Internet & Home Network** radio button.

   When you access the Internet with the VPN connection, instead of using a local Internet service, you use the Internet service from your home network.

7. Click the **Apply** button.

   Your settings are saved.

8. Click the **For Windows** or **For Non Windows** button and download the configuration files for your VPN clients.
9. Unzip the configuration files and copy them to the folder where the VPN client is installed on your device.

   For a client device with Windows 64-bit system, the VPN client is installed at C:\Program files\OpenVPN\config\ by default.

Block VPN Client Internet Access in the Router

By default, the router is set up to allow VPN connections only to your home network, not to the Internet service for your home network. If you changed this setting to allow Internet access, you can change it back.

To allow VPN clients to access only your home network:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > VPN Service**.

The VNP page displays.

5. Select the **Enable VPN Service** radio button.
6. Scroll down to the Clients will use this VPN connection to access section, and select the **Home Network only** radio button.

   This is the default setting. The VPN connection is only to your home network, not to the Internet service for your home network.

7. Click the **Apply** button.

   Your settings are saved.

8. Click **For Windows** or **For Non Windows** button and download the configuration files for your VPN clients.
9. Unzip the configuration files and copy them to the folder where the VPN client is installed on your device.

   For a client device with Windows 64-bit system, the VPN client is installed at C:\Program files\OpenVPN\config\ by default.

Use a VPN Tunnel to Access Your Internet Service at Home

To access your Internet service:

1. Set up the router to allow VPN access to your Internet service.

   See *Set Up VPN Client Internet Access in the Router* on page 157.

2. On your computer, launch the OpenVPN application.

   The **OpenVPN** icon displays in the Windows taskbar.

3. Right-click the icon and select **Connect**.
4. When the VPN connection is established, launch your Internet browser.

Specify Internet Port Settings

13

You can use port forwarding and port triggering to set up rules for Internet traffic. You need networking knowledge to set up these features.

This chapter includes the following sections:

Set Up Port Forwarding to a Local Server

If your home network includes a server, you can allow certain types of incoming traffic to reach the server. For example, you might want to make a local web server, FTP server, or game server visible and available to the Internet.

The router can forward incoming traffic with specific protocols to computers on your local network. You can specify the servers for applications and you can also specify a default DMZ server to which the router forwards all other incoming protocols.

To forward specific incoming protocols:

1. Decide which type of service, application, or game you want to provide.
2. Find the local IP address of the computer on your network that will provide the service.

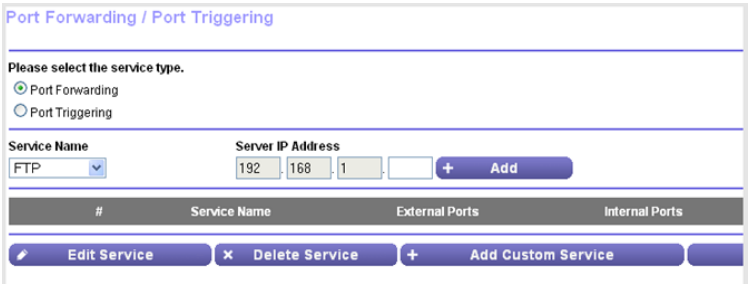
   You can usually find this information by contacting the publisher of the application or user groups or news groups.

   The server computer must always use the same IP address. Assign the server computer a reserved IP address. See *Manage Reserved LAN IP Addresses* on page 132.
3. Launch a web browser from a computer or wireless device that is connected to the network.
4. Type **http://www.routerlogin.net** .

   A login window opens.
5. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
6. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering**.



7. Leave the **Port Forwarding** radio button selected as the service type.
8. From the **Service Name** menu, select the service name.

If the service that you want to add is not in the menu, create a custom service. See *Add a Custom Port Forwarding Service* on page 163.

9. In the **Server IP Address** field, enter the IP address of the computer that will provide the service.
10. Click the **Add** button.

    The service displays in the menu.

Add a Custom Port Forwarding Service

To add a custom service:

1. Find out which port number or range of numbers the application uses.

   You can usually find this information by contacting the publisher of the application or user groups or news groups.

2. Launch a web browser from a computer or wireless device that is connected to the network.
3. Type **http://www.routerlogin.net** .

   A login window opens.

4. Enter the router user name and password.

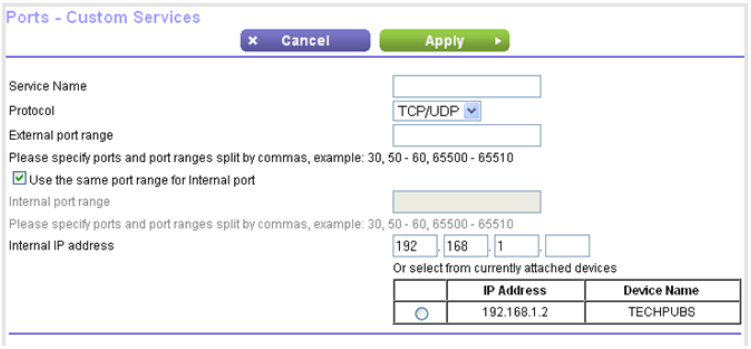
   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.

5. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering**.

   The Port Forwarding/Port Triggering page displays.

6. Leave the **Port Forwarding** radio button selected as the service type.
7. Click the **Add Custom Service** button.



8. In the **Service Name** field, enter a descriptive name.
9. From the **Protocol** menu, select the protocol.

   If you are unsure, select **TCP/UDP**.

10. In the **External port range** field, enter the port numbers.
11. Specify the internal ports by one of these methods:

    - Leave the **Use the same port range for Internal port** check box selected.

- Type the port numbers in the **Internal Port Range** field.

12. In the **Internal IP address** field, type the IP addressor select the radio button for an attached device listed in the table.
13. Click the **Apply** button.

    The service is now in the list on the Port Forwarding/Port Triggering page.

Edit a Port Forwarding Service

To edit a port forwarding entry:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering**.

   The Port Forwarding/Port Triggering page displays.
5. Leave the **Port Forwarding** radio button selected as the service type.
6. In the table, select the radio button next to the service name.
7. Click the **Edit Service** button.

   The Ports - Custom Services page displays.
8. Change the settings as needed.
9. Click the **Apply** button.

   Your changes are saved.

Delete a Port Forwarding Entry

To delete a port forwarding entry:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering**.

   The Port Forwarding/Port Triggering page displays.

5. Select the **Port Forwarding** radio button as the service type.
6. In the table, select the radio button next to the service name.
7. Click the **Delete Service** button.

   The service is deleted.

Application Example: Make a Local Web Server Public

If you host a web server on your local network, you can use port forwarding to allow web requests from anyone on the Internet to reach your web server.

To make a local web server public:

1. Assign your web server either a fixed IP address or a dynamic IP address using DHCP address reservation.

   In this example, your router always gives your web server an IP address of 192.168.1.33.

2. On the Port Forwarding/Port Triggering page, configure the router to forward the HTTP service to the local address of your web server at **192.168.1.33**.

   HTTP (port 80) is the standard protocol for web servers.

3. (Optional) Register a host name with a Dynamic DNS service and specify that name in the Dynamic DNS page of the router.

   Dynamic DNS makes it much easier to access a server from the Internet because you can type the name in the Internet browser. Otherwise, you must know the IP address that the ISP assigned, which typically changes.

How the Router Implements the Port Forwarding Rule

The following sequence shows the effects of a port forwarding rule:

1. When you type the URL www.example.com in your browser, the browser sends a web page request message with the following destination information:

- **Destination address**. The IP address of www.example.com, which is the address of your router.
- **Destination port number**. 80, which is the standard port number for a web server process.

2. Your router receives the message and finds your port forwarding rule for incoming port 80 traffic.
3. The router changes the destination in the message to IP address 192.168.1.123 and sends the message to that computer.
4. Your web server at IP address 192.168.1.123 receives the request and sends a reply message to your router.
5. Your router performs Network Address Translation (NAT) on the source IP address and sends the reply through the Internet to the computer or wireless device that sent the web page request.

Set Up Port Triggering

Port triggering is a dynamic extension of port forwarding that is useful in these cases:

- An application must use port forwarding to more than one local computer (but not simultaneously).
- An application must open incoming ports that are different from the outgoing port.

With port triggering, the router monitors traffic to the Internet from an outbound “trigger” port that you specify. For outbound traffic from that port, the router saves the IP address of the computer that sent the traffic. The router temporarily opens the incoming port or ports that you specify in your rule and forwards that incoming traffic to that destination.

Port forwarding creates a static mapping of a port number or range of ports to a single local computer. Port triggering can dynamically open ports to any computer when needed and close the ports when they are no longer needed.

Note If you use applications such as multiplayer gaming, peer-to-peer connections, real-time communications such as instant messaging, or remote assistance (a feature in Windows XP), enable Universal Plug and Play (UPnP). See *Improve Network Connections With Universal Plug and Play* on page 48.

Add a Port Triggering Service

To add a port triggering service:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.

3. Enter the router user name and password.

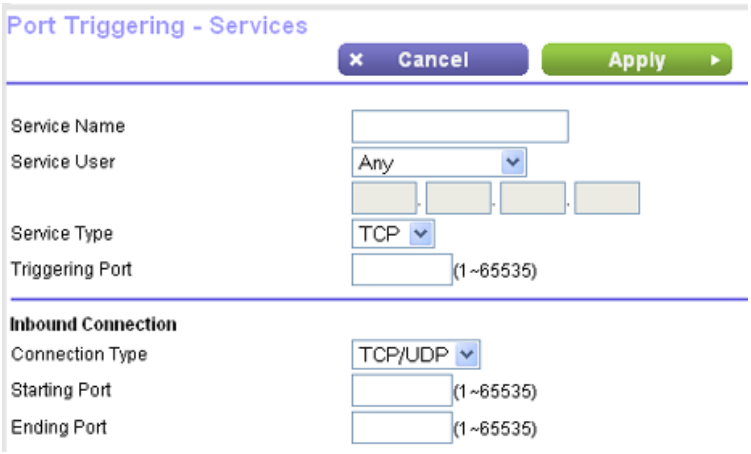
   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering.**

   The Port Forwarding/Port Triggering page displays.

5. Select the **Port Triggering** radio button.
6. Click the **Add Service** button.



7. In the **Service Name** field, type a descriptive service name.
8. From the **Service User** list, select a user option:

   - **Any** (the default) allows any computer on the Internet to use this service.
   - **Single address** restricts the service to a particular computer.

9. From the **Service Type** menu, select **TCP** or **UDP** or **TCP/UDP** (both).

   If you are not sure, select **TCP/UDP**.

10. In the **Triggering Port** field, enter the number of the outbound traffic port that will open the inbound ports.
11. In the **Connection Type**, **Starting Port**, and **Ending Port** fields, enter the inbound connection information.
12. Click the **Apply** button.

The service is now in the Portmap Table. You must enable port triggering before the router uses port triggering. See *Enable Port Triggering* on page 168.

Enable Port Triggering

To enable port triggering:

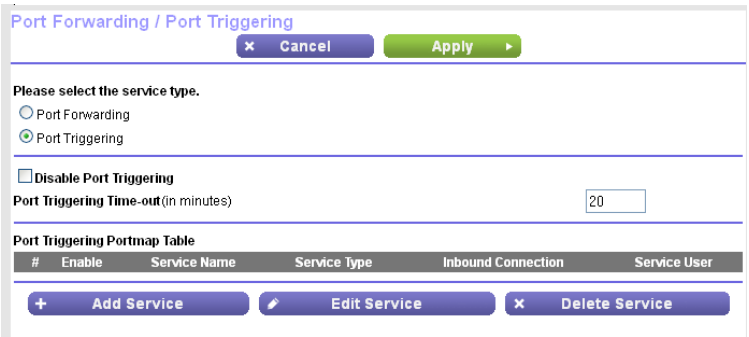
1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering**.

   The Port Forwarding/Port Triggering page displays.
5. Select the **Port Triggering** radio button.



6. Clear the **Disable Port Triggering** check box.

   If this check box is selected, the router does not use port triggering even if you specified port triggering settings.
7. In the **Port Triggering Timeout** field, enter a value up to 9999 minutes.

   This value controls how long the inbound ports stay open when the router detects no activity. This value is required because the router cannot detect when the application terminates.
8. Click the **Apply** button.

Your settings are saved.

Application Example: Port Triggering for Internet Relay Chat

Some application servers, such as FTP and IRC servers, send replies to multiple port numbers. Using port triggering, you can tell the router to open more incoming ports when a particular outgoing port starts a session.

An example is Internet Relay Chat (IRC). Your computer connects to an IRC server at destination port 6667. The IRC server not only responds to your originating source port but also sends an “identify” message to your computer on port 113. Using port triggering, you can tell the router, “When you initiate a session with destination port 6667, you must also allow incoming traffic on port 113 to reach the originating computer.” The following sequence shows the effects of this port triggering rule:

1. You open an IRC client program to start a chat session on your computer.
2. Your IRC client composes a request message to an IRC server using a destination port number of 6667, the standard port number for an IRC server process. Your computer then sends this request message to your router.
3. Your router creates an entry in its internal session table describing this communication session between your computer and the IRC server. Your router stores the original information, performs Network Address Translation (NAT) on the source address and port, and sends this request message through the Internet to the IRC server.
4. Noting your port triggering rule and observing the destination port number of 6667, your router creates another session entry to send any incoming port 113 traffic to your computer.
5. The IRC server sends a return message to your router using the NAT-assigned source port (for example, port 33333) as the destination port and sends an “identify” message to your router with destination port 113.
6. When your router receives the incoming message to destination port 33333, it checks its session table to see if a session is active for port number 33333. Finding an active session, the router restores the original address information replaced by NAT and sends this reply message to your computer.
7. When your router receives the incoming message to destination port 113, it checks its session table and finds an active session for port 113 associated with your computer. The router replaces the message’s destination IP address with your computer’s IP address and forwards the message to your computer.
8. When you finish your chat session, your router eventually senses a period of inactivity in the communications. The router then removes the session information from its session table and incoming traffic is no longer accepted on port numbers 33333 or 113.

Troubleshooting 14

This chapter provides information to help you diagnose and solve problems you might experience with your *router*. If you do not find the solution here, check the NETGEAR support site at http://support.netgear.com for product and contact information.

The chapter contains the following sections:

Quick Tips

This section describes tips for troubleshooting some common problems.

Sequence to Restart Your Network

When you need to restart your network, follow this sequence:

1. Turn off and unplug the modem.
2. Turn off the *router*.
3. Plug in the modem and turn it on. Wait two minutes.
4. Turn on the *router* and wait two minutes.

Check Ethernet Cable Connections

If your device does not power on, make sure that the Ethernet cables are securely plugged in. The Internet LED on the *router* is lit if the Ethernet cable connecting the *router* and the modem is plugged in securely and the modem and *router* are turned on. If one or more powered-on computers are connected to the *router* by an Ethernet cable, the corresponding numbered router LAN port LED lights.

Wireless Settings

Make sure that the wireless settings in the computer and *router* match exactly. The wireless network name (SSID) and wireless security settings of the *router* and wireless computer must match exactly.

If you set up an access list in the Advanced Wireless Settings page, you must add each wireless computer's MAC address to the *router*'s access list.

Network Settings

Make sure that the network settings of the computer are correct. Wired and wirelessly connected computers must use network (IP) addresses on the same network as the *router*. The simplest way to do this is to configure each computer to obtain an IP address automatically using DHCP.

Some cable modem service providers require you to use the MAC address of the computer initially registered on the account. You can view the MAC address on the Attached Devices page.

Troubleshoot with the LEDs

By default, the *router* is set with standard LED settings. If you turned off the LEDs except the Power LED, you must return the LEDs to their standard settings for troubleshooting. For information about controlling the LED settings, see *Turn the LEDs On or Off* on page 12.

Standard LED Behavior When the Router Is Powered On

After you turn on power to the *router*, verify that the following sequence of events occurs:

1. When power is first applied, verify that the Power LED  is lit.
2. After about two minutes, verify the following:
   - The Power LED is solid white.
   - The Internet LED is lit.
   - The WiFi LED is lit unless you turned off the wireless radio.

You can use the LEDs on the front panel of the *router* for troubleshooting.

Power LED Is Off or Blinking

This could occur for a number of reasons. Check the following:

- Make sure that the power adapter is securely connected to your *router* and securely connected to a working power outlet.
- Make sure that you are using the power adapter that NETGEAR supplied for this product.
- If the Power LED blinks slowly and continuously, the *router* firmware is corrupted. This can happen if a firmware upgrade is interrupted, or if the *router* detects a problem with the firmware. If the error persists, it is likely that a hardware problem exists. For recovery instructions, or help with a hardware problem, contact technical support at *www.netgear.com/support.*

Power LED Stays Amber

When the *router* is turned on, the Power LED turns amber for up to 2 minutes and then turns white. If the LED does not turn white, this indicates a problem with the *router*.

If the Power LED is still amber three minutes after you turn on power to the *router*, do the following:

- Cycle the power to see if the *router* recovers.
- Press and hold the **Reset** button to return the *router* to its factory settings. For more information, see *Factory Settings* on page 181.

If the error persists, a hardware problem might be the cause. Contact technical support at *www.netgear.com/support*.

LEDs Never Turn Off

When the *router* is turned on, the LEDs light for about 10 seconds and then turn off. If all the LEDs stay on, this indicates a fault within the *router*.

If all LEDs are still lit one minute after power-up, do the following:

- Cycle the power to see if the *router* recovers.
- Press and hold the **Reset** button to return the *router* to its factory settings. For more information, see *Factory Settings* on page 181.

If the error persists, a hardware problem might be the cause. Contact technical support at *www.netgear.com/support*.

Internet or Ethernet Port LEDs Are Off

If either the Ethernet port LEDs or the Internet LED does not light when the Ethernet connection is made, check the following:

- Make sure that the Ethernet cable connections are secure at the *router* and at the modem or computer.
- Make sure that power is turned on to the connected modem or computer.
- Be sure that you are using the correct cable.

When connecting the *router*'s Internet port to a cable or DSL modem, use the cable that was supplied with the cable or DSL modem. This cable can be a standard straight-through Ethernet cable or an Ethernet crossover cable.

WiFi LED Is Off

If the WiFi LED stays off, check to see if someone pressed the **WiFi On/Off** button on the *router*. This button turns the wireless radios in the *router* on and off. The WiFi LED is lit when the wireless radio is turned on.

You Cannot Log In to the Router

If you are unable to log in to the *router* from a computer on your local network, check the following:

- If you are using an Ethernet-connected computer, check the Ethernet connection between the computer and the *router*.
- Make sure that the IP address of your computer is on the same subnet as the *router*. If you are using the recommended addressing scheme, your computer's address is in the range of 192.168.1.2 to 192.168.1.254.
- If your computer's IP address is shown as 169.254.x.x, recent versions of Windows and Mac OS generate and assign an IP address if the computer cannot reach a DHCP server. These autogenerated

addresses are in the range of 169.254.x.x. If your IP address is in this range, check the connection from the computer to the *router*, and reboot your computer.

- If your *router*'s IP address was changed and you do not know the current IP address, clear the *router*'s configuration to factory defaults. This sets the *router*'s IP address to 192.168.1.1. For more information, see *Factory Settings* on page 181.
- Make sure that Java, JavaScript, or ActiveX is enabled in your browser. If you are using Internet Explorer, click the **Refresh** button to be sure that the Java applet is loaded.
- Try quitting the browser and launching it again.
- Make sure that you are using the correct login information. The user name is **admin**, and the default password is **password**. Make sure that Caps Lock is off when you enter this information.
- If you are attempting to set up your NETGEAR *router* as a replacement for an ADSL gateway in your network, the *router* cannot perform many gateway services. For example, the router cannot convert ADSL or cable data into Ethernet networking information. NETGEAR does not support such a configuration.

You Cannot Access the Internet

If you can access your router but not the Internet, check to see if the *router* can obtain an IP address from your Internet service provider (ISP). Unless your ISP provides a fixed IP address, your *router* requests an IP address from the ISP. You can determine whether the request was successful using the ADVANCED Home screen.

To check the WAN IP address:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Select an external site such as *www.netgear.com* www.netgear.com.
3. Type **http://www.routerlogin.net** .

   A login window opens.
4. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
5. Click the **ADVANCED** tab.

   The ADVANCED Home screen displays.
6. Check that an IP address is shown for the Internet port. If 0.0.0.0 is shown, your *router* did not obtain an IP address from your ISP.

If your *router* cannot obtain an IP address from the ISP, you might need to force your cable or DSL modem to recognize your new *router* by restarting your network. For more information, see *Sequence to Restart Your Network* on page 171.

If your *router* is still unable to obtain an IP address from the ISP, the problem might be one of the following:

- Your Internet service provider (ISP) might require a login program. Ask your ISP whether they require PPP over Ethernet (PPPoE) or some other type of login.
- If your ISP requires a login, the login name and password might be set incorrectly.
- Your ISP might check for your computer's host name. Assign the computer host name of your ISP account as the account name on the Internet Setup page.
- If your ISP allows only one Ethernet MAC address to connect to Internet and checks for your computer's MAC address, do one of the following:
  - Inform your ISP that you bought a new network device and ask them to use the *router*'s MAC address.
  - Configure your *router* to clone your computer's MAC address.

If your *router* obtained an IP address, but your computer is does not load any web pages from the Internet, it might be for one or more of the following reasons:

- Your computer might not recognize any DNS server addresses.

  A DNS server is a host on the Internet that translates Internet names (such as www addresses) to numeric IP addresses. Typically, your ISP provides the addresses of one or two DNS servers for your use. If you entered a DNS address during the *router*'s configuration, reboot your computer, and verify the DNS address. You can configure your computer manually with DNS addresses, as explained in your operating system documentation.
- The *router* might not be configured as the TCP/IP gateway on your computer.

  If your computer obtains its information from the *router* by DHCP, reboot the computer and verify the gateway address.
- You might be running login software that is no longer needed.

  If your ISP provided a program to log you in to the Internet (such as WinPoET), you no longer need to run that software after installing your *router*. You might need to go to Internet Explorer and select **Tools > Internet Options**, click the **Connections** tab, and select **Never dial a connection**. Other browsers provide similar options.

Troubleshoot PPPoE

If you are using PPPoE, try troubleshooting your Internet connection.

To troubleshoot a PPPoE connection:

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** .

   A login window opens.
3. Enter the *router* user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home page displays.
4. Click the **ADVANCED** tab.

   The ADVANCED Home page displays.
5. In the Internet Port pane, click the **Connection Status** button.

   The Connection Status window opens.
6. Check the Connection Status windowto see if your PPPoE connection is up and working.

   If the router is not connected, click the **Connect** button.

   The *router* continues to attempt to connect indefinitely.
7. If you cannot connect after several minutes, the router might be set up with an incorrect service name, user name, or password, or your ISP might be experiencing a provisioning problem.

Unless you connect manually, the *router* does not authenticate using PPPoE until data is transmitted to the network.

Troubleshoot Internet Browsing

If your *router* can obtain an IP address but your computer is unable to load any web pages from the Internet, check the following:

- The traffic meter is enabled, and the limit was reached.

  By configuring the traffic meter not to block Internet access when the traffic limit is reached, you can resume Internet access. If your ISP sets a usage limit, they might charge you for the overage.
- Your computer might not recognize any DNS server addresses. A DNS server is a host on the Internet that translates Internet names (such as www addresses) to numeric IP addresses.

  Typically, your ISP provides the addresses of one or two DNS servers for your use. If you entered a DNS address during the *router*'s configuration, restart your computer.

Alternatively, you can configure your computer manually with a DNS address, as explained in the documentation for your computer.

- The *router* might not be configured as the default gateway on your computer.

  Reboot the computer and verify that the *router* address (www.routerlogin.net) is listed by your computer as the default gateway address.

- You might be running login software that is no longer needed. If your ISP provided a program to log you in to the Internet (such as WinPoET), you no longer need to run that software after installing your *router*. You might need to go to Internet Explorer and select **Tools > Internet Options**, click the **Connections** tab, and select the **Never dial a connection**. Other browsers provide similar options.

Changes Are Not Saved

If the *router* does not save the changes that you make in the *router* interface, do the following:

- When entering configuration settings, always click the **Apply** button before moving to another screen or tab, or your changes are lost.
- Click the **Refresh** or **Reload** button in the web browser. It is possible that the changes occurred, but the old settings might be in the web browser's cache.

Troubleshoot Wireless Connectivity

If you are experiencing trouble connecting wirelessly to the *router*, try to isolate the problem:

- Does the wireless device or computer that you are using find your wireless network?

  If not, check the WiFi LED on the front of the *router*. If it is off, you can press the **WiFi On/Off** button on the *router* to turn the *router* wireless radios back on.

  If you disabled the *router*'s SSID broadcast, then your wireless network is hidden and does not display in your wireless client's scanning list. (By default, SSID broadcast is enabled.)

- Does your wireless device support the security that you are using for your wireless network (WPA or WPA2)?
- If you want to view the wireless settings for the *router*, use an Ethernet cable to connect a computer to a LAN port on the *router*. Then log in to the *router*, and select **BASIC > Wireless**.

Note Be sure to click the **Apply** button if you change settings.

If your wireless device finds your network but the signal strength is weak, check these conditions:

- Is your *router* too far from your computer or too close? Place your computer near the *router* but at least 6 feet (1.8 meters) away and see whether the signal strength improves.
- Are objects between the *router* and your computer blocking the wireless signal?

Troubleshoot Your Network Using the Ping Utility

Most network devices and routers contain a ping utility that sends an echo request packet to the designated device. The device then responds with an echo reply. You can easily troubleshoot a network using the ping utility in your computer or workstation.

Test the LAN Path to Your Router

You can ping the *router* from your computer to verify that the LAN path to your *router* is set up correctly.

To ping the *router* from a Windows computer:

1. From the Windows toolbar, click the **Start** button and select **Run**.
2. In the field provided, type ping followed by the IP address of the *router*, as in this example:

   ping www.routerlogin.net

3. Click the **OK** button.

   You see a message like this one:

   Pinging <IP address > with 32 bytes of data

   If the path is working, you see this message:

   Reply from < IP address >: bytes=32 time=NN ms TTL=xxx

   If the path is not working, you see this message:

   Request timed out

If the path is not functioning correctly, one of the following problems might be present:

- Wrong physical connections

  For a wired connection, make sure that the numbered LAN port LED is lit for the port to which you are connected.

  Check that the appropriate LEDs are on for your network devices. If your *router* and computer are connected to a separate Ethernet switch, make sure that the link LEDs are lit for the switch ports that are connected to your computer and *router*.
- Wrong network configuration

  Verify that the Ethernet card driver software and TCP/IP software are both installed and configured on your computer.

Verify that the IP address for your *router* and your computer are correct and that the addresses are on the same subnet.

Test the Path from Your Computer to a Remote Device

To test the path from your computer to a remote device.

1. From the Windows toolbar, click the **Start** button and select **Run**.
2. In the Windows Run window, type

   ping -n 10 <*IP address*>

   where <*IP address*> is the IP address of a remote device such as your ISP DNS server.

   If the path is functioning correctly, messages display that are similar to those shown in *Test the LAN Path to Your Router* on page 178.

3. If you do not receive replies, check the following:
   - Check that IP address of your *router* is listed as the default gateway for your computer. If DHCP assigns the IP configuration of your computers, this information is not visible in your computer Network Control Panel. Verify that the IP address of the *router* is listed as the default gateway.
   - Check to see that the network address of your computer (the portion of the IP address specified by the subnet mask) is different from the network address of the remote device.
   - Check that your cable or DSL modem is connected and functioning.
   - If your ISP assigned a host name to your computer, enter that host name as the account name on the Internet Setup page.
   - Your ISP might be rejecting the Ethernet MAC addresses of all but one of your computers.

   Many broadband ISPs restrict access by allowing traffic only from the MAC address of your broadband modem. Some ISPs additionally restrict access to the MAC address of a single computer connected to that modem. If your ISP does this, configure your *router* to “clone” or “spoof” the MAC address from the authorized computer.

Supplemental Information

15

This appendix includes technical information about your router.

This appendix covers the following topics:

Factory Settings

You can return the *router* to its factory settings. Use the end of a paper clip or a similar object to press and hold the **Reset** button on the back of the router for at least seven seconds. The *router* resets and returns to the factory configuration settings shown in the following table.

Table 3. Factory default settings

Feature		Default Behavior	
Router login	User login URL	www.routerlogin.com or www.routerlogin.net	
	User name (case-sensitive)	admin	
	Login password (case-sensitive)	password	
Internet connection	WAN MAC address	Use default hardware address	
	WAN MTU size	1500	
	Port speed	AutoSensing	
Local network (LAN)	LAN IP	192.168.1.1	
	Subnet mask	255.255.255.0	
	DHCP server	Enabled	
	DHCP range	192.168.1.2 to 192.168.1.254	
	Time zone	Pacific time	
	DHCP starting IP address	192.168.1.2	
	DHCP ending IP address	192.168.1.254	
	DMZ	Disabled	
	Time adjusted for daylight saving time	Disabled	
		SNMP	Disabled
Firewall	Inbound (communications coming in from the Internet)	Disabled (except traffic on port 80, the HTTP port)	

Feature		Default Behavior
	Outbound (communications going out to the Internet)	Enabled (all)
	Source MAC filtering	Disabled
Wireless	Wireless communication	Enabled
	SSID name	See router label
	Security	WPA2-PSK (AES)
	Broadcast SSID	Enabled
	Transmission speed	Auto[1]
	Country/region	United States in the US; otherwise, varies by region
	RF channel	Auto for 2.4GHz, CH 44 for WW SKU and CH 153 for North America SKU
	Operating mode	Up to 600 Mbps at 2.4 GHz, 1733 Mbps at 5 GHz

[1] *Maximum wireless signal rate derived from IEEE Standard 802.11 specifications. Actual throughput can vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate.*

Technical Specifications

Table 4. R7500v2 router specifications

Feature	Description
Data and routing protocols	TCP/IP, RIP-1, RIP-2, DHCP, PPPoE, PPTP, Bigpond, Dynamic DNS, UPnP, and SMB

Feature	Description
Power adapter	• North America: 100-240V, 50/60 Hz input • UK, Australia: 100-240V, 50/60 Hz, input • Europe: 100-240V, 50/60 Hz input • All regions (output): 12V/3.5A DC output
Dimensions	11.22 x 7.26 x 1.97 in. (285 x 184.5 x 50 mm)
Weight	1.65 lb (750 g)
Operating temperature	0° to 40°C (32º to 104ºF)
Operating humidity	90% maximum relative humidity, noncondensing
Electromagnetic emissions	FCC Part 15 Class B VCCI Class B EN 55 022 (CISPR 22), Class B C-Tick N10947
LAN	10BASE-T or 100BASE-TX or 1000BASE-T, RJ-45
WAN	10BASE-T or 100BASE-TX or 1000BASE-T, RJ-45
Wireless	Maximum wireless signal rate complies with the IEEE 802.11 standard.[2]
Radio data rates	Auto Rate Sensing
Data encoding standards	• IEEE® 802.11 b/g/n 2.4 GHz–256 QAM support • IEEE® 802.11 a/n/ac 5.0 GHz
Maximum computers per wireless network	Limited by the amount of wireless network traffic generated by each node (typically 50–70 nodes).
Operating frequency range	AC2350 WiFi[3]

Feature	Description
	• 600 Mbps @2.4GHz–256 QAM • 1733 Mbps @5 GHz 11ac
802.11 security	WPA2-PSK and WPA/WPA2

[2] *Maximum wireless signal rate derived from IEEE Standard 802.11 specifications. Actual throughput can vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate.*

[3] *NETGEAR makes no express or implied representations or warranties about this product's compatibility with any future standards. 802.11ac 1733 Mbps is approximately 4x faster than 802.11n 450 Mbps. 2.4 GHz Performance Mode requires 256 QAM support on the WiFi client. Up to 1733 Mbps wireless speeds achieved when connecting to other 802.11ac 1733 Mbps devices.*