NETGEAR®

Nighthawk
AC1900 WiFi Cable Modem Router

Model C6900

User Manual

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202-11720-01

350 East Plumeria Drive
San Jose, CA 95134
USA

Support

Thank you for purchasing this NETGEAR product. You can visit *www.netgear.com/support* to register your product, get help, access the latest downloads and user manuals, and join our community. We recommend that you use only official NETGEAR support resources.

Conformity

For the current EU Declaration of Conformity, visit *http://kb.netgear.com/app/answers/detail/a_id/11621*.

Compliance

For regulatory compliance information, visit *http://www.netgear.com/about/regulatory*.

See the regulatory compliance document before connecting the power supply.

Trademarks

Contents

Chapter 5 Specify Network Settings

Chapter 6 Manage Your Network

Chapter 7 Specify Internet Port Settings

Hardware Setup

1

This chapter covers the following topics:

- *Unpack Your Modem Router*
- *Front Panel*
- *Rear Panel*
- *Position Your Modem Router*
- *Cable Your Modem Router*
- *Activate Your Internet Service*
- *Activate Your Internet Service With Comcast XFINITY*

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

Unpack Your Modem Router

Your package contains the following items.

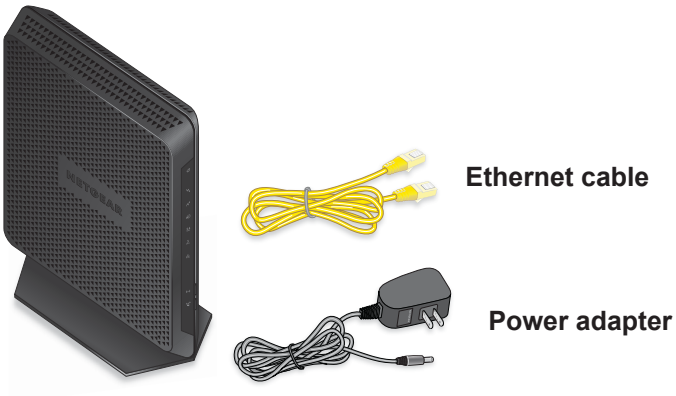


Figure 1. Package contents

Front Panel

The modem router has status LEDs and buttons on the front.

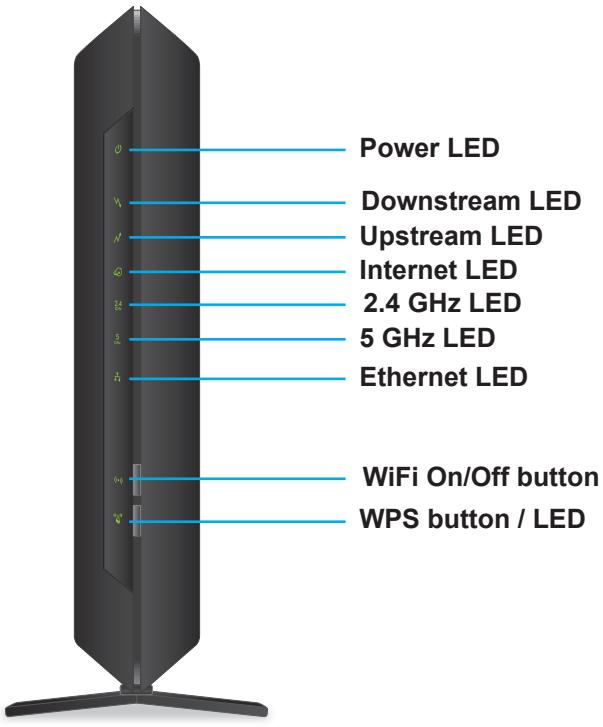


Figure 2. Modem router front view

You can use the LEDs to verify status and connections. The following table lists and describes each LED and button on the front panel of the modem router.

LED	Description
Power 	• **Green**. Power is supplied to the modem router. • **Off**. No power is supplied to the modem router. • **Solid red**. Thermal cutoff mode. Power off the unit, let it cool, and move it away from heat sources (such as a TV, DVD player, or speakers) and keep it vertical in open air.
Downstream 	• **Solid amber**. One downstream channel is locked. • **Solid green**. Two or more downstream channels are locked. • **Blinking green**. The modem router is scanning for a downstream channel. • **Off**. No downstream channel is locked.
Upstream 	• **Solid amber**. One upstream channel is locked. • **Solid green**. Two or more upstream channels are locked. • **Blinking green**. The modem router is scanning for an upstream channel. • **Off**. No upstream channel is locked.
Internet 	• **Solid green**. The modem router is online. • **Blinking green**. The modem router is synchronizing with the cable provider's cable modem termination system (CMTS). • **Slow blinking amber and green**. The modem router reached the traffic meter limit. (For information about the traffic meter, see *Monitor Internet Traffic* on page 64.) • **Off**. The modem router is offline.
2.4 GHz radio 	• **Green**. The 2.4 GHz radio is on. • **Off**. The 2.4 GHz radio is off.
5 GHz radio 	• **Green**. The 5 GHz radio is on. • **Off**. The 5 GHz radio is off.
Ethernet 	• **Green**. A device is connected to an Ethernet port and powered on. Each Ethernet port has LEDs on the rear panel. • **Off**. No device is connected to an Ethernet port.
WiFi On/Off button with LED 	Pressing this button for two seconds turns the WiFi radios in the modem router 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 modem 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 during this process and then lights solid.

Rear Panel

The rear panel has the connections and button shown the following figure.

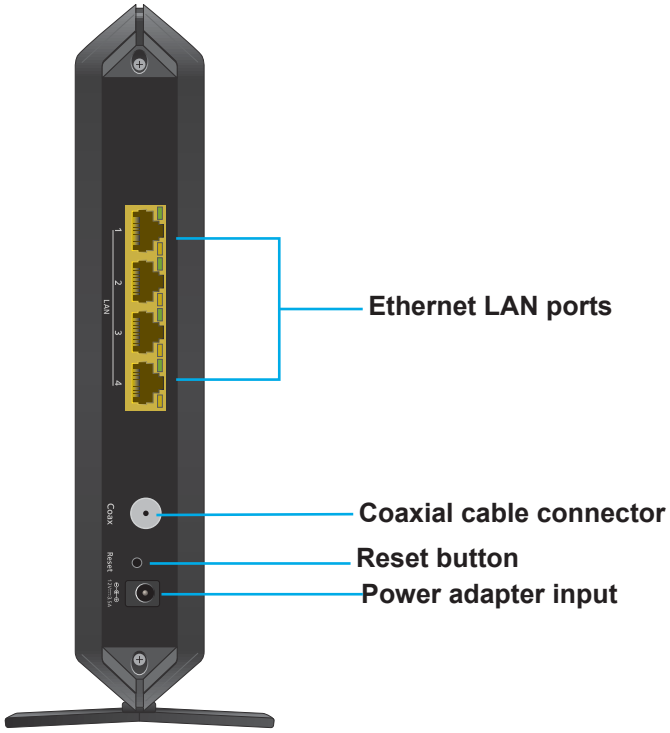


Figure 3. Modem router rear panel

Position Your Modem Router

The modem 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 modem 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 modem router's signal. Wireless access points are modem routers, repeaters, WiFi range extenders, or any other device that emits a wireless signal for network access.

Position your modem router according to the following guidelines:

- Place your modem 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 modem router is within reach of an AC power outlet and near Ethernet cables for wired computers.
- Place the modem router in an elevated location, minimizing the number walls and ceilings between the modem router and your other devices.

- Place the modem 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 modem router away from large metal surfaces, large glass surfaces, and insulated walls such as these:
  - Solid metal doors
  - Aluminum studs
  - Fish tanks
  - Mirrors
  - Brick
  - Concrete

Cable Your Modem Router

The most common way to cable your modem router is the simplest, without any other routers or gateways on the same network. You can also cable the modem router to another router or gateway and log in to the modem router to specify this setting.

Cable the Modem Router in a Simple Network

The modem router comes configured to work as both a modem and a router. You can share your Internet connection without connecting the modem router to a router or gateway.

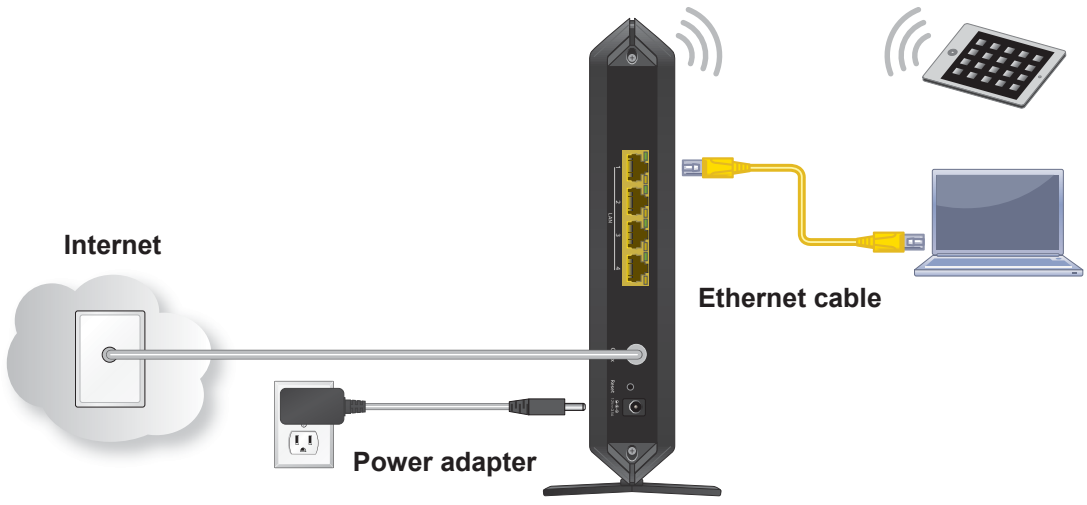


Figure 4. Modem router in a simple network

➢ **To cable your modem router:**

1. Connect a coaxial cable.

   Use the coaxial cable that your cable company provides to connect the cable port on the modem router to a cable wall outlet or a line splitter.

   For XFINITY cable Internet service, Comcast XFINITY recommends connecting your modem router to a cable wall outlet.

2. Connect the power adapter provided in the package to the modem router and plug the power adapter in to an electrical outlet.
3. Press the **Power On/Off** button on the rear panel of the modem router.

   The Power LED lights green.

You can log in to the modem router to view or change its settings.

Cable Your Modem Router to a Router and Use Bridge Mode

If you want to cable the modem router to a router, then you must log in to the modem router and change its Router Mode setting. Changing this setting prevents certain network conflicts that can occur when two devices on the same network perform routing functions such as network address translation (NAT) and DHCP (assigning IP addresses to devices on the network). This turns the modem router into a bridged modem

➢ **To cable your modem router to a gateway or router:**

1. Connect a coaxial cable.

   Use the coaxial cable that your cable company provides to connect the cable port on the modem router to a cable wall outlet or a line splitter.

   For XFINITY cable Internet service, Comcast XFINITY recommends connecting your modem router to a cable wall outlet.

2. Connect the power adapter to the modem router and plug the power adapter into an electrical outlet.

   The Power LED lights green.

3. On your computer or wireless device, find and select the WiFi network.

   The WiFi network name is on the product label.

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

   The password is on the product label.

   Your wireless device connects to the WiFi network.

5. Launch a web browser.
6. Type **http://routerlogin.net** or **http://192.168.0.1**.

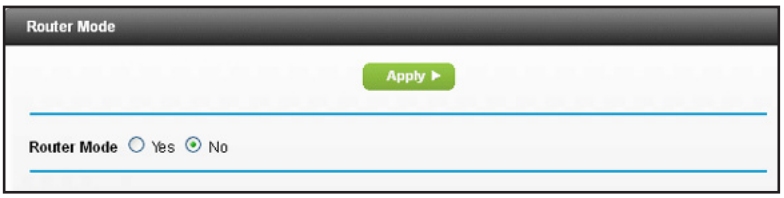
   A login window opens.

7. Enter the modem router user name and password.

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

The BASIC Home page displays.

8. Select **ADVANCED > Administration > Router Mode**.
9. Select the **No** radio button.



With this setting, the modem router works as a bridge and obtains IP addresses from the cable Internet provider.

10. Click the **Apply** button.

Your change is saved.

11. Follow the instructions that came with your router or gateway to connect it to the modem router.

Activate Your Internet Service

➢ **To activate your Internet service:**

1. Contact your Internet provider.
2. Check with your cable Internet provider to confirm that this modem router is allowed on your cable network.

This modem router might not be compatible with certain cable networks.

3. If this modem router is allowed on your cable network, inform your cable Internet provider that you are installing a new modem router that you bought from a retail store.
4. Provide your cable Internet provider with the modem router's model number, which is C6900.

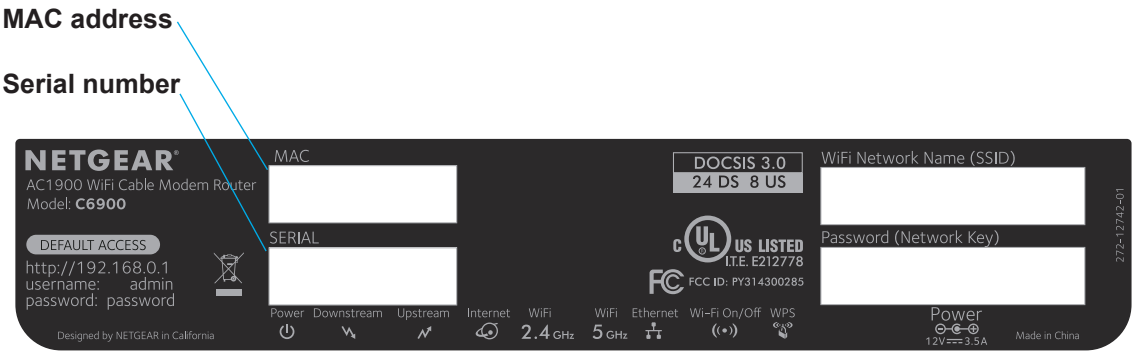
For information about Comcast self-activation, see Comcast Self-Activation on page 8.

Note: You can visit your cable Internet provider's website and follow the onscreen instructions to activate your Internet service.

Cable Internet Provider	Contact Information
Bright House Networks	*support.brighthouse.com* 1-866-898-9101
Cablevision	*http://www.cablevision.com* *https://install.optimum.com/JointInstall/* Telephone number depends on your region. **Note:** When you attempt to contact Cablevision online, you are directed to the Optimum web page. Optimum is a brand name of Cablevision.
Charter	*https://install.charter.com/* 1-855-757-7328
Comcast XFINITY	*https://www.comcast.com/activate* *http://www.xfinity.com/internetsetup* *http://www.xfinity.com/internetsupport* 1-800-XFINITY (1-800-934-6489) For more information, see *Activate Your Internet Service With Comcast XFINITY* on page 14.
Cox	*https://activation.cox.net/selfactivation/newmodem.cox* 1-888-556-1193
Mediacom	*https://maestro.mediacomcc.com/walledgarden/page/login.jsp* 1-844-2SIMPLE (1-844-274-6753)
Time Warner Cable	1-800-892-2253 *https://www.timewarnercable.com/en/support/internet/step-by-step/modem-activation.html*

Note: Your cable Internet provider's contact information might change. You can also find the contact number in your monthly Internet service billing statement.

5. When asked, provide the modem router's serial number and MAC address, which are on the product label.



6. Wait for your cable Internet provider to confirm that your modem router is active.
7. If you do not get an Internet connection with the modem router, ask your cable Internet provider to look for your modem router online, then do one of the following depending on what your cable Internet provider tells you about your modem router:
   - If the modem router is not visible, your cable Internet provider can give you instructions to verify why the modem router does not connect with your high-speed Internet service.
   - If the modem router is visible to your cable Internet provider, reboot the modem router. Check your online status again.

Activate Your Internet Service With Comcast XFINITY

If you use Comcast XFINITY, you can set up Internet service by using Comcast XFINITY's self-activation process. If you are unable to self-activate your modem router, call Comcast XFINITY customer service. After you complete the setup, perform a speed test.

Before you start the self-activation process, make sure that your account number, account phone number, and login information (your email address or user name and password) are nearby.

➢ **To activate your Internet connection with Comcast XFINITY's self-activation process:**

1. Close all web browsers.
2. Launch a web browser.

   You are redirected to the XFINITY self-activation page. If you are not redirected to the XFINITY self-activation page, visit *www.comcast.com/activate*.

3. Provide your XFINITY credentials and complete the self-activation process.

   This process might take up to 15 minutes, during which the modem router reboots a couple of times.

4. If you are unable to activate your modem router using the XFINITY self-activation process, call Comcast XFINITY customer service at 1-800-XFINITY (1-800-934-6489):

a. When asked, provide your account information and provide the modem router's model number and MAC address, which are on the product label.
b. Wait for Comcast XFINITY to confirm that your modem router is active.
c. If you do not get an Internet connection with the modem router, ask Comcast XFINITY to look for your modem router online, and do one of the following depending on what Comcast XFINITY tells you about your modem router:
   - If the modem router is not visible, Comcast XFINITY can give you instructions to verify why the modem router does not connect with your high-speed Internet service.
   - If the modem router is visible to Comcast XFINITY, reboot the modem router. Check your online status again.

Connect to the Network and Access the Modem Router

2

This chapter contains the following sections:

Connect to the Network

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

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

1. Make sure that the modem router has 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

You can connect to the modem 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 modem router has power (its Power LED is lit).
2. Check the WPS instructions for your computer or wireless device.
3. Press the **WPS** button on the modem 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.

➢ **To find and select the WiFi network:**

1. Make sure that the modem router has 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 modem router's label.
3. Join the WiFi network and enter the WiFi password.

   The password is on the modem router's label.

   Your wireless device connects to the WiFi network.

Label

The label on the modem router shows the login information, MAC address, and serial number.

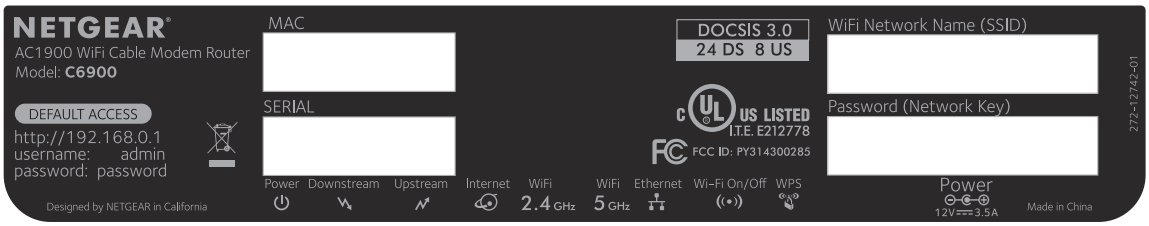


Figure 5. Modem Router label

Types of Logins

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

Types of logins:

- **WiFi network key or password**. Your modem router is preset with a unique wireless network name (SSID) and password for wireless access. This information is on the modem router label.

  Note: Your modem router broadcasts dual-band 2.4 GHz and 5 GHz WiFi signals. The label shows the SSID for the 2.4 GHz signal. For information about 5 GHz WiFi settings, see *Specify Basic WiFi Settings* on page 47.

- **Modem Router login**.This logs you in to the modem router interface as admin from an Internet browser.

Log In to the Modem Router

When you connect to the network (either with WiFi or with an Ethernet cable), you can use a web browser to access the modem router to view or change its settings. The first time you access the modem router, the modem router automatically checks to see if it can connect to your Internet service.

➢ **To log in to the modem router:**

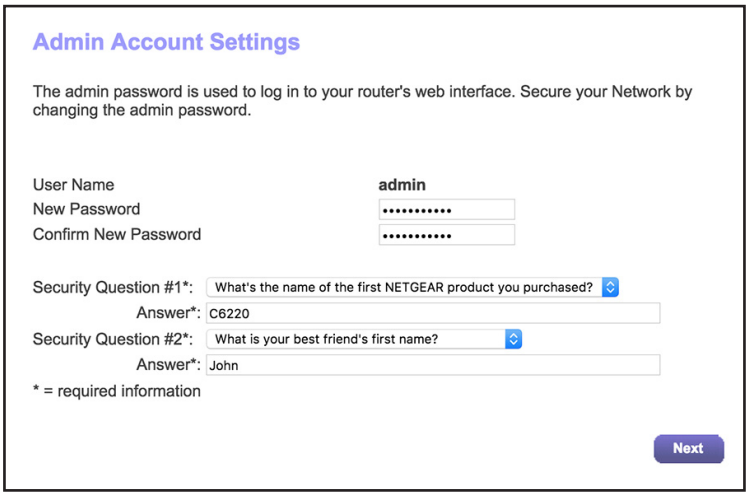
1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.
2. Type **http://routerlogin.net** or **http://192.168.0.1**.

   A login window opens.

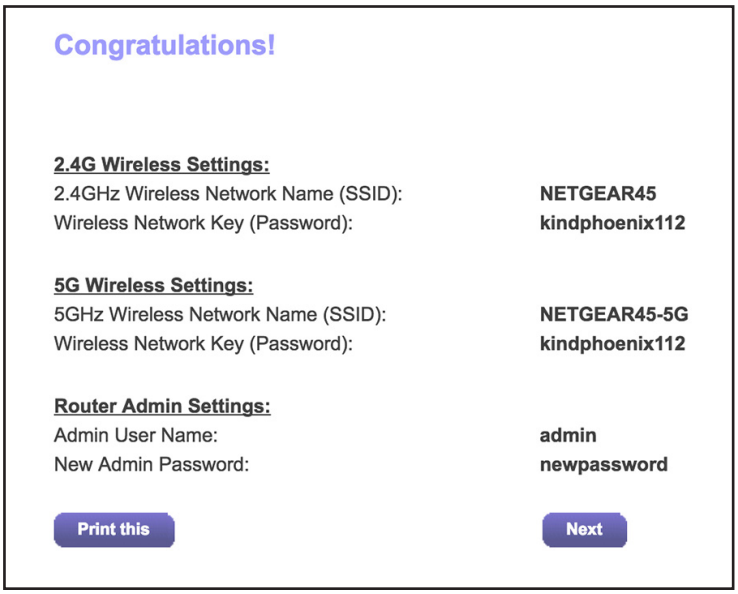
3. Enter the modem router user name and password.

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

   The first time you log in to the modem router, you are prompted to change the admin password and set up security questions. You must enter these settings before you can access the Internet.



4. Enter a new password.
5. Select security questions and enter the answers.
6. Click the **Next** button.



7. Click the **Next** button.

   The modem router connects to the Internet. The BASIC Home page displays the status of the Internet connection.

Access the Modem Router with NETGEAR genie App

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 modem router features like Live Parental Controls, guest access, Internet traffic meter, speed test, and more.

➢ **To use the genie app to access the modem 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 page displays:

Specify Your Internet Settings

3

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

This chapter contains the following sections:

Specify the Cable Connection Starting Frequency

The starting frequency is automatically generated. For most Internet connections, you do not need to specify this information. If you need to enter a starting frequency, contact your Internet provider.

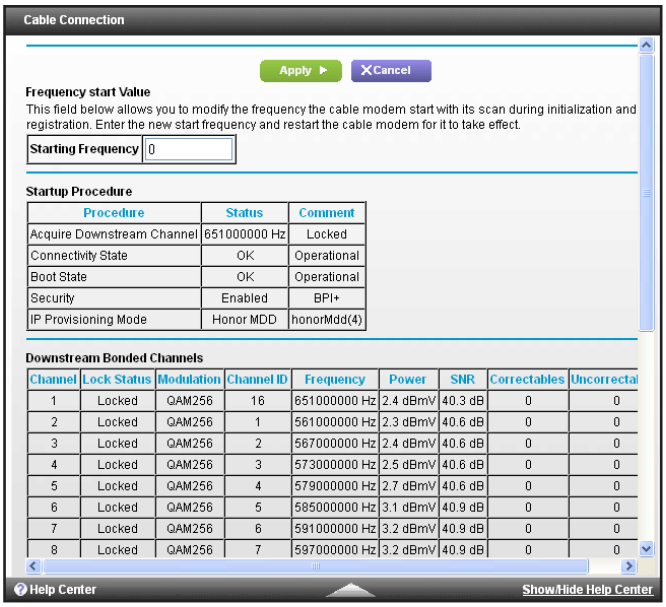
➢ **To change the starting frequency:**

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://routerlogin.net** or **http://192.168.0.1**.

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

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

   The BASIC Home page displays.
4. Select **Cable Connection.**



   The page displays the status of all downstream and upstream channels.
5. In the **Starting Frequency** field, type a number.
6. Click the **Apply** button.

   Your settings are saved.

View Modem Router Initialization

You can track the initialization procedure of the modem router, and get details about the downstream and upstream cable channel. The time is displayed after the modem router is initialized.

The modem router automatically goes through the following steps in the provisioning process:

1. Scans and locks the downstream frequency and then ranges the upstream channels.
2. Obtains a WAN address for the modem router.
3. Connects to the Internet.

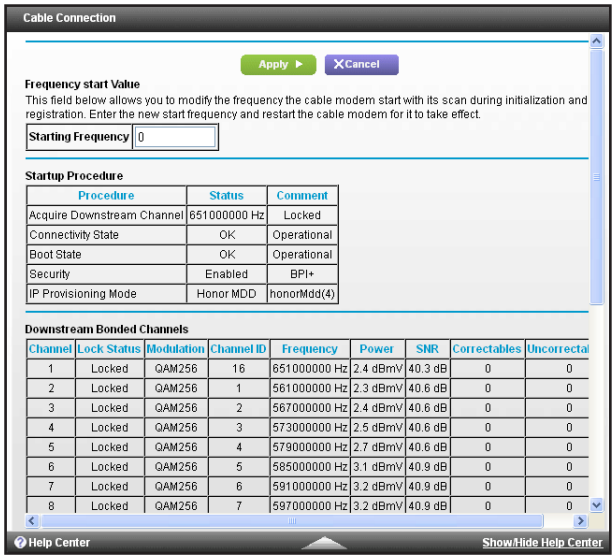
➢ **To view the status of the modem router initialization:**

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://routerlogin.net** or **http://192.168.0.1**.

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

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

   The BASIC Home page displays.
4. Select **Cable Connection.**



The Startup Procedure section displays the initialization progress. The page also displays the status of all downstream and upstream channels.(You must scroll down to view all the channels.) The number of downstream and upstream channels that are locked depends on the number of channels that your Internet provider uses.

Manually Set Up the Internet Connection

In most situations, you do not need to change these settings. NETGEAR recommends that you use the default settings for DHCP because most cable Internet services provide the IP address through DHCP.

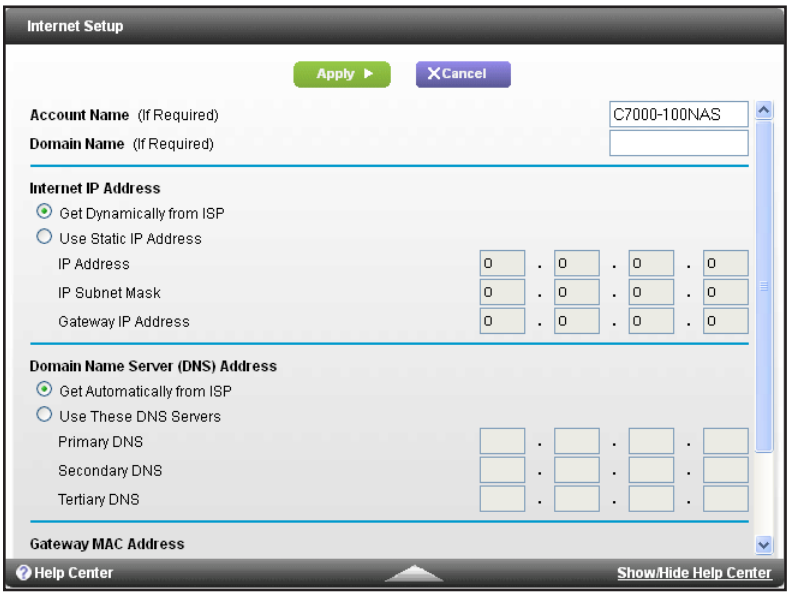
➢ **To specify the Internet connection settings:**

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

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

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

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



Scroll to view more settings

5. If your Internet connection requires an account name or host name, type it in the **Account Name (If Required)** field.
6. If your Internet connection requires a domain name, type it in the **Domain Name (If Required)** field.

   For the other sections in this page, the default settings usually work, but you can change them.
7. For the **Internet IP Address** setting, select one of the following radio buttons:
   - **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 modem router to which your modem router connects.

8. For the **Domain Name Server (DNS) Address** setting, select one of the following radio buttons:
   - **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.
9. For the **Router MAC Address** setting, select one of the following radio buttons:
   - **Use Default Address**. Use the default MAC address.
   - **Use Computer MAC Address**. The modem 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.
10. Click the **Apply** button.

    Your settings are saved.

    If the NETGEAR website does not display within one minute, see *Chapter 8, Troubleshooting*.

Specify an IPv6 Internet Connection

➢ **To specify an IPv6 Internet connection:**

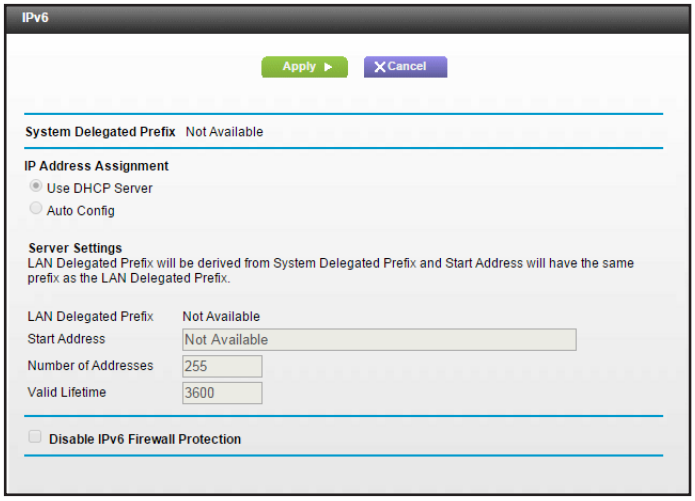
1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

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

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

   The BASIC Home page displays.

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



   If your Internet provider supports IIPV6, the **System Delegated Prefix** field displays IPv6 information.

5. Specify how the modem router assigns IPv6 addresses to the devices on your home network (the LAN) by selecting one of the following radio buttons:
   - **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.
6. Complete the fields in the Server Settings section.
7. 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 has 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 have severe performance problems.
- You used a program to optimize MTU for performance reasons, and now you have 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.

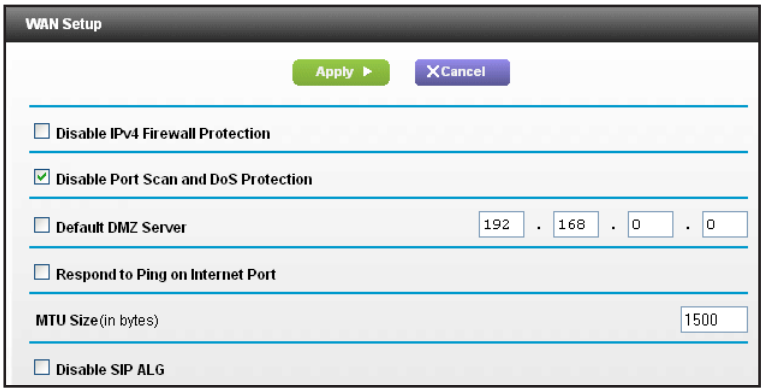
➢ **To change the MTU size:**

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

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

   The user name is **admin**. 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 change is 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 1. 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 modem routers, 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 have large email attachments, for example.

Control Access to the Internet

4

The modem 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 *Parental Controls* website, where you can learn more about Parental Controls. To set up Parental Controls, you must download the genie app.

➢ **To set up Parental Controls:**

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

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

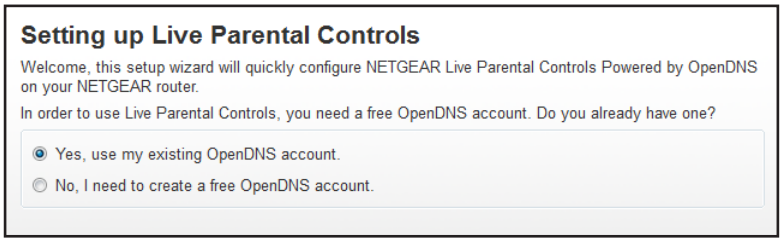
   The user name is **admin**. The user name and password are case-sensitive.

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

   The *Parental Controls* website opens.
5. Click the button for the genie 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**.

   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 did not yet create 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 radio button for a filtering level and click the **Next** button.

    The Setup is complete page displays.

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

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

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

Block Access to Your Network

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

➢ **To set up access control:**

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

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

   The user name is **admin**. 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 the device is in the blocked list.
6. To specify the access rule, select one of the following radio buttons:
   - **Allow all new devices to connect**. With this setting, if you buy a new device, it can access your network. You don't need to enter its MAC address in this page. NETGEAR recommends that you leave this radio button selected.
   - **Block all new devices from connecting**. With this setting, if you buy 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 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.
8. Click the **Apply** button.

   Your changes take effect.

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.

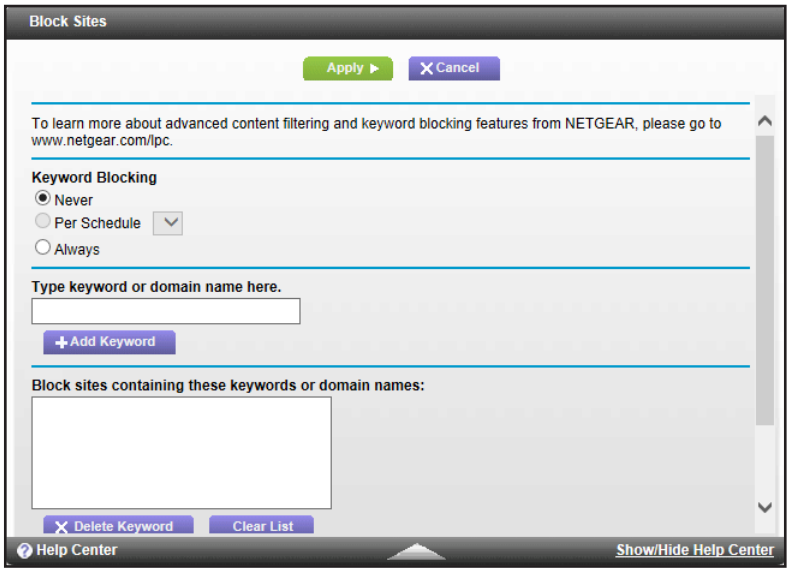
➢ **To set block Internet sites:**

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

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

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

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



5. Select one of the keyword blocking options:
   - **Per Schedule**. Turn on keyword blocking according to the Schedule page settings. (See *Schedule When to Block Internet Sites and Services* on page 34.)
   - **Always**. Turn on keyword blocking all the time, independent of the Schedule page.
6. In the **Keyword** 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. **C**lick the **Apply** button.

   Keyword blocking takes effect.

➢ **To delete keywords from the list:**

1. 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.
2. **Click t**he **Apply** button**.**

   Your changes are saved.

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.

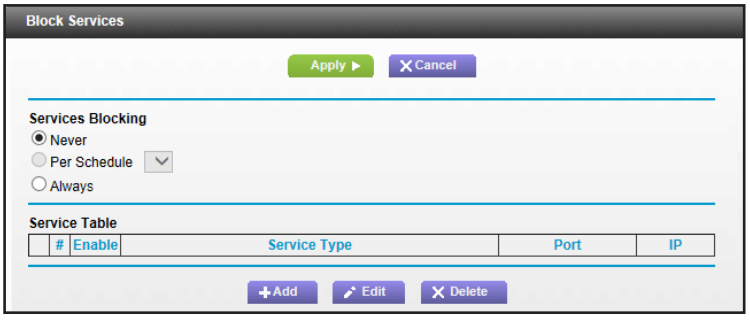
➢ **To block services:**

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

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

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

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

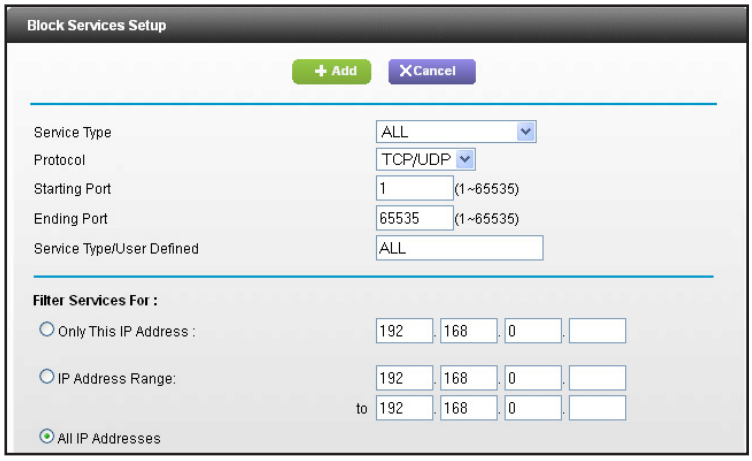


5. Specify when to block the services:

- 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.

  To specify the schedule, see *Schedule When to Block Internet Sites and Services* on page 34.

6. Click the **Add** button.



7. To add a service that is in the **Service Type** list, 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 the list, 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. To specify how to filter the services, select one of the following radio buttons:
   - **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 modem router to block, see *Use*

Keywords to Block Internet Sites on page 32 and *Block Services from the Internet* on page 33.

➢ **To schedule blocking:**

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

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

   The user name is **admin**. 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 use 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 have a fixed IP address. You can use the reserved IP address feature to specify the IP address. See *Reserve LAN IP Addresses* on page 44

➢ **To specify a trusted computer:**

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

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

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

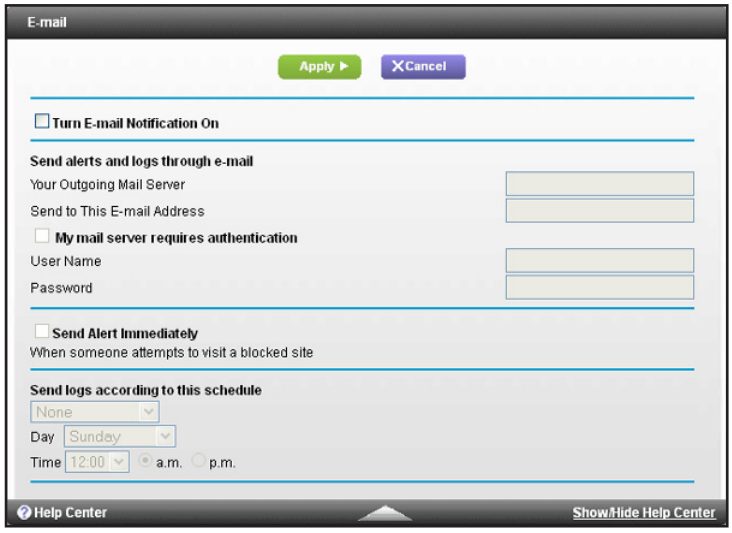
➢ **To set up email notifications:**

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

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

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

   The BASIC Home page displays.
4. Select **ADVANCED > Security > E-mail**.



5. Select the **Turn Email 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 page of your email program. If you leave this field blank, log and alert messages are not sent.

7. Enter the email address to which logs and alerts are sent in the **Send to This E-mail Address** field.

   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.
   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. (Optional) 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:
    - From **Send logs according to this schedule** drop-down list, select the schedule type.
    - From the **Day** drop-down list, select the day.
    - From the **Time** drop-down list, select the time, and select the **am** or **pm** radio button.
11. Click the **Apply** button.

    Your settings are saved.

    Logs are sent automatically. If the log fills up before the specified time, it is sent. After the log is sent, it is cleared from the modem router memory. If the modem router cannot email the log and the log buffer fills up, the modem router overwrites the log.

Specify Network Settings

5

This chapter includes the following sections:

View 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 modem router to respond to a ping to its WAN (Internet) port.

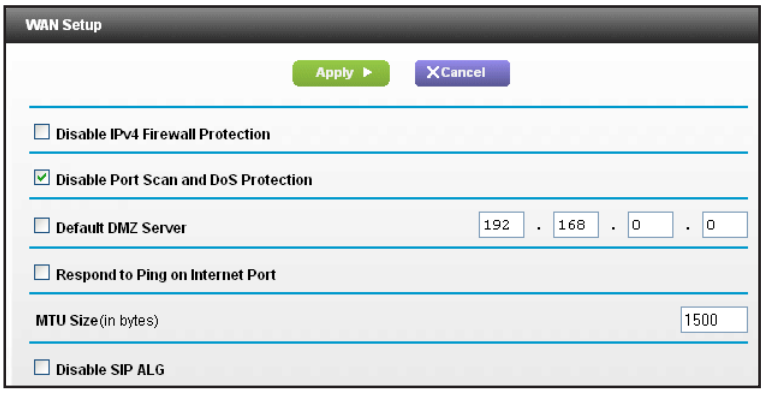
➢ **To view the WAN settings:**

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

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

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

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



The following settings display:

- **Disable IPv4 Firewall Protection**. NETGEAR recommends that you leave this check box empty so that the firewall protects your modem router.
- **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 disabled by default. It 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 40.
- **Respond to Ping on Internet Port**. This feature allows your modem router to be discovered. Use this feature only as a diagnostic tool or if you have a specific reason.
- **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 26.

- **Disable SIP ALG**. Some VoIP applications do not work well with the SIP ALG. Selecting this check box to turn off the SIP ALG might help your VoIP devices to create or accept a call through the modem router.

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 modem 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 modem 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 have configured in the Port Forwarding/Port Triggering page. Instead of discarding this traffic, you can have the modem router forward 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 an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

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

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

   The BASIC Home page displays.
4. Select **ADVANCED > Setup > WAN Setup**.
5. Select the **Default DMZ Server** check box.
6. Type the IP address.
7. Click the **Apply** button.

Your change takes effect.

Change the Modem Router's Device Name

The modem router's device name is C6900. This device name displays in file manager when you browse your network.

➢ **To change the modem router's device name:**

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

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

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

   The BASIC Home page displays.
4. Select **ADVANCED > Setup > LAN Setup**.
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 modem router is preconfigured to use private IP addresses on the LAN side and to act as a DHCP server. The modem router's default LAN IP configuration is as follows:

- **LAN IP address**. 192.168.0.1
- **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 uses, or if you have competing subnets with the same IP scheme.

➢ **To change the LAN TCP/IP settings:**

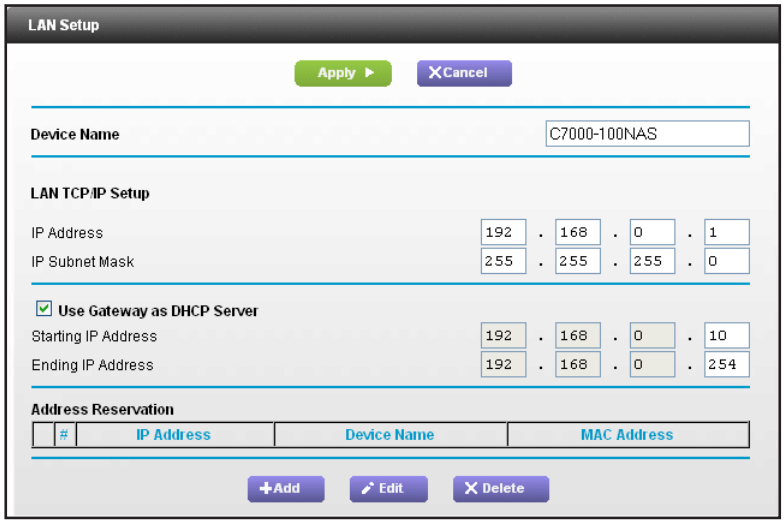
1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

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

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

The BASIC Home page displays.

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



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

   The IP address and subnet mask identifies which addresses are local to a specific device and which must be reached through a gateway or modem router.
7. Click the **Apply** button.

   Your changes are saved.

   If you changed the LAN IP address of the modem router, you are disconnected when this change takes effect.
8. To reconnect, close your browser, relaunch it, and log in to the modem router

Specify the IP Addresses that the Modem Router Assigns

By default, the modem router acts as a Dynamic Host Configuration Protocol (DHCP) server. The modem 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 modem router.

These addresses must be part of the same IP address subnet as the modem router's LAN IP address. Using the default addressing scheme, define a range between 192.168.0.2 and 192.168.0.254, although you can save part of the range for devices with fixed addresses.

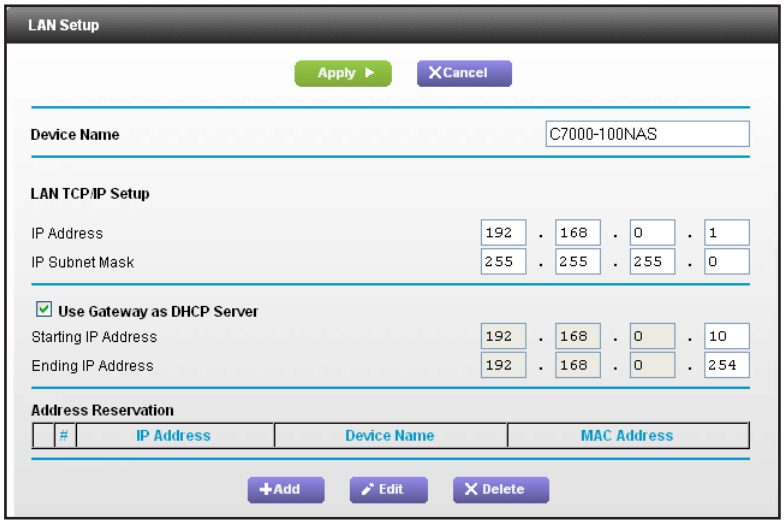
➢ **To specify the pool of IP addresses that the modem router assigns:**

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

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

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

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



5. Make sure that the **Use Router as DHCP Server** check box is selected.
6. Specify the range of IP addresses that the modem 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 modem 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 modem router.
7. Click the **Apply** button.

   Your settings are saved.

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

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

Disable the DHCP Server Feature in the Modem Router

By default, the modem router acts as a DHCP server. The modem 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 modem 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 modem router:**

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

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

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

   The BASIC Home page displays.
4. Select **ADVANCED > Setup > LAN Setup.**
5. Clear the **Use Router as DHCP Server** check box.
6. Click the **Apply** button.
7. (Optional) If this service is disabled and no other DHCP server is on your network, set your computer IP addresses manually so that they can access the modem router.

Reserve 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 modem router's DHCP server. Assign reserved IP addresses to computers or servers that require permanent IP settings.

➢ **To reserve an IP address:**

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

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

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

   The BASIC Home page displays.
4. Select **ADVANCED > Setup > LAN Setup**.
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 modem router's LAN subnet, such as 192.168.0.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 modem router's DHCP server. Reboot the computer, or access its IP configuration and force a DHCP release and renew.

- **To edit a reserved address entry:**

1. Select the radio button next to the reserved address.
2. Click the **Edit** button.
3. Change the settings.
4. Click the **Apply** button.

   Your changes are saved.

- **To delete a reserved address entry:**

1. Select the radio button next to the reserved address.
2. Click the **Delete** button.

   The address is removed.

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 an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login window opens.

3. Enter the user name and password.

   The user name is **admin**. 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 modem router does not allow any device to automatically control modem router resources, such as port forwarding.

6. Type the advertisement period in minutes.

   The advertisement period specifies how often the modem 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 have 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 modem router and which ports (internal and external) that device has 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.

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 an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login window opens.

3. Enter the user name and password.

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

   The BASIC Home page displays.
4. Select **ADVANCED > WPS Wizard**.
5. Click the **Next** button.
6. Select the radio button for the setup method that you want to use:.
   - **Push button**. Click the **WPS** button on this page.
   - **PIN Number**. The page 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 modem router WPS page displays a confirmation message.

Specify Basic WiFi Settings

The modem 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 product 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 wireless network name (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 modem router.

➢ **To specify basic wireless settings:**

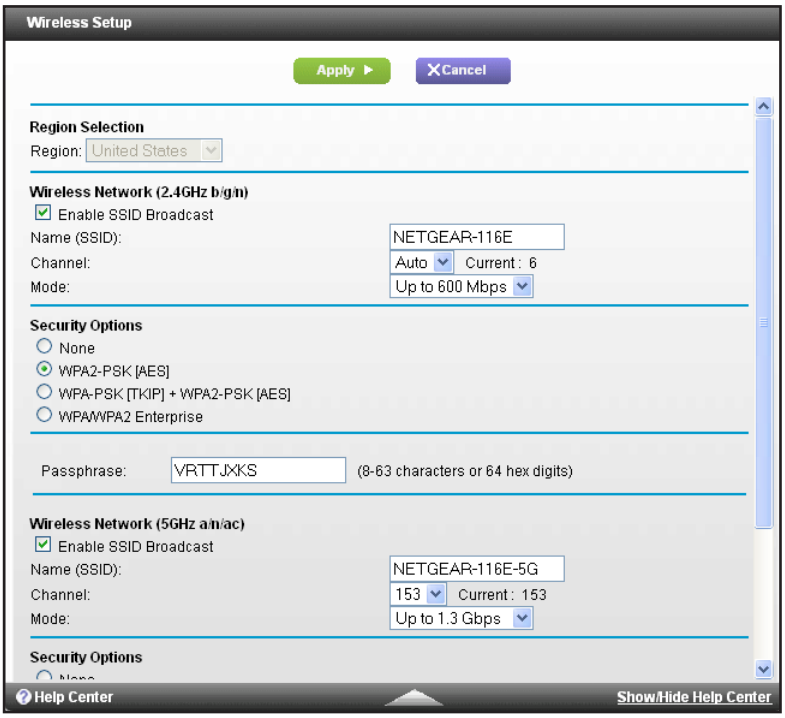
1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

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

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

The BASIC Home page displays.

4. Select **Wireless**.



5. In the **Region** list, 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 modem 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 product 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 in the **Channel** list.

   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. To change the mode, select it from the Mode list.

   For 2.4 GHz, **Up to 600 Mbps** is the default setting. The other settings are **Up to 289 Mbps** and **Up to 54 Mbps**.

At 5 GHz, **Up to 1300 Mbps** is the default setting, which allows 802.11ac and 802.11a wireless devices to join the network. The other settings are **Up to 600 Mbps** and **Up to 289 Mbps**.

10. 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.

11. 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 Security Option

Your modem router comes with preset WPA2 or WPA security. The password that you enter to connect to your network is unique to your modem router and is on the product label. NETGEAR recommends that you use the preset security, but you can change them. NETGEAR recommends that you do not disable security.

➢ **To change the WPA settings:**

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

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

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

   The BASIC Home page displays.
4. Select **Wireless**.
5. Under **Security Options**, select a WPA option.

   The WPA2 options use the newest standard for the strongest security, but some older computers and wireless devices cannot use WPA2. By default, the **WPA2-PSK [AES]** radio button is selected.

   The Passphrase field displays.
6. In the **Passphrase** field, enter the network key (password) that you want to use.

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 changes are saved.

Set Up a Guest Network

A guest network allows visitors at your home to use the Internet without using your wireless security key. You can add a guest network to each wireless network: 2.4 GHz b/g/n and 5.0 GHz a/n.

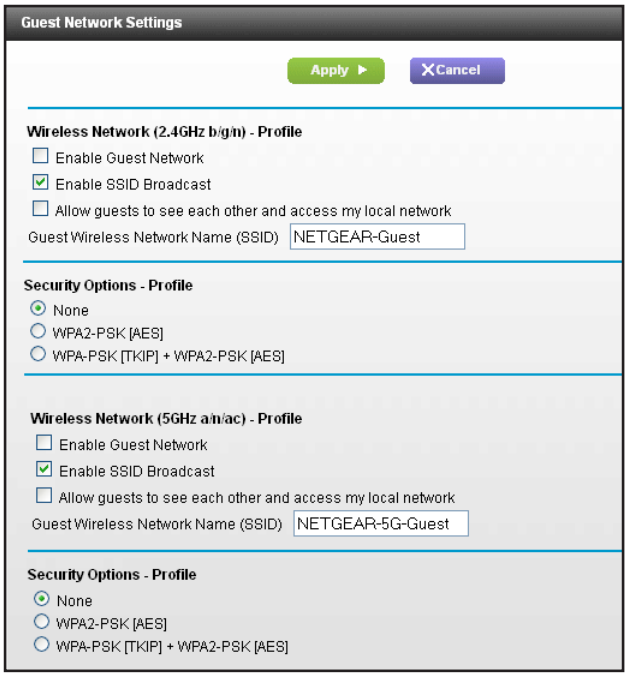
➢ **To set up a guest network:**

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

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

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

   The BASIC Home page displays.
4. Select **Guest Network**.



5. Select any of the following wireless settings:

- **Enable Guest Network**. When this check box is selected, the guest network is enabled, and guests can connect to your network using the SSID of this profile.
- **Enable SSID Broadcast**. If this check box is selected, the wireless access point broadcasts its name (SSID) to all wireless stations. Stations with no SSID can adopt the correct SSID for connections to this access point.
- **Allow guest to see each other and access my local network**. If this check box is selected, anyone who connects to this SSID has access to your local network, not just Internet access.

6. 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.

7. Select a radio button for a security option.

   The WPA2 options use the newest standard for the strongest security, but some older computers and wireless devices cannot use it. NETGEAR recommends that you select the **WPA-PSK [TKIP] + WPA2-PSK [AES]** radio button. This setting protects your WiFi network and lets computers and wireless devices can connect to the WiFi network by using either WPA2 or WPA security.

8. Click the **Apply** button.

   Your settings are saved.

Control the Wireless Radios

The modem router has internal wireless radios that broadcast signals in the 2.4 GHz and 5 GHz range. By default, they are on so that you can connect wirelessly to the modem router. When the wireless radios are off, you can still use an Ethernet cable for a LAN connection to the modem router.

You can turn the wireless radios on and off with the **WiFi On/Off** button on the modem router, or you can log in to the modem router and enable or disable the wireless radios. If you are close to the modem router, it might be easier to press its **WiFi On/Off** button. If you are away from the modem 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 53).

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 front of the modem 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 modem 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.

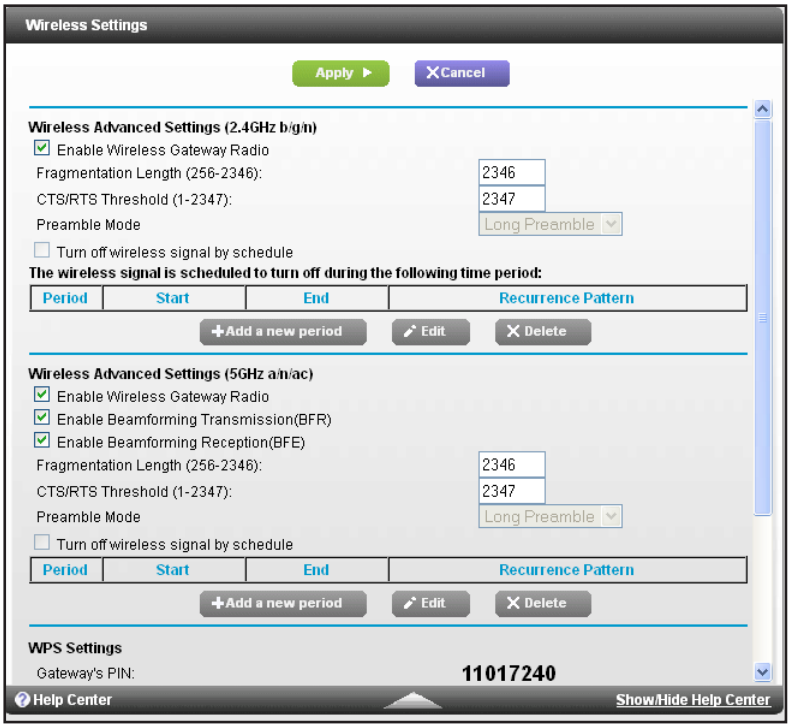
➢ **To enable or disable the wireless radios:**

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

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

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

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



5. Select or clear the **Enable Wireless Gateway Radio** check boxes in the 2.4 GHz and 5 GHz sections of the page.

   Clearing this check box turns off the WiFi feature of the modem router.
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 use this feature to turn off the wireless signal from your modem 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:**

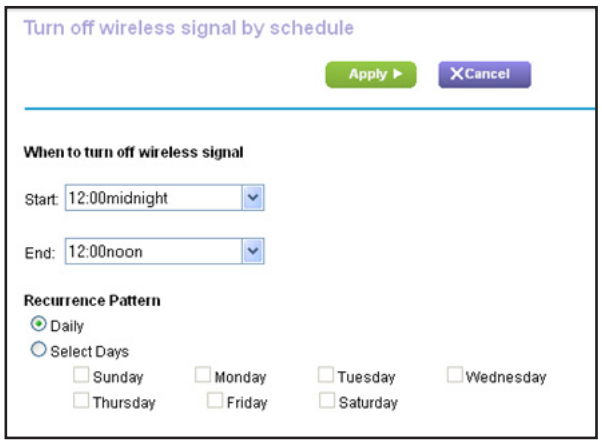
1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

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

   The user name is **admin**. 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 lists, 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.

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 an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

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

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

   The BASIC Home page 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 modem router's wireless settings through WPS.
5. (Optional) Select or clear the **Disable Router's PIN** check box.

   The PIN function might temporarily be disabled when the modem router detects suspicious attempts to break into the modem router's wireless settings by using the modem router's PIN through WPS. You can manually enable the PIN function by selecting the **Disable 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 modem router, the modem router wireless settings change to an automatically generated random SSID and security key.
7. Click the **Apply** button.

   Your changes are saved.

Manage Your Network

6

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

This chapter includes the following sections:

Change the admin Password

This feature let you change the default password that is used to log in to the modem router with the user name admin. This password is not the one that you use for WiFi access. The label on your modem router shows your unique wireless network name (SSID) and password for wireless access.

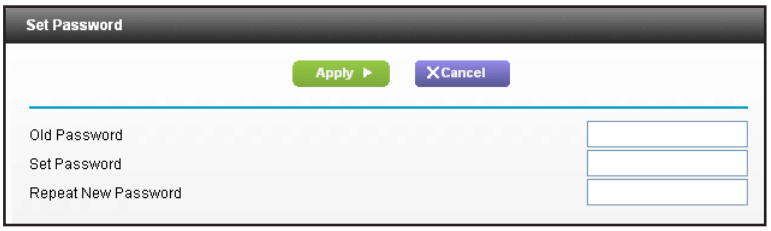
➢ **To set the password for the user name admin:**

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

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

   The user name is **admin**. 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. Click the **Apply** button.

   Your changes take effect.

View Modem Router Status

➢ **To view modem router status and usage information:**

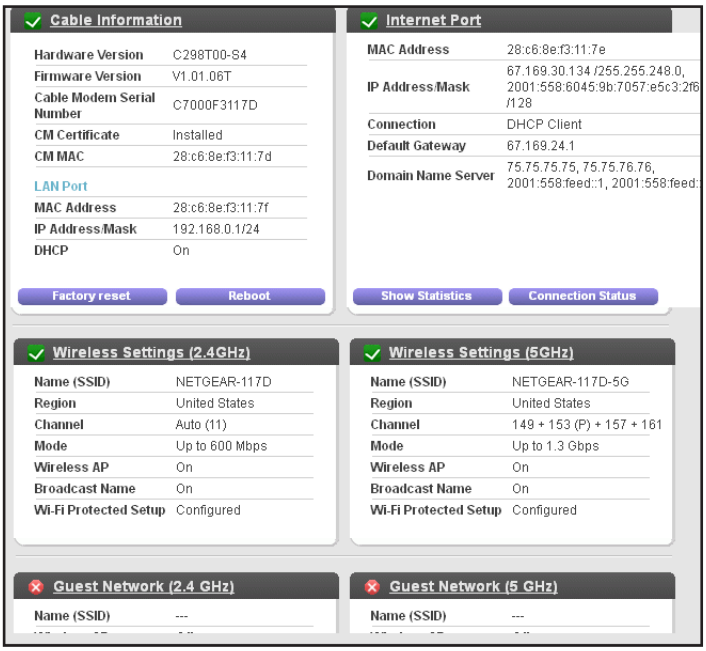
1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

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

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

   The BASIC Home page displays.

4. Click the **ADVANCED** tab.



5. For information about the displayed settings, click the **Show/Hide Help Center** link at the bottom of the page.

Display Internet Port Statistics

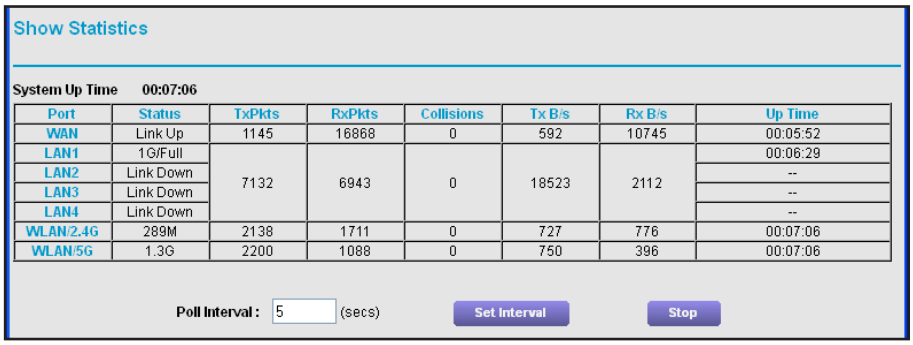
➢ **To display Internet port statistics:**

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

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

   The user name is **admin**. The user name and password are case-sensitive.
4. The BASIC Home page displays
5. Click the **ADVANCED** tab.

6. In the Internet Port pane, click **the Show Statistics** button.



The following information displays:

- **System Up Time**. The time elapsed since the modem router was last restarted.
- **Port**. The statistics for the WAN (Internet) and LAN (Ethernet) ports. For each port, the page displays:
  - **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 page.

7. To change the polling frequency, enter a time in seconds in the Poll Interval field and click the **Set Interval** button.
8. To stop the polling entirely, click the **Stop** button.

Check the Internet Connection Status

➢ **To check the Internet connection status:**

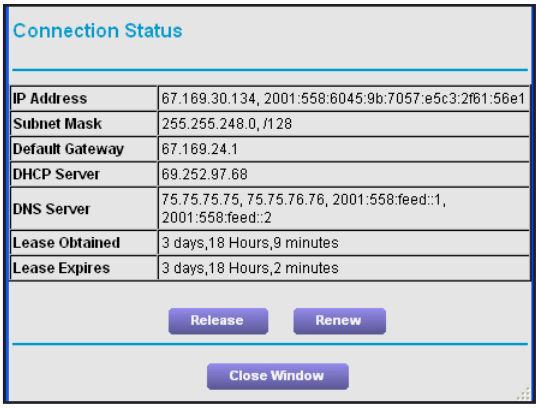
1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

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

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

The BASIC Home page displays.

4. Click the **ADVANCED** tab.
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 modem router.
- **Subnet Mask**. The subnet mask that is assigned to the modem router.
- **Default Gateway**. The IP address for the default gateway that the modem 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 modem 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 window, click the **Renew** button.
8. To exit, click the **Close Window** button.

View Logs of Modem Router Activity

The log is a detailed record of the websites you have accessed or attempted to access and other modem router actions. Up to 256 entries are stored in the log. Log entries display only when keyword blocking is enabled and no log entries are made for the trusted user.

➢ **To view logs:**

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

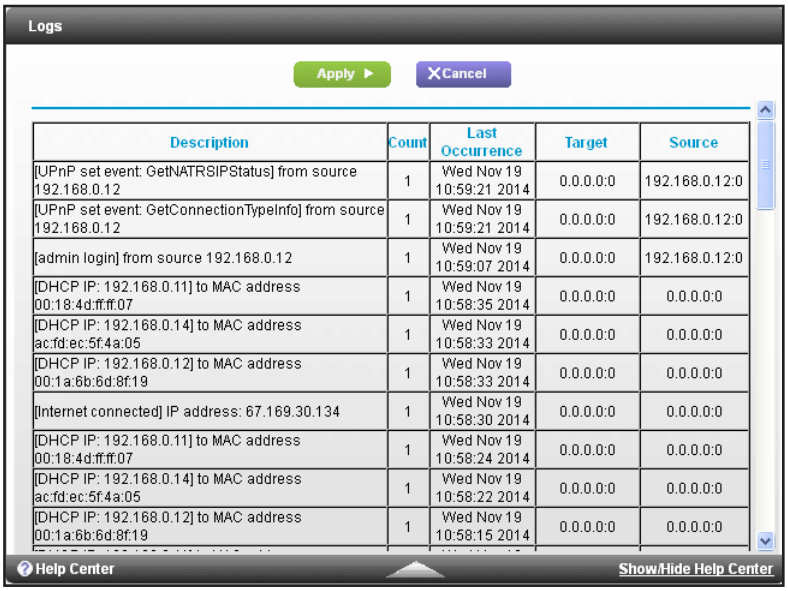
A login window opens.

3. Enter the user name and password.

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

   The BASIC Home page displays.

4. Select **ADVANCED > Administration > Logs**.



   The log page shows the following information:

   - **Date and time**. The date and time the log entry was recorded.
   - **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.
   - **Action**. The action that occurred, such as whether Internet access was blocked or allowed.

5. To customize the log, scroll down to view the bottom of the page and clear or select the check boxes.
6. To refresh the log page, 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.

View Event Logs

Event logs capture important modem router events.

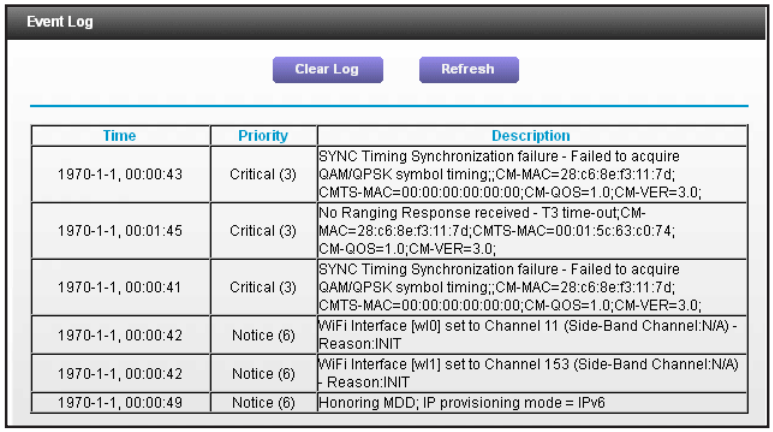
➢ **To view the event logs:**

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://routerlogin.net** or **http://192.168.0.1**.

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

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

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



   The log page shows the following information:

   - **Time**. The time the event log entry was recorded.
   - **Priority**. The severity for this event log entry.
   - **Description**. A description of this event log entry.
5. To refresh the log page, click the **Refresh** button.

To clear the log entries, click the **Clear Log** button.

Run the Ping Utility

Ping is an administration utility that tests whether a computer on the network is reachable and measures the time it takes messages sent from the originating device to reach a destination computer and return.

➢ **To run a ping test:**

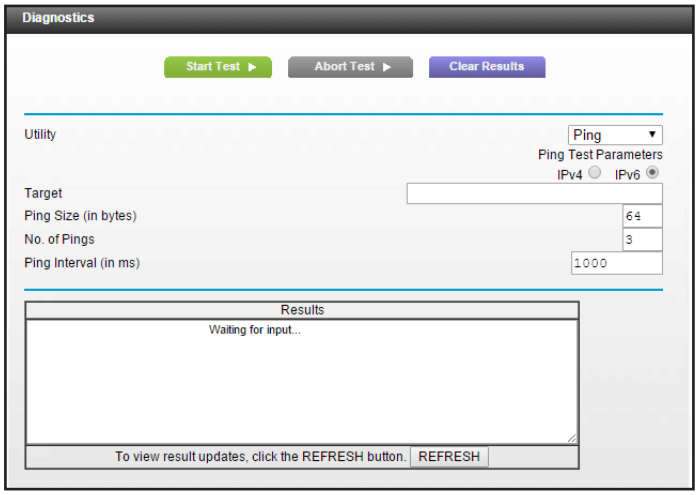
1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://routerlogin.net** or **http://192.168.0.1**.

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

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

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

   In the **Utility** list, **Ping** is selected by default.



5. Select the Ping Test Parameters **IPv4** or **IPv6** radio button.Specify the following parameters for the ping utility:
   - **Target**. The IP address of the ping target computer.
   - **Ping Size**. The size (in bytes) of the ping packet.
   - **No. of Pings**. The number of times to ping the target computer. The maximum number of pings is 128.
   - **Ping Interval**. The time between pings.
6. Click the **Start Test** button.

   The ping results display.

7. To stop a ping test, click the **Abort Test button.**
8. To clear the results from the display, click the **Clear Results button.**

Run the Traceroute Utility

To display the route and measure transit delays of packets across an IP, run the traceroute utility.

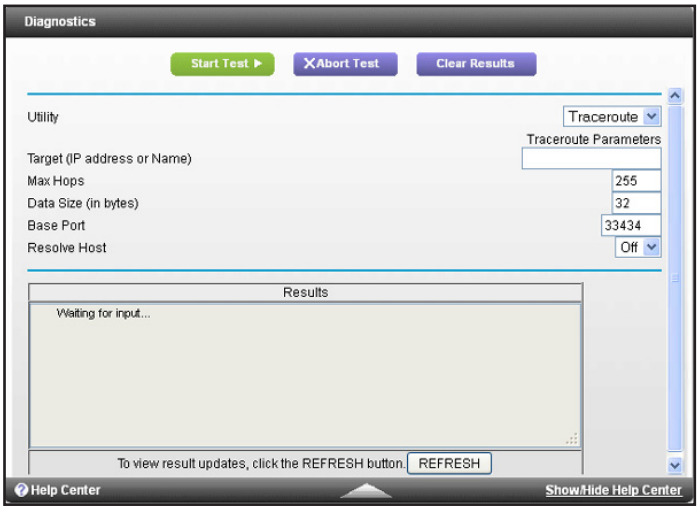
➢ **To run a traceroute test:**

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://routerlogin.net** or **http://192.168.0.1**.

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

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

   The BASIC Home page displays.
4. Select **ADVANCED > Administration > Diagnostics**.
5. In the **Utility** list, select **Traceroute**.



6. Specify the following parameters for the traceroute utility:
   - **Target**. The IP address or host name of the computer you are tracing.
   - **Max Hops**. The maximum number of hops to allow when tracing the route.
   - **Data Size**. The input the size (in bytes) of the packet.
   - **Base Port**. The port number to send the packet to.
   - **Resolve Host**. Select **On** to resolve the host name to the IP address.
7. Click the **Start Test** button.

The traceroute results display.

8. To clear the results from the display, click the **Clear Results button.**

Monitor Internet Traffic

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

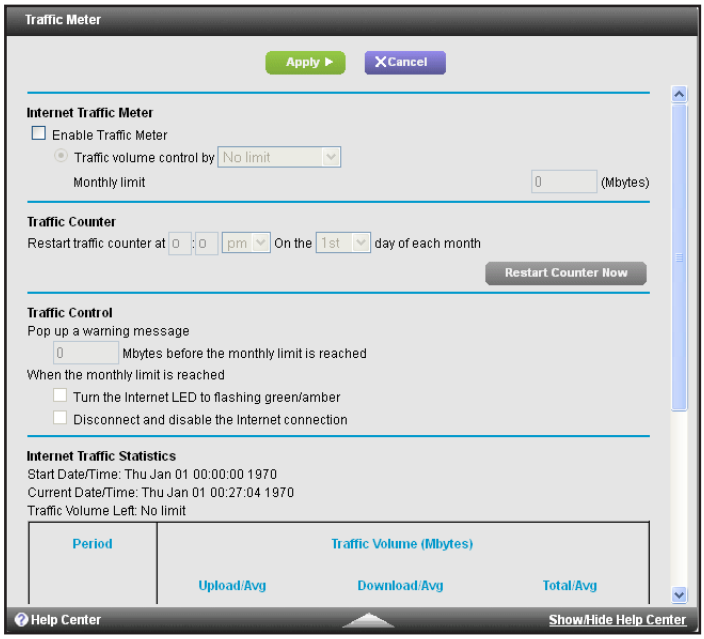
➢ **To monitor Internet traffic:**

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

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

   The user name is **admin**. 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 modem 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 green 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 modem router and to change the poll interval, click the **Traffic Status** button.

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:**

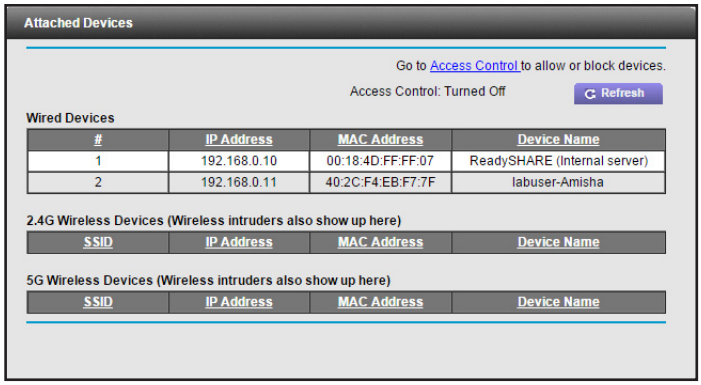
1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

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

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

   The BASIC Home page displays.

4. Select **Attached Devices**.



The Wired Devices section lists devices that are connected to the modem router with Ethernet cables. The Wireless Devices section lists devices that are connected to the wireless network. The following information is displayed:

- **Status**. The status of the device, Allowed or Blocked.
- **Device Name**. If the device name is known, it is shown here.
- **IP Address**. The IP address that the modem router assigned to this device when it joined the network. This number can change if a device is disconnected and rejoins the network.
- **MAC Address**. The unique MAC address for each device does not change. The MAC address is typically shown on the product label.

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

Manage the Modem Router Configuration File

The configuration settings of the modem router are stored within the modem 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 modem router's configuration settings:**

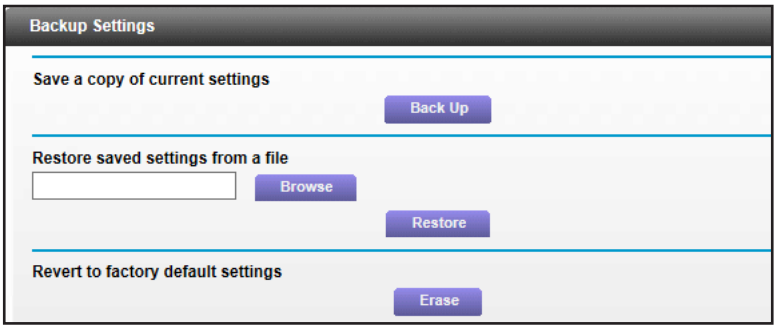
1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

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

   The user name is **admin**. 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. Specify a location on your network.

   A confirmation message displays.
7. Click the **OK** button.

   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 an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

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

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

   The BASIC Home page displays.
4. Select **ADVANCED > Administration > Backup Settings**.
5. Click the **Browse** button to find and select the `cfg` file.
6. Click the **Restore** button.

   The file is uploaded to the modem router and the modem 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 modem router to a different network. (See *Factory Settings* on page 89).

➢ **To erase the configuration settings:**

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

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

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

   The BASIC Home page displays.
4. Select **ADVANCED > Administration > Backup Settings**.
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 192.168.0.1. DHCP is enabled.

View Wireless Access Points in Your Area

You can view wireless networks or access points, in your area and select and join a wireless network.

➢ **To manage your wireless access point (AP):**

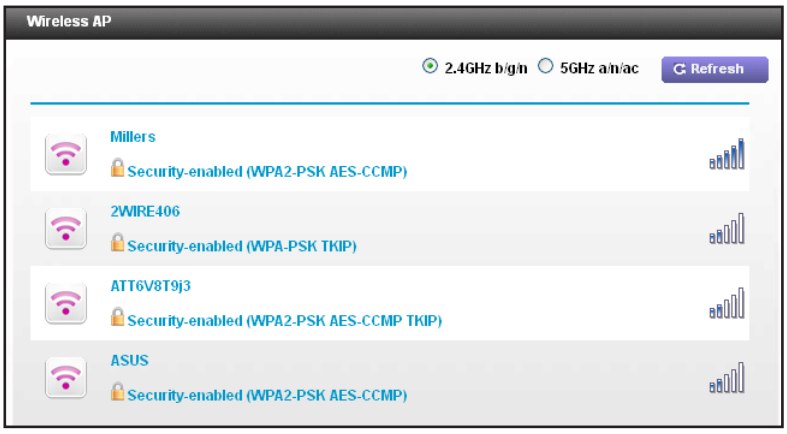
1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://routerlogin.net** or **http://192.168.0.1**.

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

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

   The BASIC Home page displays.

4. Select **ADVANCED > Administration > Wireless AP**.



This page displays the wireless access points in use in your area.

View or Change the Modem Router Wireless Channel

Many countries and geographic locations have laws or guidelines about which channels can be used. Depending on your location, some channels might not be available. If many wireless networks at your location use the same channel as your wireless network, you might experience interference. You can change the channel to avoid the interference.

➢ **To view or change your wireless channel:**

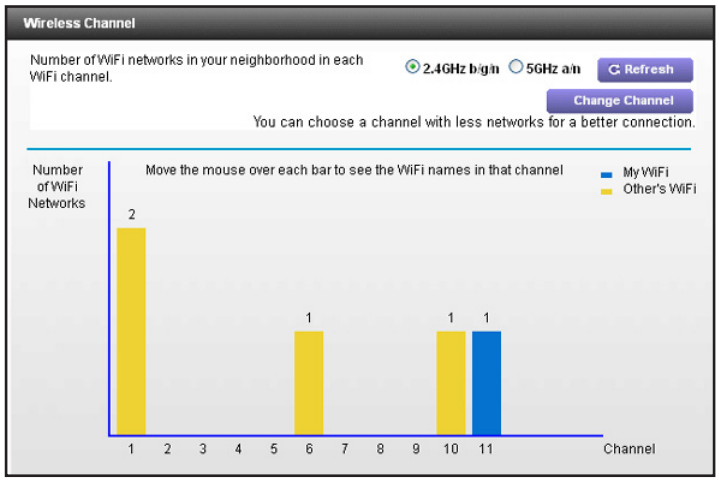
1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://routerlogin.net** or **http://192.168.0.1**.

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

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

   The BASIC Home page displays.

4. Select **ADVANCED > Administration > Wireless Channel**.



The page displays wireless channels in use in the 2.4 GHz WiFi band. Your network is shown in blue. Yellow shows other networks in your area.

5. To view wireless channels in use in the 5 GHz WiFi band, select the **5 GHz a/n** radio button.
6. To change the wireless channel, click the **Change Channel** button.

   The Wireless Setup page displays.

7. In the **Channel** list, select a different channel setting.
8. Click the **Apply** button.

   Your changes take effect.

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 modem router to use Dynamic DNS. Then the modem 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.

Specify a DNS Account

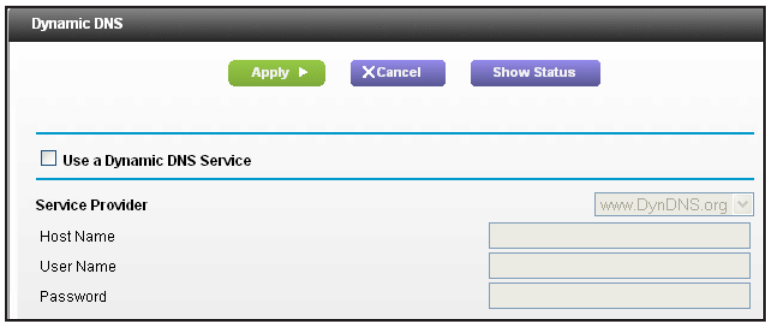
➢ **To set up Dynamic DNS in the modem router:**

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

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

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

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



5. Select the **Use a Dynamic DNS Service** check box.
6. In the **Service Provider** list, select your service provider from the list.
7. In the **Host Name** field, type the host name (sometimes called the domain name) for your account.
8. In the **User Name** field, enter the user name for your account.
9. In the **Password (6-32 characters)** field, type the password for your DDNS account.
10. Click the **Apply** button.

    Your changes are saved.
11. To verify that your Dynamic DNS service is enabled in the modem router, click the **Show Status** button.

    A message displays the Dynamic DNS status.

Change the Dynamic DNS Settings

➢ **To change your settings:**

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

A login window opens.

3. Enter the user name and password.

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

   The BASIC Home page displays.

4. Select **ADVANCED > Advanced Settings > Dynamic DNS**.
5. Change your DDNS account settings as necessary.
6. Click the **Apply** button.

   Your changes are saved.

Remote Management

The remote management feature lets you access your modem router over the Internet to view or change its settings. You need to know the modem router's WAN IP address to use this feature.

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 56.

➢ **To set up remote management:**

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

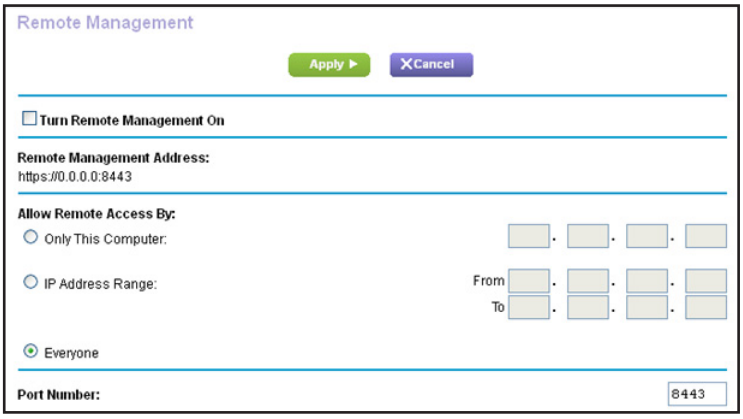
   A login window opens.

3. Enter the user name and password.

   The user name is **admin**. 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 modem router's remote management:

   Note: For enhanced security, restrict access to as few external IP addresses as practical

   Select one of the following:

   - To allow access from a single IP address on the Internet, select the **Only This Computer** radio button. Enter the IP address to be allowed access.
   - To allow access from a range of IP addresses on the Internet, select the **IP Address Range** radio button. Enter a beginning and ending IP address to define the allowed range.
   - To allow access from any IP address on the Internet, select the **Everyone** radio button.
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.

➢ **To use remote access:**

1. Launch an Internet browser on a computer that is not on your home network.
2. Type your modem 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.

Specify Internet Port Settings

7

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 you have a server in your home network, 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 modem 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 modem router forwards all other incoming protocols.

➢ **To forward specific incoming protocols:**

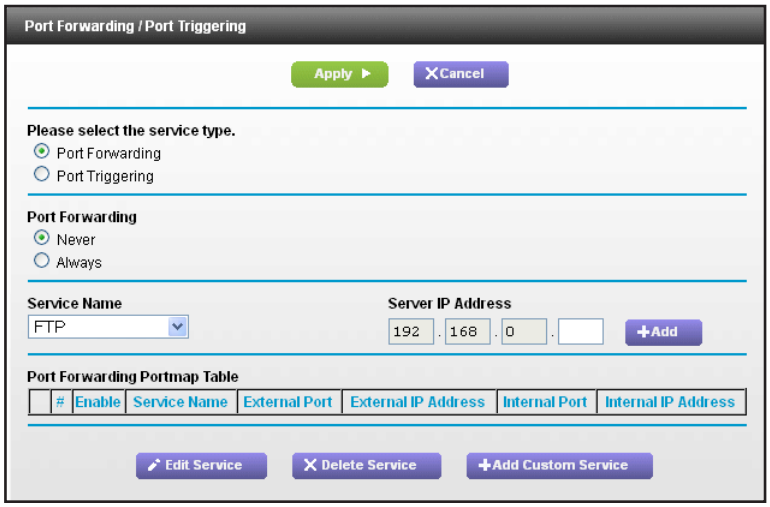
1. Decide which type of service, application, or game you want to provide.
2. Find the local IP address of the computer on your network that will provide the service.

   The server computer must always have the same IP address. To specify this setting, use the reserved IP address feature. See *Reserve LAN IP Addresses* on page 44.
3. Launch an Internet browser from a computer or wireless device that is connected to the network.
4. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login window opens.
5. Enter the user name and password.

   The user name is **admin**. 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. In the Service Name list, select the service name.

   If the service that you want to add is not in the list, create a custom service. See *Add a Custom Port Forwarding Service* on page 76.

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 list.

Add a Custom Port Forwarding Service

➢ **To add a custom service:**

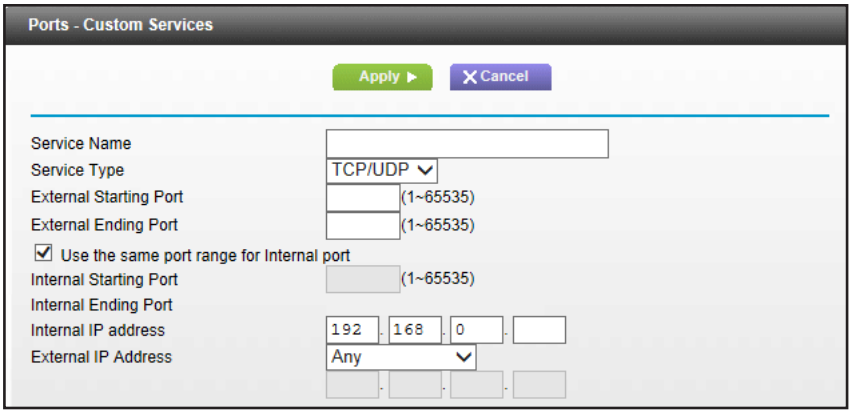
1. Find out which port number or range of numbers the application uses.

   You can usually find this information by contacting the publisher of the application or user groups or news groups.
2. Launch an Internet browser from a computer or wireless device that is connected to the network.
3. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login window opens.
4. Enter the user name and password.

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

   The BASIC Home page displays.
5. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering**.
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. In the **Service Type** field, select the protocol. If you are unsure, select **TCP/UDP**.
10. In the **External Starting Port** field, enter the beginning port number.

    If the application uses a single port, enter the same port number in the Ending Port field.

    If the application uses a range of ports, enter the ending port number of the range in the External Ending Port field.

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 Starting Port** and **Internal Ending Port** fields.
12. Type the IP address in the **Internal IP address** field or 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 an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

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

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

   The BASIC Home page displays.
4. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering**.
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. Specify changes to any of the following settings:
   - **Service Name**. Type the service name.
   - **Service Type**. If you are unsure, select **TCP/UDP**.
   - **External Starting Port**: If the application uses a single port, enter the same port number in the **External Ending Port** field. If the application uses a range of ports, enter the ending port number of the range in the **External Ending Port** field.
   - For the internal ports, leave the **Use the same port range for Internal port** check box selected.
   - **Internal IP address**. Type the IP address in the Internal IP address field, or select the radio button for an attached device listed in the table.
9. Click the **Apply** button.

   Your changes are saved.

Delete a Port Forwarding Entry

➢ **To delete a port forwarding entry:**

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

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

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

   The BASIC Home page displays.
4. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering**.
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.

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 modem router always gives your web server an IP address of 192.168.0.33.
2. In the Port Forwarding/Port Triggering page, configure the modem router to forward the HTTP service to the local address of your web server at **192.168.0.33**.

   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 modem 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 Modem 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 modem router.
- **Destination port number**. 80, which is the standard port number for a web server process.

2. Your modem router receives the message and finds your port forwarding rule for incoming port 80 traffic.
3. The modem router changes the destination in the message to IP address 192.168.0.123 and sends the message to that computer.
4. Your web server at IP address 192.168.0.123 receives the request and sends a reply message to your modem router.
5. Your modem 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 modem router monitors traffic to the Internet from an outbound “trigger” port that you specify. For outbound traffic from that port, the modem router saves the IP address of the computer that sent the traffic. The modem 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).

Add a Port Triggering Service

➢ **To add a port triggering service:**

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

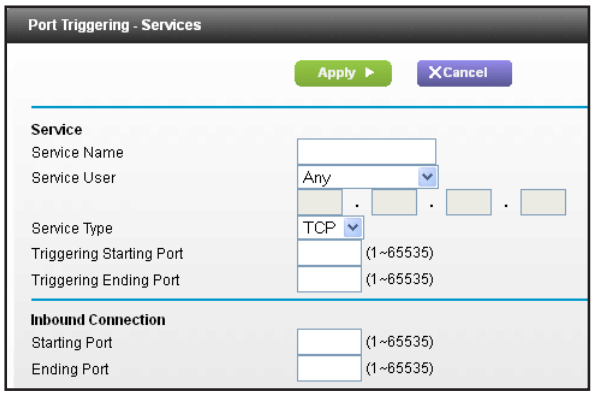
A login window opens.

3. Enter the user name and password.

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

   The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering.**
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. In the **Service User** list, select **Any,** or select **Single address** and enter the IP address of one computer:
   - **Any** (the default) allows any computer on the Internet to use this service.
   - **Single address** restricts the service to a particular computer.
9. Select the service type, either **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. Enter the inbound connection port information in the **Connection Type**, **Starting Port**, and **Ending Port** fields.
12. Click the **Apply button**.

    The service is now in the Portmap table. You must enable port triggering before the modem router used port triggering for the service that you added. See the following section.

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 modem 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 modem 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 the port triggering rule you have defined:

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 modem router.
3. Your modem router creates an entry in its internal session table describing this communication session between your computer and the IRC server. Your modem 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 modem 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 modem router using the NAT-assigned source port (for example, port 33333) as the destination port. The IRC server also sends an “identify” message to your modem router with destination port 113.
6. When your modem 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 modem router restores the original address information replaced by NAT and sends this reply message to your computer.
7. When your modem 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 modem 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 modem router eventually senses a period of inactivity in the communications. The modem router then removes the session information from its session table, and incoming traffic is no longer accepted on port numbers 33333 or 113.

8 Troubleshooting

This chapter provides information to help you diagnose and solve problems you might have with your modem router. If you do not find the solution here, check the NETGEAR support site at *http://support.netgear.com* for product and contact information.

This chapter contains the following sections:

Troubleshoot with the LEDs

You can use the LEDs on the front panel of the modem router for troubleshooting.

Power LED Is Off

- Make sure that the power adapter is securely connected to your modem router and securely connected to a working power outlet.
- Check that you are using the power adapter that NETGEAR supplied for this product.
- If the problem persists, contact technical support for help at *www.netgear.com/support.*

LEDs Never Turn Off

When the modem 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 modem router.

If all LEDs are still lit one minute after power-up, do the following:

- Cycle the power to see if the modem router recovers.
- Press and hold the **Reset** button to return the modem router to its factory settings. For more information, see *Factory Settings* on page 89.

If the error persists, you might have a hardware problem. Contact technical support at *www.netgear.com/support*.

Internet LED Is Off

If the Internet LED is off and the modem router is connected to the cable television cable, try the following:

- Make sure that the coaxial cable connections are secure at the modem router and at the wall jack.
- Make sure that your cable Internet provider provisioned your cable Internet service. Your provider can verify that the signal quality is good enough for modem router service.
- Remove any excessive splitters that on your cable line. Run a “home run” back to the point where the cable enters your home.

Troubleshoot the Cable Internet Connection

When your modem router cannot access the Internet and your Internet LED is on, register the cable MAC address or device MAC address of your modem router with your cable Internet provider.

Additionally, check the setting for your computer’s TCP/IP gateway. It should be set to use the modem router. modem router. If your computer obtains its information from the modem router by DHCP, reboot the computer and verify the gateway address.

Cannot Log In to the Modem Router

If you are unable to log in to the modem router from a computer or WiFi device on your local network, check the following:

1. Make sure that you are connected to the modem router's wired or WiFi network.
   - For a wired Ethernet connection, make sure that the Ethernet connection is secure and the modem router is powered on (its Power LED is lit).
   - For a WiFi connection, make sure that you selected the correct network.If you cannot find the WiFi network, make sure that the modem router is powered on (it's Power LED is lit). If the modem router is powered on, someone might have turned off the SSID broadcast or the turned off the wireless radios. See *Wireless Connectivity* on page 85.
2. If you are connected to the modem router network, but the web browser does not display the login window, check the following:
   - Make sure that your browser has Java, JavaScript, or ActiveX enabled. 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.
3. If the browser displays the login window, but you cannot access the modem router, make sure that you are using the correct login information.

   The user name is **admin**, and Both are case-sensitive. Make sure that Caps Lock is off when you enter this information.
4. If you customized advanced home network settings such as the IP address scheme, check the following:
   - Make sure that the IP address of your computer is on the same subnet as the modem router. If you are using the recommended addressing scheme, your computer's address is in the range of 192.168.0.2 to 192.168.0.254.
   - 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 modem router, and reboot your computer.
   - If your modem router's IP address was changed and you do not know the current IP address, clear the modem router's configuration to factory defaults. This sets the modem router's IP address to 192.168.0.1. For more information, see *Factory Settings* on page 89.

Changes Not Saved

If the modem router does not save the changes you make in the modem router interface, check the following:

- When entering configuration settings, always click the **Apply** button before moving to another page or tab, or your changes are lost.
- Click the **Refresh** or **Reload** button in the web browser. The changes might have occurred, but the old settings might be in the web browser's cache.

Wireless Connectivity

If you are having trouble connecting wirelessly to the modem router, try to isolate the problem:

- The computer or WiFi device that you are using does not find the WiFi network.

  This can happen for the following reasons:

  - Someone pressed the **WiFi On/Off** button on the modem router, which turned off the wireless radios.

    Check the 2.4 GHz and 5 GHz LEDs on the front of the modem router. If they are off, press the **WiFi On/Off** button to turn the wireless radios back on.

  - Someone logged in to the modem router and disabled its wireless radios or set up a wireless schedule.

    In this case, pressing the **WiFi On/Off** button does not turn the wireless radios back on. You must log in to enable the wireless radios. Use an Ethernet cable to for a wired connection to the modem router. Then log in and change the settings. For more information, see *Control the Wireless Radios* on page 51.

  - Someone logged in to the modem router and disabled its SSID broadcast. Your wireless network is hidden and does not display in your wireless client's scanning list. (By default, SSID broadcast is enabled.)

    To connect with WiFi, you must type the network SSID and password. For information about how to enable the SSID broadcast, see *Specify Basic WiFi Settings* on page 47.

- You can find the WiFi network, but you can't connect. Check the following:
  - Make sure that your computer or WiFi device supports the security that you are using for your wireless network (WPA or WPA2)?
  - You are not sure what the WiFi password is.

    The preset WiFi password is on the product label. If you changed it and do not remember the new password, you can use a wired Ethernet connection to log in to the modem router and view or change the WiFi password. For more information, see *Change the WiFi Security Option* on page 49

- The WiFi signal strength is weak in your location:

  Is your modem router too far from your computer, or too close? Place your computer near the modem router, but at least 6 feet (1.8 meters) away, and see if the signal strength improves.

  Check for sources of WiFi interference that might block the signal. See *Position Your Modem Router* on page 9.

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 Modem Router

You can ping the modem router from your computer to verify that the LAN path to your modem router is set up correctly.

➢ **To ping the modem router from a Windows computer:**

1. From the Windows toolbar, click **Start** and select **Run**.
2. In the field provided, type **ping** followed by the IP address of the modem router, as in this example:

   ping www.routerlogin.net

3. Click the **OK** button.

   You should 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, you might have one of the following problems:

- 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 modem 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 modem 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 modem 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

After verifying that the LAN path works correctly, 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 like those shown in the previous section display.

If you do not receive replies, check the following:

- Check that your computer has the IP address of your modem router listed as the default gateway. 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 modem 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 in 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 so, configure your modem router to “clone” or “spoof” the MAC address from the authorized computer.

Supplemental Information

A

This appendix covers the following topics:

- *Factory Settings*
- *Technical Specifications*

Factory Settings

You can return the modem 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 modem router for at least seven seconds. The modem router resets, and returns to the factory configuration settings shown in the following table.

Table 2. Factory default settings

Feature		Default behavior
Modem router login	User login URL	www.routerlogin.com or www.routerlogin.net
	User name (case-sensitive)	admin
	Login password (case-sensitive)	password
Local network (LAN)	LAN IP	192.168.0.1
	Subnet mask	255.255.255.0
	DHCP server	Enabled
	DHCP range	192.168.0.2 to 192.168.0.254
	Time zone	Pacific time
	DHCP starting IP address	Configured by the Internet provider
	DHCP ending IP address	192.168.0.254
	DMZ	Disabled
	Time zone	As per the ISP/MSO ToD (Time of Day) Configuration
	Time zone adjusted for daylight savings time	As per ISP/MSO ToD (time of Day) server configuration
	SNMP	Enabled
Cable modem Firewall	Inbound (communications coming in from the Internet)	Disabled (except traffic on port 80, the HTTP port)
	Outbound (communications going out to the Internet)	Enabled (all)
Wireless	Wireless communication	Enabled
	SSID name	See the product label
	Security	WPA2-PSK (AES)
	Broadcast SSID	Enabled

Table 2. Factory default settings (continued)

Feature		Default behavior
Wireless (continued)	Country/region	United States
	RF channel (2.4 GHz)	Auto[1]
	RF channel (5 GHz)	CH 153 (or manually select Band I and 4 Channels)
	Operating mode	Up to 600 Mbps at 2.4 GHz, 1300 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 3. Modem router specifications

Feature	Description
Data and routing protocols	TCP/IP, DHCP, Dynamic DNS, UPnP, and SMB
Power adapter (North America)	120V, 60 Hz, input 12V/3.5A DC output
Dimensions	245.36 x 211 x 43.18 mm (9.66 x 8.31 x 1.7 in.)
Weight	Weight: 725.75 g (1.6 lb)
Operating temperature	0° to 40° C (32° to 104° F)
Operating humidity	90% maximum relative humidity, noncondensing
Electromagnetic emissions	FCC Part 15 Class B
LAN	10BASE-T or 100BASE-TX or 1000BASE-T, RJ-45
WAN	24 x 8 DOCSIS 3.0 WAN Interface
Wireless	Maximum wireless signal rate complies with the IEEE 802.11 standard. See the footnote for the previous table.
Radio data rates	Auto Rate Sensing
Data encoding standards	IEEE 802.11ac 2.0 IEEE 802.11n version 2.0 IEEE 802.11n 256QAM IEEE 802.11g, IEEE 802.11b 2.4 GHz IEEE 802.11n, IEEE 802.11a 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	2.4 GHz: 2.412–2.462 GHz 5 GHz: 5.18–5.24 + 5.745–5.825 GHz
802.11 security	WPA-PSK, WPA2-PSK, and WPA/WPA2