NETGEAR®

U.S. Cellular

U.S. Cellular® 4G LTE™ Router (LG2200D)

User Manual

202-11350-01

Support

Contact U.S. Cellular® 1-888-944-9400 or dial 611 from your U.S. Cellular wireless phone for technical support.

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Compliance

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

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Hardware Setup

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The U.S. Cellular® 4G LTE™ Router (LG2200D) provides you with an easy and secure way to set up a WiFi network with fast Internet access over a high-speed 4G wireless network. It lets you block unsafe Internet content and applications and protects the devices (computers, gaming consoles, and so on) that you connect to your home network.

This chapter contains the following sections:

- *Unpack Your Router*
- *Front Panel*
- *Rear Panel*
- *Find the Best Spot for Your Router*
- *Seat a SIM Card*

Unpack Your Router

Open the box and remove the router, cables, and installation guide.

Router

Antennas

Ethernet cable
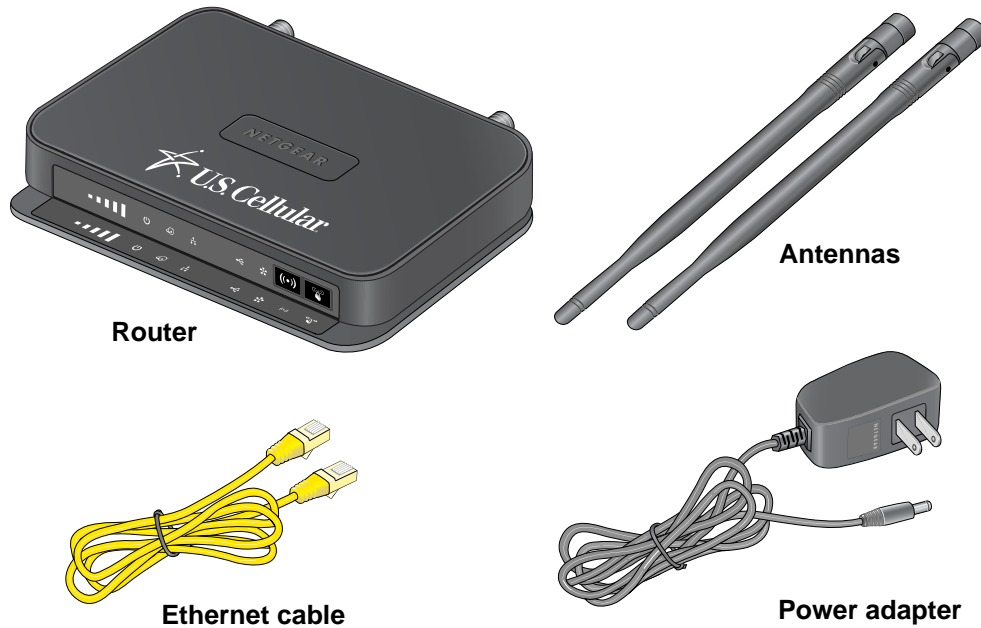
Power adapter

Figure 1. Check the package contents

Your box contains the following items:

- U.S. Cellular® 4G LTE™ Router (LG2200D)
- Antennas (2)
- AC power adapter (plug varies by region)
- Category 5 (Cat 5) Ethernet cable
- Installation guide

Front Panel

The router front panel has buttons and status LEDs. Use the LEDs to verify status and connections.
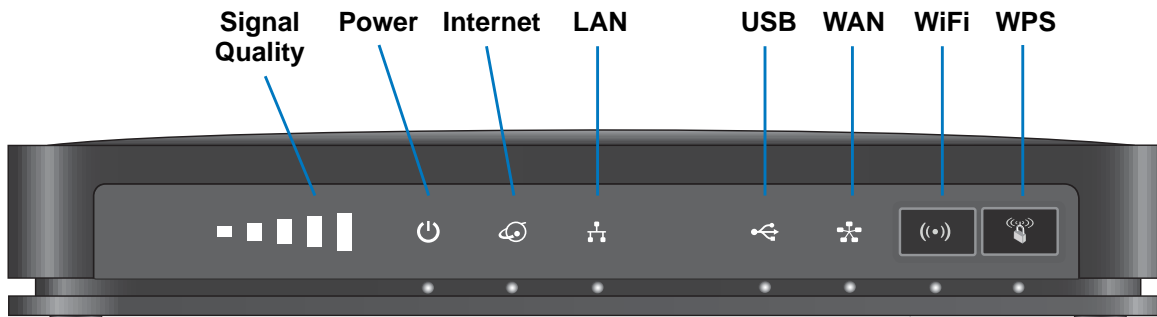
Figure 2. Router front view

Table 1. LED and button descriptions

LED	Description
Signal Quality	• **5 bars**. Excellent coverage. • **4 bars**. Strong coverage. • **3 bars**. Moderate coverage. • **1 bar**. Poor coverage. • **Off**. No coverage.
Power	• **Solid white**. The router is powered on and ready. • **Blinking red (slow)**. The router firmware us updating. • **Solid red**. This LED lights red when the router is booting. If it stays red, this indicates a system failure or that the router has overheaded. • **Off**. No power is supplied to the router.
Internet	• **Solid white**. The Internet connection is ready. • **Solid red**. Network error. • **Blinking red**. The traffic meter limit has been reached and Internet traffic is blocked. • **Off**. No Internet connection is detected.
Ethernet LAN	• **Solid white**. One or more local Ethernet ports have detected wired links. • **Off**. The router does not detect links on these ports.
USB	• **Solid white**. The router has accepted the USB device. The USB device is ready to be used. • **Off**. No USB device is connected or someone clicked the Safely Remove Hardware button, and it is now safe to remove the attached USB device.
WAN	• **Solid white**. An Ethernet WAN device is connected and is working. • **Solid blue**. Mobile WAN is in use. • **Off**. No Ethernet WAN Internet connectivity.

Hardware Setup

Table 1. LED and button descriptions (continued)

LED	Description
WiFi On/Off ((•))	• **Solid white**. The wireless radio is operational. • **Off**. The wireless radios are off.
WPS	• **Solid white**. WiFi has security enabled. • **Blinking white**. WPS is in process. • **Off**. WiFi security is not enabled.

The WiFi and WPS buttons toggle the WiFi and WPS functions on and off.

- **WiFi On/Off button.** Pressing and holding this button turns the WiFi radio on and off. You can log in to the router and set up this button to also turn the mobile broadband antenna on and off. The default is for WiFi radio only.

- **WPS button**. You can use this button to use WPS to add a wireless device or computer to your wireless network.

Rear Panel

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

| Antenna connector | USB ports | WAN port | Ethernet LAN ports 1–4 | Power On/Of | Power connector | Antenna connector |
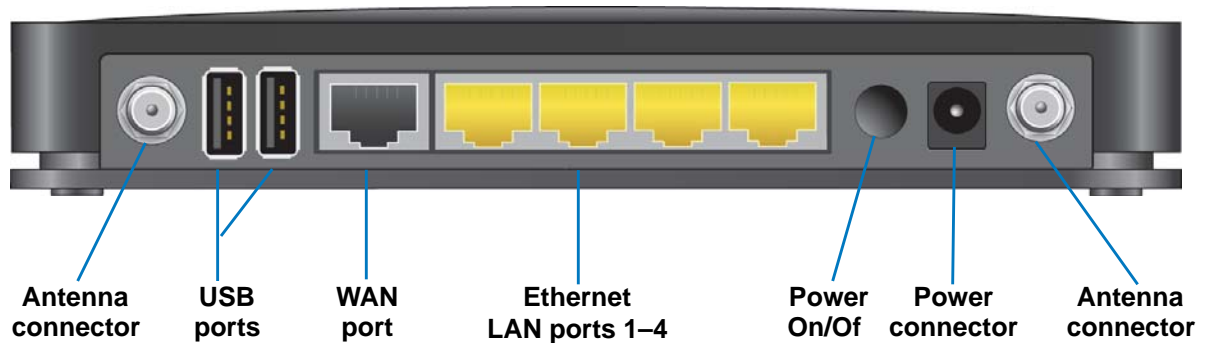
Figure 3. Router rear panel

Attach the Antennas

You must install the antennas for a 4G LTE™ connection. The antennas are interchangeable.

➢ **To attach the antennas:**

1. Align the antennas with the antenna posts on the router.
2. Attach the antennas on the threaded antenna posts, ensuring that the connection is secure.
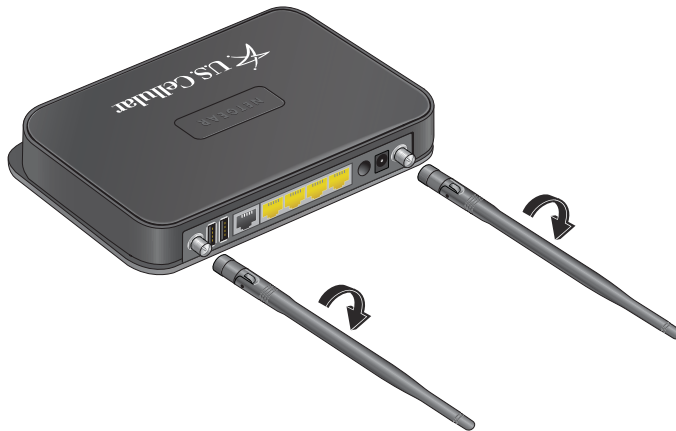
3. Adjust the antenna positions.

   You can swivel the antennas in any direction.

Find the Best Spot for Your Router

The router lets you access your network from anywhere within the operating range of your wireless network. However, the operating distance or range of your wireless connection depends on where you put your router. For example, the thickness and number of walls the wireless signal passes through can limit the range.

Position your router upright. Place the router near an AC power outlet in a location with a strong wireless broadband signal, such as near a window.

➢ **To position your router:**

1. Place your router in a location that receives a strong wireless signal (for example, near a window).

2. Use the Signal Quality LED ▬▪▮▮▮ to position the router for the best signal strength.

3. Place your router near the center of the area where your computers and other devices operate, and within line of sight to your wireless devices.

4. Make sure that the router is within reach of an AC power outlet and near Ethernet cables for wired computers.

5. Place the router in an elevated location, minimizing the number walls and ceilings between the router and your other devices.

6. Place the router away from electrical devices such as these:
   - Ceiling fans
   - Home security systems
   - Microwaves
   - Computers
   - Base of a cordless phone
   - 2.4 GHz cordless phone

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

Seat a SIM Card

Your router comes with a SIM card already installed. If the SIM card is loose, you must seat it so that the router can detect it.

➢ **To seat a SIM card:**

1. Unplug the router.
2. Open the SIM card compartment on the bottom of the router.
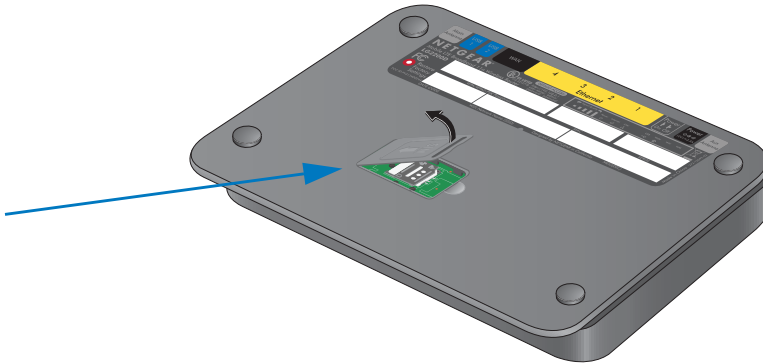
3. Press the edge of the SIM card holder to seat it in the router.
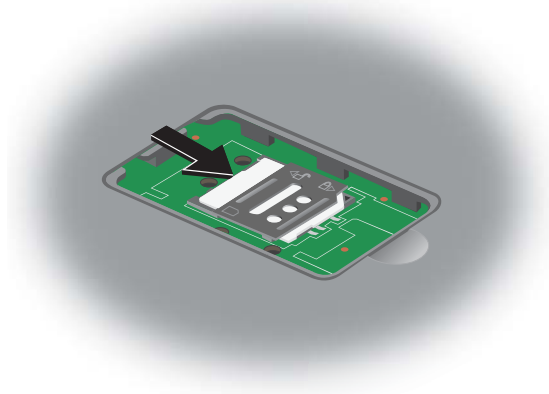
4. Close the SIM card compartment door.

Connect to the Network and Access the Router

2

This chapter contains the following sections:

- *Connect to the Network*
- *Types of Logins*
- *Use an Internet Browser to Access the Router*

Connect to the Network

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

Wired Connection

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

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

1. Make sure that the router 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 find and select the WiFi network, or you can connect to the router's WiFi network with WiFi Protected Setup (WPS.

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

1. Make sure that the 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 router's label.

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

   The password is on the router's label.

   Your wireless device connects to the WiFi network.

➢ **To use WPS to connect to the WiFi network:**

1. Make sure that the 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 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.

Label

The label on the router shows the login information, preset WiFi password, MAC address, and serial number.
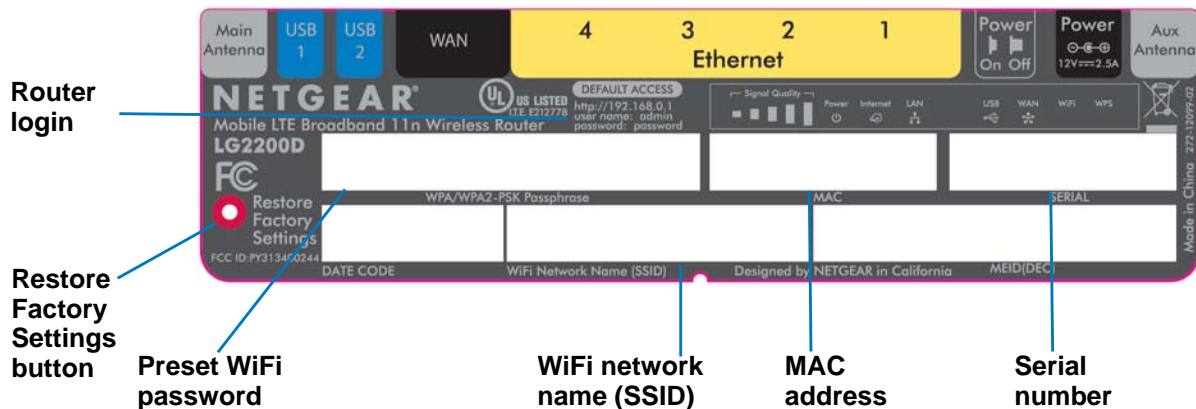
Figure 4. Router label

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.

- **Wireless network key or password**. Your router is preset with a unique wireless network name (SSID) and password for wireless access. This information is on the label on your router.
- **Router login**. This logs in to the router interface and displays the BASIC Home screen.

Use an Internet Browser to Access the Router

When you connect to the network (either with WiFi or with an Ethernet cable), you can use an Internet browser to access the router to view or change its settings.

➢ **To log in to the router:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

Specify Your Internet Settings

3

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

This chapter contains the following sections:

- *Use the Internet Setup Wizard*
- *Specify Mobile Broadband Internet Settings*
- *SIM Card PIN Code Settings*

Use the Internet Setup Wizard

You can use the Setup Wizard to detect your Internet settings and automatically set up your router.

➢ **To use the Setup Wizard:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **ADVANCED > Setup Wizard**.

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

   If you select No, you are taken to the Internet Setup screen.

6. Click the **Next** button.

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

Specify Mobile Broadband Internet Settings

The Mobile Broadband Internet screen is where you can view or change basic Internet connection information.

➢ **To view or change the settings:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **Mobile Internet**.

   The Mobile Broadband Settings screen displays:

5. Clear or select the following check boxes:
   - **Connect automatically at startup**. This check box is selected by default.
   - **Reconnect automatically when connection is lost**. This check box is selected by default.
   - **Roaming automatically**.

6. In the Wireless Button Configuration section, select one of the following radio buttons:
   - **Control WiFi Only**. This is the default setting. The WiFi On/Off button on the router turns WiFi radio in the router on and off but does not affect the broadband antennas.
   - **Control Both WiFi and Wireless Broadband**. Select this radio button if you want the WiFi On/Off button on the router to turn both the WiFi radio and the broadband

antennas on and off simultaneously. You cannot use the WiFi On/Off button only to control the broadband antennas.

7. Click the **Apply** button.

You can click the **Connection Status button** to test your Internet connection.

SIM Card PIN Code Settings

Your router comes with a SIM card so that you can access mobile broadband. This screen lets you change your SIM card settings. The SIM card PIN code prevents the use of the SIM card in an unauthorized device.

➢ **To enable or disable the SIM card PIN code:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

A login screen displays.

3. Enter the router user name and password.

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

The BASIC Home screen displays.

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

5. To enable or disable the PIN code, select the **Enable** or **Disable** radio button.

6. In the Current PIN Code field, type your PIN code.

7. Click the **Apply** button.

Your changes take effect.

➢ **To change the SIM card PIN code:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

5. In the Changing the PIN Code section of the screen, type your PIN in the Current PIN Code field.

6. In the New PIN Code field, type the new PIN.

7. In the Confirm new PIN Code field, type the new PIN again.

8. Click the **Apply** button.

   Your changes are saved.

Control Access to the Internet

4

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

This chapter includes the following sections:

- *Parental Controls*
- *Use Keywords to Block Internet Sites*
- *Block Services from the Internet*
- *Schedule When to Block Internet Sites and Services*
- *Set Up Security Event Email Notifications*
- *Port Forwarding to Permit External Host Communications*
- *Set Up Port Forwarding to a Local Server*
- *Set Up Port Triggering*

Parental Controls

The first time you select Parental Controls from the BASIC Home screen, your browser goes to the Live Parental Controls website. You can learn more about Live Parental Controls or download the application.
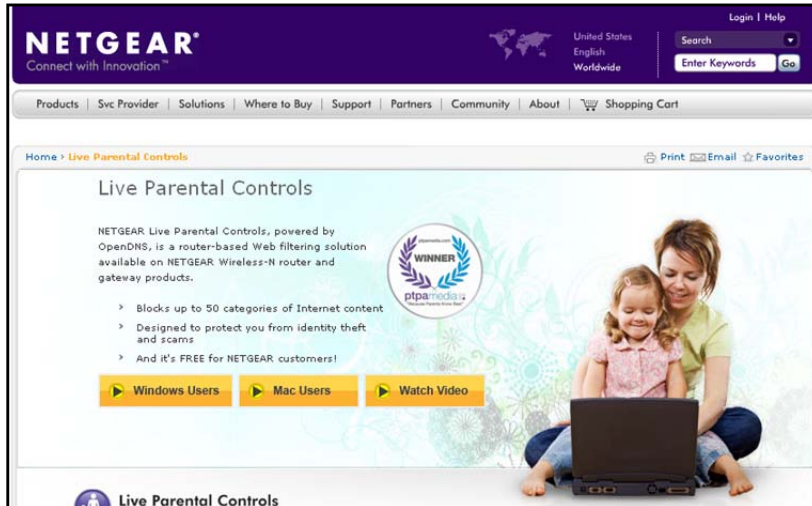
> ➢ **To set up Live Parental Controls:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **Parental Controls**.

5. Click either the **Windows Users** or **Mac Users** button.

6. Follow the onscreen instructions to download and install the NETGEAR Live Parental Controls Management utility.

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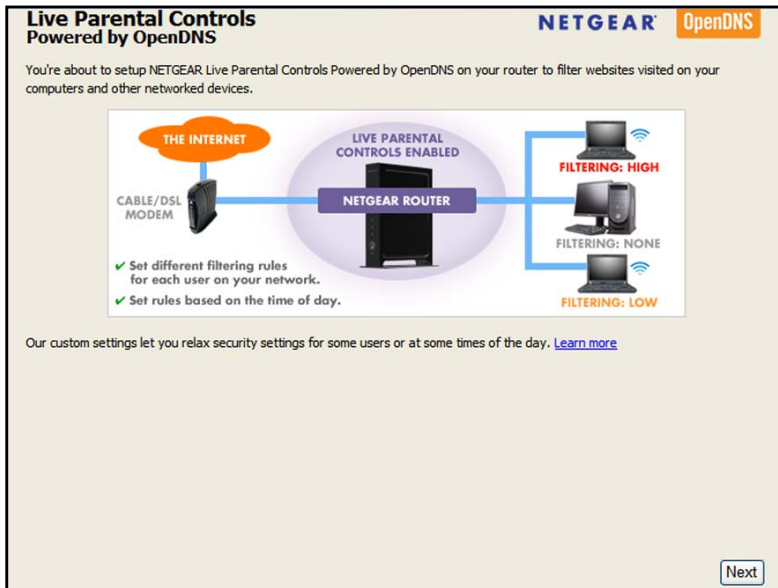
7. Click the **Next** button, read the note, and click the **Next** button again to proceed.

Because Live Parental Controls uses free OpenDNS accounts, you are prompted to log in or create a free account.
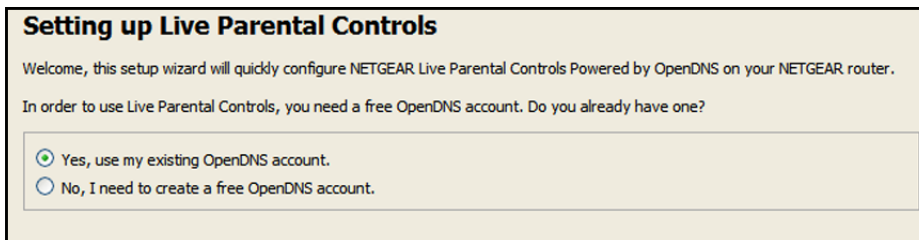
8. Select the radio button that applies to you and click the **Next** button.
   - If you already have an OpenDNS account, leave the **Yes** radio button selected.
   - If you do not have an OpenDNS account, select the **No** radio button.

     If you are creating an account, the following screen displays:

   - Complete the fields and click the **Next** button.

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

9. Select the radio button for the filtering level that you want and click the **Next** button.

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

Parental controls are now set up for the router. The dashboard shows Parental Controls as Enabled.

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 up keyword blocking:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

    A login screen displays.

3. Enter the router user name and password.

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

The BASIC Home screen displays.

4. Select **ADVANCED > Security > Block Sites**.
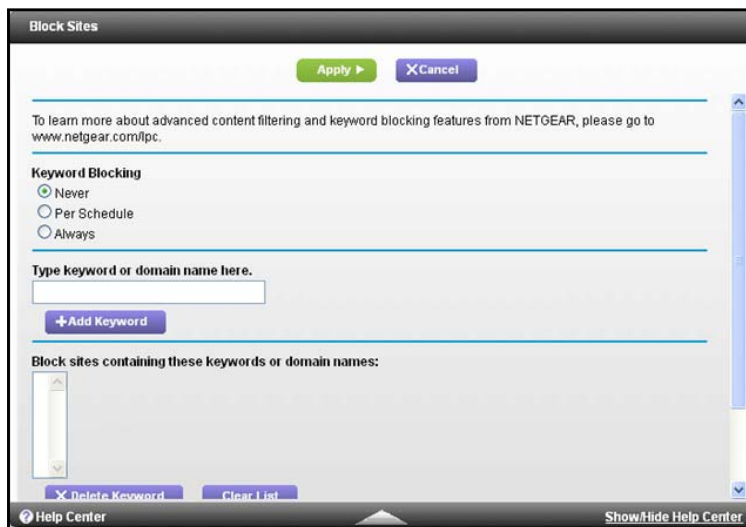
5. Select one of the keyword blocking options:

   - **Per Schedule**. Turn on keyword blocking according to the Schedule screen settings. (For more information, see *Schedule When to Block Internet Sites and Services* on page 29.)

   - **Always**. Turn on keyword blocking all the time, independent of the Schedule screen.

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. Click 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 the **Apply** button.

Block Services from the Internet

Services are functions that server computers perform at the request of client computers. For example, web servers serve web pages, time servers serve time and date information, and game hosts serve data about players' moves. When a computer on the Internet sends a request for service to a server computer, a port number identifies the requested service. This number displays as the destination port number in the transmitted IP packets. For example, a packet that is sent with the destination port number 80 is an HTTP (web server) request.

The Internet Engineering Task Force (IETF at *http://www.ietf.org/*) defines service numbers for many common protocols and they are published in RFC1700, "Assigned Numbers." Authors of the applications typically choose service numbers from the range 1024–65535. Although the router already holds a list of many service port numbers, you are not limited to these choices. You can often find port number information by contacting the publisher of the application, by asking user groups or newsgroups, or by searching.

The Block Services screen lets you add and block specific Internet services by computers on your network. This is called service blocking or port filtering. To add a service for blocking, first find out which port number or range of numbers the application uses.

➢ **To block services:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

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

For more information, see *Schedule When to Block Internet Sites and Services* on page 29.

6. If you selected Per Schedule, specify a time period in the Schedule screen.

7. Click the **Add** button.

The Block Services Setup screen displays:

8. 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.

9. 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.

10. 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.

11. 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.

➤ **To schedule blocking:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **ADVANCED > Security > Schedule**.

5. Set up the schedule for blocking keywords and services:

   - **Days to Block**. Select days on which you want to apply blocking by selecting the appropriate check boxes, or select the **Every Day** check box to select the check boxes for all days.

   - **Time of Day to Block**. Select a start and end time in 24-hour format, or select the **All Day** check box 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. For more information, see *Reserve LAN IP Addresses* on page 49.

➢ **To specify a trusted computer:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

5. Scroll down and select the **Allow trusted IP address to visit blocked sites** check box.

6. In the **Trusted IP Address** field, enter the IP address of the trusted computer.

7. Click the **Apply** button.

   Your changes are saved.

Set Up Security Event Email Notifications

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

➢ **To set up email notifications:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **ADVANCED > Security > Email**.

5. Select the **Turn Email Notification On** check box.

6. In the **Your Outgoing Mail Server** field, enter the name of your ISP's outgoing (SMTP) mail server (such as mail.myISP.com).

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

7. In the **Send to This Email Addess** field, enter the destination email address for logs.

   This email address is also used for the **From** address. If you leave this field 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 router memory. If the router cannot send the log and the log buffer fills up, the router overwrites the log.

Port Forwarding to Permit External Host Communications

In both the preceding examples, your computer initiates an application session with a server computer on the Internet. However, you might need to allow a client computer on the Internet to initiate a connection to a server computer on your network. Normally, your router ignores any inbound traffic that is not a response to your own outbound traffic. You can configure exceptions to this default rule by using the port forwarding feature.

A typical application of port forwarding can be shown by reversing the client-server relationship from the previous web server example. In this case, a remote computer's browser needs to access a web server running on a computer in your local network. Using port forwarding, you can tell the router, "When you receive incoming traffic on port 80 (the standard port number for a web server process), forward it to the local computer at 192.168.0.123."

The following sequence shows the effects of the port forwarding rule you have defined:

1. The user of a remote computer opens a browser and requests a web page from www.example.com, which resolves to the public IP address of your router. The remote computer composes a web page request message with the following destination information:

   - **Destination address**. The IP address of www.example.com, which is the address of your router.

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

   The remote computer then sends this request message through the Internet to your router.

2. Your router receives the request message and looks in its rules table for any rules covering the handling of incoming port 80 traffic. Your port forwarding rule specifies that incoming port 80 traffic should be forwarded to local IP address 192.168.0.123. Therefore, your router modifies the destination information in the request message:

   The destination address is replaced with 192.168.0.123.

   Your router then sends this request message to your local network.

3. Your web server at 192.168.0.123 receives the request and composes a return message with the requested web page data. Your web server then sends this reply message to your router.

4. Your router performs Network Address Translation (NAT) on the source IP address, and sends this request message through the Internet to the remote computer, which displays the web page from www.example.com.

To configure port forwarding, you need to know which inbound ports the application needs. You can usually find this information by contacting the publisher of the application or the relevant user groups or news groups.

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 router can forward incoming traffic with specific protocols to computers on your local network. You can specify the servers for applications and you can also specify a default DMZ server to which the router forwards all other incoming protocols.

➢ **To forward specific incoming protocols:**

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

   The server computer must always have the same IP address. To specify this setting, use the reserved IP address feature. For more information, see *Reserve LAN IP Addresses* on page 49.

3. Log in to the router.
4. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering**.

5. Leave the **Port Forwarding** radio button selected as the service type.
6. In the **Service Name** list, select the service name.
7. Click the **Add** button.

   A list of services displays. You can add a service to the list. For more information, see *Add a Custom Port Forwarding Service* on page 34.

8. In the **Server IP Address** field, enter the IP address of the computer that will provide the service.
9. 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. Log in to the router.

3. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering**.

4. Leave the **Port Forwarding** radio button selected as the service type.

5. Click the **Add Custom Service** button.

6. In the **Service Name** field, enter a descriptive name.

7. In the **Service Type** field, select the protocol. If you are unsure, select **TCP/UDP**.

8. 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.

9. 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.

10. Type the IP address in the **Internal IP address** field or select the radio button for an attached device listed in the table.

11. Click the **Apply** button.

    The service is now in the list.

Edit a Port Forwarding Entry

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

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

9. **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.

10. Click the **Apply** button.

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. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

The BASIC Home screen displays.

4. Select **ADVANCED > Advanced Setup > 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 router always gives your web server an IP address of 192.168.0.33.

2. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering**.

3. In the Port Forwarding/Port Triggering screen, configure the 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.

4. (Optional) Register a host name with a Dynamic DNS service, and configure your router to use the name.

   To access your web server from the Internet, a remote user must know the IP address that your ISP assigned. However, if you use a Dynamic DNS service, the remote user can reach your server by a user-friendly Internet name, such as mynetgear.dyndns.org.

5. Click the **Apply** button.

How the Router Implements the Port Forwarding Rule

The following sequence shows the effects of a port forwarding rule:

1. When you type the URL www.example.com in your browser, the browser sends a web page request message with the following destination information:

   - **Destination address**. The IP address of www.example.com, which is the address of your router.

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

2. Your router receives the message and finds your port forwarding rule for incoming port 80 traffic.

3. The router changes the destination in the message to IP address 192.168.0.123 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 router.

5. Your router performs Network Address Translation (NAT) on the source IP address, and sends the reply through the Internet to the computer or wireless device that sent the web page request.

Set Up Port Triggering

Port triggering is a dynamic extension of port forwarding that is useful in these cases:

- An application must use port forwarding to more than one local computer (but not simultaneously).
- An application must open incoming ports that are different from the outgoing port.

With port triggering, the router monitors traffic to the Internet from an outbound "trigger" port that you specify. For outbound traffic from that port, the router saves the IP address of the computer that sent the traffic. The router temporarily opens the incoming port or ports that you specify in your rule, and forwards that incoming traffic to that destination.

Port forwarding creates a static mapping of a port number or range of ports to a single local computer. Port triggering can dynamically open ports to any computer when needed and close the ports when they are no longer needed.

Note: If you use applications such as multiplayer gaming, peer-to-peer connections, real-time communications such as instant messaging, or remote assistance (a feature in Windows XP), enable Universal Plug and Play (UPnP). For more information, see *Universal Plug and Play* on page 105.

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. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **ADVANCED > Advanced Setup > 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 trigger the inbound ports to open.

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 router used port triggering for the service that you added. For more information, see *Enable Port Triggering*.

Enable Port Triggering

➢ **To enable port triggering:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering**.

5. Select the **Port Triggering** radio button.

6. Clear the **Disable Port Triggering** check box.

   If this check box is selected, the router does not use port triggering even if you have specified port triggering settings.

7. In the **Port Triggering Time-out** field, enter a value up to 9999 minutes.

   This value controls how long the inbound ports stay open when the router detects no activity. This value is required because the router cannot detect when the application terminates.

Application Example: Port Triggering for Internet Relay Chat

Some application servers, such as FTP and IRC servers, send replies to multiple port numbers. Using port triggering, you can tell the router to open more incoming ports when a particular outgoing port starts a session.

An example is Internet Relay Chat (IRC). Your computer connects to an IRC server at destination port 6667. The IRC server not only responds to your originating source port, but also sends an "identify" message to your computer on port 113. Using port triggering, you can tell the router, "When you initiate a session with destination port 6667, you must also allow incoming traffic on port 113 to reach the originating computer." The following sequence shows the effects of 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 router.

3. Your router creates an entry in its internal session table describing this communication session between your computer and the IRC server. Your router stores the original information, performs Network Address Translation (NAT) on the source address and port, and sends this request message through the Internet to the IRC server.

4. Noting your port triggering rule and observing the destination port number of 6667, your router creates another session entry to send any incoming port 113 traffic to your computer.

5. The IRC server sends a return message to your router using the NAT-assigned source port (for example, port 33333) as the destination port. The IRC server also sends an "identify" message to your router with destination port 113.

6. When your router receives the incoming message to destination port 33333, it checks its session table to see if a session is active for port number 33333. Finding an active session, the router restores the original address information replaced by NAT and sends this reply message to your computer.

7. When your router receives the incoming message to destination port 113, it checks its session table and finds an active session for port 113 associated with your computer. The router replaces the message's destination IP address with your computer's IP address and forwards the message to your computer.

8. When you finish your chat session, your router eventually senses a period of inactivity in the communications. The router then removes the session information from its session table, and incoming traffic is no longer accepted on port numbers 33333 or 113.

Specify Network Settings

5

This chapter includes the following sections:

- *View WAN Settings*
- *Change the MTU Size*
- *Set Up a Default DMZ Server*
- *Change the Router's Device Name*
- *Change the LAN TCP/IP Settings*
- *Specify the IP Addresses that the Router Assigns*
- *Disable the DHCP Server Feature in the Router*
- *Reserve LAN IP Addresses*
- *Quality of Service Setup*
- *Use the WPS Wizard for WiFi Connections*
- *Specify Basic WiFi Settings*
- *Change the WiFi Security Option*
- *Control the Wireless Radios*
- *Set Up a Wireless Schedule*
- *Specify WPS Settings*
- *Set Up a Wireless Distribution System*

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 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. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

   The following settings display:

   - **Disable Port Scan and DoS Protection**. DoS protection protects your LAN against denial of service attacks such as Syn flood, Smurf Attack, Ping of Death, and many others. Select this check box only in special circumstances.

   - **Default DMZ Server**. This feature is sometimes helpful when you are playing online games or videoconferencing, but it makes the firewall security less effective. For more information, see *Set Up a Default DMZ Server* on page 44.

   - **Respond to Ping on Internet Port**. This feature allows your router to be discovered. Use this feature only as a diagnostic tool or if you have a specific reason.

   - **Disable IGMP Proxying**. IGMP proxying allows a computer on the local area network (LAN) to receive the multicast traffic it is interested in from the Internet. If you do not need this feature, you can select this check box to disable it.

- **MTU Size (in bytes)**. The normal MTU (maximum transmit unit) value for most Ethernet networks is 1500 bytes, or 1492 bytes for PPPoE connections. Change the MTU only if you are sure that it is necessary for your ISP connection. For more information, see *Change the MTU Size* .

- **NAT Filtering**. Network Address Translation (NAT) determines how the router processes inbound traffic. Secured NAT protects computers on the LAN from attacks from the Internet, but might prevent some Internet games, point-to-point applications, or multimedia applications from working. Open NAT provides a much less secured firewall, but allows almost all Internet applications to work.

5. Click the **Apply** button.

   Your changes are saved.

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 have to be split or "fragmented" to accommodate the device with the smallest MTU.

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

- You have problems connecting to your ISP or other Internet service, and the ISP technical support 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 instance, you might not be able to access certain websites, frames within websites, secure login pages, or FTP or POP servers.

If you suspect an MTU problem, a common solution is to change the MTU to 1400. If you are willing to experiment, you can gradually reduce the MTU from the maximum value of 1500

until the problem goes away. The following table describes common MTU sizes and applications.

Table 2. Common MTU sizes

MTU	Application
1500	The largest Ethernet packet size. This setting is typical for connections that do not use PPPoE or VPN, and is the default value for NETGEAR 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.
1436	Used in PPTP environments or with VPN.
1400	Maximum size for AOL DSL.
576	Typical value to connect to dial-up ISPs.

➢ **To change the MTU size:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

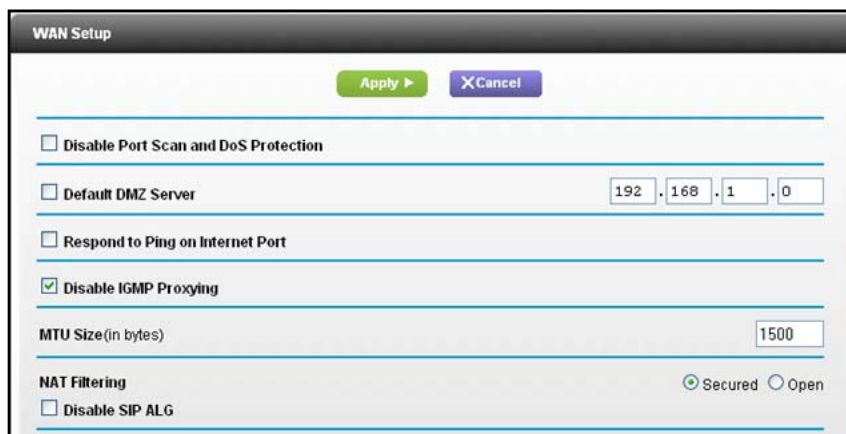2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **ADVANCED > 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.

Set Up a Default DMZ Server

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

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

The router usually detects and discards incoming traffic from the Internet that is not a response to one of your local computers or a service that you have configured in the Port Forwarding/Port Triggering screen. Instead of discarding this traffic, you can have the 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. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **ADVANCED > 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 Router's Device Name

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

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

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

The BASIC Home screen displays.

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

- **LAN IP address**. 192.168.0.1
- **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. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

A login screen displays.

3. Enter the router user name and password.

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

The BASIC Home screen displays.

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

5. In the **IP Address** field, type the IP address.

6. In the **IP Subnet Mask**, type the subnet mask of the router.

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

7. Change the RIP settings.

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

   a. In the **RIP Direction** list, select one of the following:
      - **Both**. The router broadcasts its routing table periodically and incorporates information that it receives.
      - **Out Only**. The router broadcasts its routing table periodically.
      - **In Only**. The router incorporates the RIP information that it receives.

   b. In the **RIP Version list**, select one of the following:
      - **Disabled**. This is the default setting.
      - **RIP-1**. This format is universally supported. It is adequate for most networks, unless you have an unusual network setup.
      - **RIP-2**. This format carries more information. Both RIP-2B and RIP-2M send the routing data in RIP-2 format. RIP-2B uses subnet broadcasting. RIP-2M uses multicasting.

8. Click the **Apply** button.

   Your changes are saved.

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

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

Specify the IP Addresses that the Router Assigns

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

These addresses must be part of the same IP address subnet as the router's LAN IP address. Using the default addressing scheme, define a range between 192.168.0.2 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 router assigns:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **ADVANCED > 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 router assigns:

   a. In the **Starting IP Address** field, type the lowest number in the range.

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

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

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

7. Click the **Apply** button.

   Your settings are saved.

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

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

Disable the DHCP Server Feature in the Router

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

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

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

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **ADVANCED > 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 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 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. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

5. In the Address Reservation section of the screen, click the **Add** button.

6. In the **IP Address** field, type the IP address to assign to the computer or server.

   Choose an IP address from the router's LAN subnet, such as 192.168.0.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 screen and paste it here.

8. Click the **Apply** button.

   The reserved address is entered into the table.

The reserved address is not assigned until the next time the computer contacts the router's DHCP server. Reboot the computer, or access its IP configuration and force a DHCP release and renew.

➢ **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.

Quality of Service Setup

QoS is an advanced feature that you can use to prioritize some types of traffic ahead of others. The router can provide QoS prioritization over the wireless link and on the Internet connection.

WMM QoS for Wireless Multimedia Applications

The router supports WiFi Multimedia Quality of Service (WMM QoS) to prioritize wireless voice and video traffic over the wireless link. WMM QoS provides prioritization of wireless data packets from different applications based on four access categories: voice, video, best effort, and background. For an application to receive the benefits of WMM QoS, both it and the client running that application must have WMM enabled. Legacy applications that do not support WMM and applications that do not require QoS are assigned to the best effort category, which receives a lower priority than voice and video. WMM QoS is enabled by default.

➢ **To disable WMM QoS:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

5. Clear the **Enable WMM** check box.

6. Click the **Apply** button.

Set Up QoS for Internet Access

You can give prioritized Internet access to the following types of traffic:

- Specific applications.
- Specific online games.
- Individual Ethernet LAN ports of the router.
- A specific device by MAC address.

To specify prioritization of traffic, create a policy for the type of traffic and add the policy to the QoS Priority Rule list screen. For convenience, this list includes many common applications and online games that can benefit from QoS handling.

QoS for Applications and Online Gaming

➢ **To create a QoS policy for applications and online games:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

   The QoS Setup screen displays.

5. Select the **Turn Internet Access QoS On** check box.

6. Click the **Set Up QoS rule** button.

The QoS Priority Rule list screen displays.
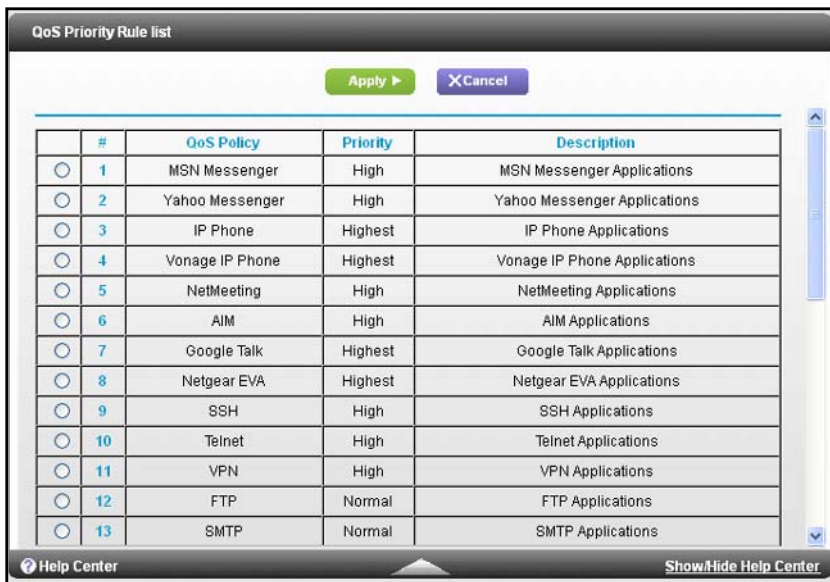
7. Scroll down and click the **Add Priority Rule button**.
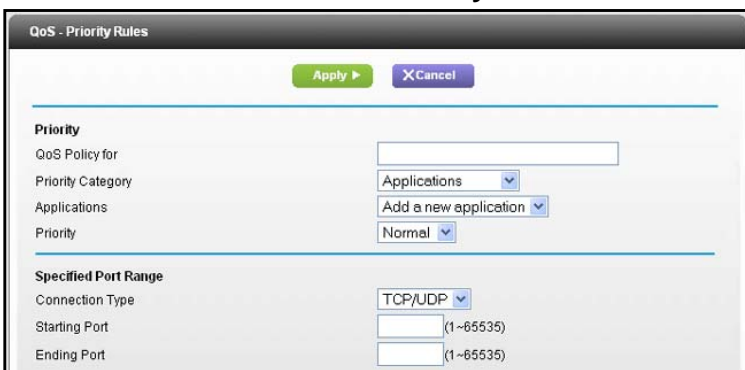
8. In the QoS Policy for field, type the name of the application or game.

9. In the Priority Category list, select either **Applications** or **Online Gaming**.

A list of applications or games displays.

10. Scroll and select **Add a New Application** or **Add a New Game,** as applicable.

11. If prompted, in the Connection Type list, select either **TCP, UDP,** or **TCP/UDP (both)**. Specify the port number or range of port numbers that the application or game uses.

12. From the Priority list, select the priority for Internet access for this traffic relative to other applications and traffic.

The options are Low, Normal, High, and Highest.

13. Click the **Apply** button.

The rule is saved.

QoS for a Router LAN Port

➢ **To create a QoS policy for a device connected to one of the router's LAN ports:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

   The QoS Setup screen displays.

5. Select the **Turn Internet Access QoS On** check box.

6. Click the **Set Up QoS Rule** button.

   The Priority Rule list screen displays.

7. Click the **Add Priority Rule** button.

8. From the QoS Policy for list, select the LAN port.

9. In the Priority Category list, select **Ethernet LAN Port**.

10. From the Priority list, select the priority for Internet access for this port's traffic relative to other applications.

    The options are Low, Normal, High, and Highest.

11. Click the **Apply** button.

    The rule is saved.

12. Click the **Apply** button.

    The rule takes effect.

QoS for a MAC Address

➢ **To create a QoS policy for traffic from a specific MAC address:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

5. Click the **Setup QoS Rule** button.

   The QoS - Priority Rule list screen displays.

6. Click **Add Priority Rule**.

7. From the Priority Category list, select **MAC Address**.

8. If the device to be prioritized appears in the MAC Device List, select its radio button.

   The information from the MAC Device List populates the policy name, MAC Address, and Device Name fields. If the device does not appear in the MAC Device List, click the **Refresh** button. If it still does not appear, fill in these fields manually.

9. From the Priority list, select the priority for Internet access for this device's traffic relative to other applications and traffic.

   The options are Low, Normal, High, and Highest.

10. Click the **Apply** button.

   This rule is saved in the list.

The QoS Setup screen displays.

11. Select the **Turn Internet Access QoS On** check box.

12. Click the **Apply** button.

Edit a QoS Policy

➢ **To edit a QoS policy:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

5. Select the radio button next to the QoS policy that you want to edit.

6. Click the **Edit** button.

7. Change the policy settings.

8. Click the **Apply** button.

   Your changes are saved.

Delete a QoS Policy

➢ **To delete a QoS policy:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

5. Select the radio button next to the QoS policy that you want to delete.

6. Click the **Delete** button.

   The policy is deleted.

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. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **ADVANCED > 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 screen.

   • **PIN Number**. The screen adjusts. Enter the client security PIN, and click the **Next** button.

7. Within two minutes, go to the client device and use its WPS software to connect to the WiFi network.

   The WPS process automatically sets up your wireless computer with the network password when it connects. The router WPS screen displays a confirmation message.

Specify Basic WiFi Settings

The router comes with preset security. This means that the WiFi network name (SSID), network key (password), and security option (encryption protocol) are preset in the factory. You can find the preset SSID and password on the router label.

Note: The preset SSID and password are uniquely generated for every device to protect and maximize your wireless security.

NETGEAR recommends that you do not change your preset security settings. If you change your preset security settings, make a note of the new settings and store it in a safe place where you can easily find it.

If you use a wireless computer to change the 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 router.

➢ **To specify basic wireless settings:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **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 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 allow computers or wireless devices that join the network to use the Internet but not to access each other or access Ethernet devices on the network, select the **Enable Wireless Isolation** check box.

8. To change the network name (SSID), type a new name in the **Name (SSID)** field.

   The name can be up to 32 characters long and it is case-sensitive. The default SSID is randomly generated and is on the router's label. If you change the name, make sure to write down the new name and keep it in a safe place.

9. 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).

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

Up to 145 Mbps is the default setting, which allows 802.11n and 802.11g wireless devices to join the network. The other settings are Up to 54 Mbps, and Up to 300 Mbps.

11. 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.

12. 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 router comes with preset WPA2 or WPA security. The password that you enter to connect to your network is unique to your router and is on the router label. 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. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

A login screen displays.

3. Enter the router user name and password.

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

The BASIC Home screen displays.

4. Select **Wireless**.

5. Under **Security Options**, select a radio button for one of the following WPA options:

    -   **WPA2-PSK [AES]**. Only computers and wireless devices that support WPA2 can join the WiFi network.

    -   **WPA-PSK [TKIP] + WPA2-PSK [AES]**. This setting allows computers and wireless devices that support WPA2 or WPA to join the WiFi network.

    The WPA2 options use the newest standard for the strongest security, but some older computers and wireless devices cannot use WPA2. By default, the **WPA-PSK [TKIP] + WPA2-PSK [AES]** radio button is selected so that new or old computers and wireless devices can connect to the WiFi network by using either WPA2 or WPA security.

    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.

Control the Wireless Radios

The 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 router. When the wireless radios are off, you can still use an Ethernet cable for a LAN connection to the router.

You can turn the wireless radios on and off with the **WiFi On/Off** button on the router, or you can log in to the router and enable or disable the wireless radios. If you are close to the router, it might be easier to press its **WiFi On/Off** button. If you are away from the router or have already logged in it might be easier to enable or disable them. You can also turn the WiFi radios off and on based on a schedule. (For more information, see *Set Up a Wireless Schedule* on page 61.)

Use the WiFi On/Off Button

➢ **To turn the wireless radios off and on with the WiFi On/Off button:**

Press the **WiFi On/Off** button on the top of the router for two seconds.

If you turned off the wireless radios, the WiFi On/Off LED and the WPS LED turn off. If you turned on the wireless radios, the WiFi On/Off LED and the WPS LED light.

Enable or Disable the Wireless Radios

If you used the WiFi On/Off button to turn off the wireless radios, you can't log in to the router to turn them back on. You must press the **WiFi On/Off** button again for two seconds to turn the wireless radios back on.

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

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

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

   Clearing this check box turns off the WiFi feature of the 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 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. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

   The Advanced Wireless Settings screen 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 screen displays.

8. Select the **Turn off wireless signal by schedule** check box to activate the schedule.

9. Click the **Apply** button.

Specify WPS Settings

WiFi 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. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

The BASIC Home screen displays.

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

The Router's PIN field displays the PIN that you use on a registrar (for example, from the Network Explorer on a Vista Windows computer) to configure the router's wireless settings through WPS.

5. (Optional) Select or clear the **Disable Router's PIN** check box.

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

7. Click the **Apply** button.

Your changes are saved.

Set Up a Wireless Distribution System

The router can act as a wireless base station or a wireless repeater in a wireless distribution system (WDS). A WDS expands a wireless network through multiple access points. A wireless base station connects to the Internet, can have wired and wireless clients, and sends its wireless signal to an access point that functions as a wireless repeater. A wireless repeater can also have wired and wireless clients, but connects to the Internet through the wireless base station.

Note: To use the wireless repeating function, your router cannot have security enabled and cannot use the auto channel feature.

The following figure shows a wireless repeating scenario.
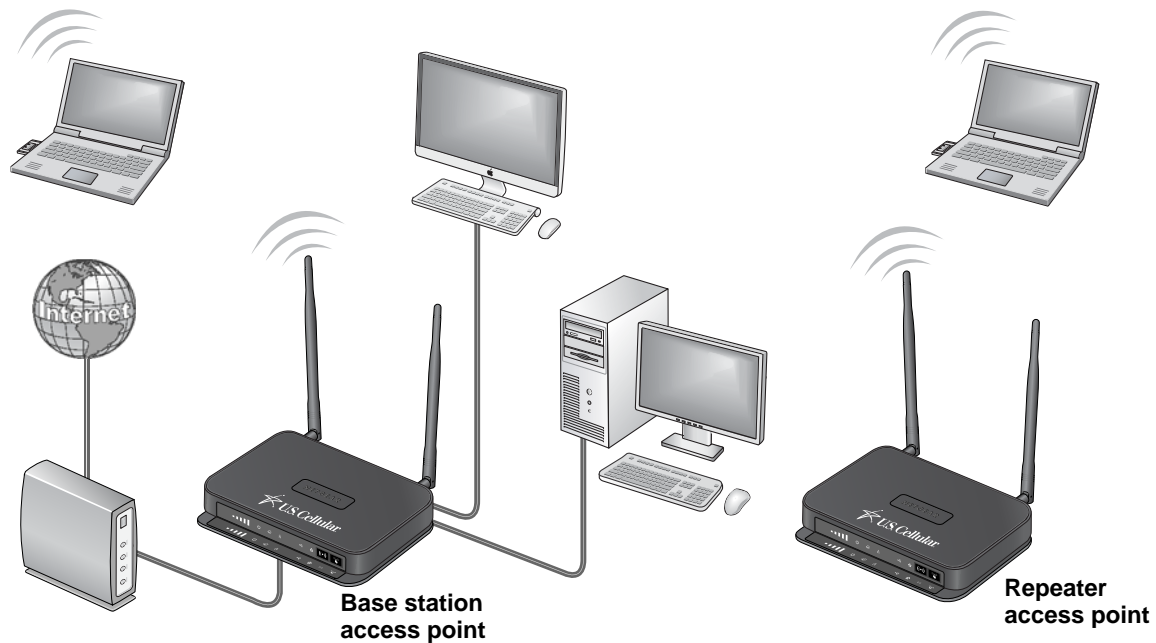
Figure 5. Wireless repeating scenario

You must set up a wireless base station and a wireless repeater:

- **Wireless base station**. The router acts as the parent access point that bridges traffic to and from the child repeater access point. The base station also handles wireless and wired local computers. To configure this mode, you must know the MAC addresses of the child repeater access point. Often, the MAC address is on the product label.

- **Wireless repeater**. The router sends all traffic from its local wireless or wired computers to a remote access point. To configure this mode, you must know the MAC address of the remote parent access point.

The router is always in dual-band concurrent mode, unless you turn off one radio. If you enable the wireless repeater in either radio band, the wireless base station or wireless repeater cannot be enabled in the other radio band. However, if you enable the wireless base station in either radio band and use the other radio band as a wireless router or wireless base station, dual-band concurrent mode is not affected.

Before you an set up a wireless network with WDS, both access points must meet the following conditions:

- Use the same SSID, wireless channel, and encryption mode.

- Be on the same LAN IP subnet. That is, all of the access point LAN IP addresses are in the same network.

- All LAN devices (wired and wireless computers) are configured to operate in the same LAN network address range as the access points.

Set Up the Base Station

The wireless repeating function works only in hub and spoke mode. The units cannot be daisy-chained. You must know the wireless settings for both units. You must know the MAC address of the remote unit. First, set up the base station, then set up the repeater.

➢ **To set up the base station:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **ADVANCED > Advanced Setup > Wireless Repeating Function**.

5. Select the **Enable Wireless Repeating Function** check box.

6. Select the **Wireless Base Station** radio button.

7. To prevent wireless clients from associating with the base station and allow LAN client associations only, select the **Disable Wireless Client Association** check box.

   You can leave the check box cleared if you prefer wireless clients to be able to associate with the base stations.

8. In the Repeater MAC Address 1 through 4 fields, enter the MAC addresses for the access points that should function as repeaters.

   If your router is the base station, it can function as the "parent" for up to four other access points.

9. Click the **Apply** button.

   Your changes are saved.

Set Up a Repeater

Use a wired Ethernet connection to set up the repeater unit to avoid conflicts with the wireless connection to the base station.

If you are using the router as the base station with a non-NETGEAR router as the repeater, you might need to change more configuration settings. In particular, disable the DHCP server function on the access point that is the repeater.

➢ **To configure a NETGEAR router as a repeater:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

    A login screen displays.

3. Enter the router user name and password.

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

    The BASIC Home screen displays.

4. Select **Wireless** and verify that the wireless settings match the base unit exactly.

    The wireless security option must be set to **None**.

5. Select **ADVANCED > Wireless Repeating Function**.

6. Select the **Enable Wireless Repeating Function** check box.

7. Select the **Wireless Repeater** radio button.

8. In the **Repeater IP Address** field, type the IP address of the repeater router.

    This IP address must be in the same subnet as the base station, but different from the LAN IP address of the base station.

9. To prevent wireless clients from associating with the repeater and allowing LAN client associations only, select the **Disable Wireless Client Association** check box.

You can leave the check box cleared if you prefer wireless clients to be able to associate with the repeater.

10. In the **Base Station MAC Address** field, enter the MAC addresses for the access point that will be the base station.

11. Click the **Apply** button.

Your changes are saved.

12. Verify connectivity across the LANs.

A computer on any wireless or wired LAN segment of the router can connect to the Internet or share files and printers with any other computer or server connected to the other access point.

USB Storage

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This chapter describes how to access and configure a USB storage drive attached to your router. You can use the USB port on the router only to connect USB storage devices like flash drives or hard drives, or a printer. Do not connect computers, USB modems, CD drives, or DVD drives to the router USB port.

This chapter contains the following sections:

- *Access a USB Storage Device*
- *File-Sharing Scenarios*
- *View a USB Device Attached to the Router*
- *USB Storage Device Network and Access Settings*
- *Available Network Folders*
- *Specify Approved USB Devices*
- *Safely Remove a USB Drive*

ReadySHARE Printer allows you to connect a shared printer to the router's USB port. For information about ReadySHARE Printer, see *Chapter 7, ReadySHARE Printer*.

Access a USB Storage Device

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

➢ **To connect a USB storage device:**

1. Insert your USB storage device into a USB port on the rear panel of the router.
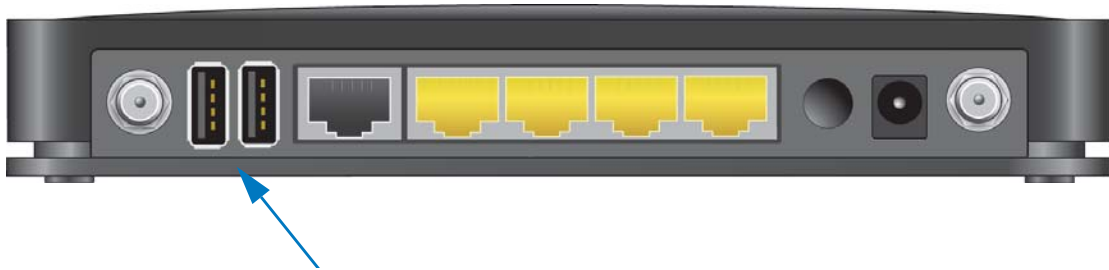
2. If your USB drive has a power supply, you must use it when you connect the USB drive to the router.

It might take up to two minutes before the USB device is ready for sharing. By default, the USB drive is available to all computers on your local area network (LAN).

➢ **To access the USB drive from a Mac:**

1. Select **Go > Connect to Server**.
2. Enter **smb://readyshare** as the server address.
3. Click the **Connect** button.

➢ **To access the USB drive from a Windows computer:**

1. Select **Start > Run**.
2. Enter **\\readyshare** in the dialog box and click the **OK** button.

➢ **To map the USB device to a Windows network drive:**

1. Visit *www.netgear.com/readyshare.*
2. In the ReadySHARE USB Storage Access pane, click the **PC Utility** link.

The ReadyShareConnect.exe file is downloaded to your computer.

3. Launch ReadyShareConnect.exe.
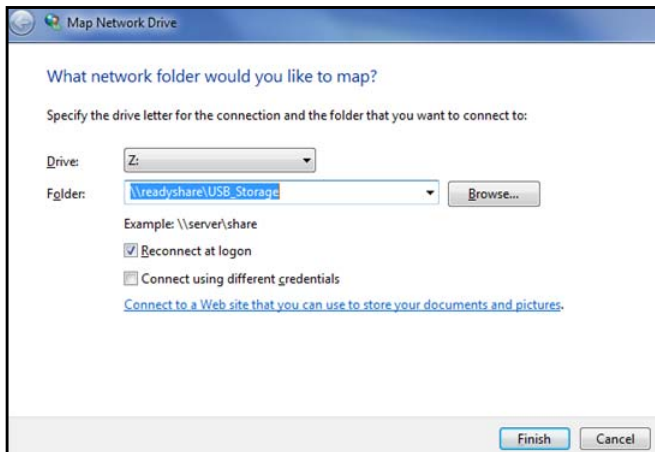
4. Select the drive letter to map to the network folder.

5. To connect to the USB drive as a different user, select the **Connect using different credentials** check box.

    a. Enter the user name and password that you want to use.

    b. Click the **OK** button.

6. Click the **Finish** button.

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

➢ **To access the USB drive from a remote computer:**

1. Launch a web browser.

2. Connect using the router's Internet port IP address.

    If you are using Dynamic DNS, you can type the DNS name, rather than the IP address. You can view the router's Internet IP address on the BASIC Home screen.

➢ **To access the USB drive with FTP from a remote computer:**

1. Make sure that the FTP check box is selected in the Access Method section of the USB Storage (Advanced Settings) screen.

    For more information, see *USB Storage Device Network and Access Settings* on page 73.

2. Launch a web browser.

3. Enter **ftp://** and the Internet port IP address in the address field of the browser.

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

    If you are using Dynamic DNS, you can type the DNS name rather than the IP address.

4. Enter the account name and password for the account that has access rights to the USB drive.

    The user name (account name) for All – no password is **guest**.

USB Storage

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The directories of the USB drive that your account has access to display. For example, you could see share/partition1/directory1. You can now read and copy files from the USB directory.

File-Sharing Scenarios

You can share files on the USB drive for a wide variety of business and recreational purposes. The files can be any Windows, Mac, or Linux file type including text, Word, PowerPoint, Excel, MP3, pictures, and multimedia files. USB drive applications include:

- Sharing multimedia such as MP3 files, pictures, and other multimedia with local and remote users.
- Sharing resources on your network. You can store files in a central location so that you do not have to power up a computer to perform local sharing. In addition, you can share files between Macintosh, Linux, and Windows computers by using the USB drive as a go-between across the systems.
- Sharing files such as Word documents, PowerPoint presentations, and text files with remote users.

A few common uses are described in the following sections.

Share Photos

You can create your own central storage location for photos and multimedia. This method eliminates the need to log in to (and pay for) an external photo-sharing site.

➢ **To share files with your friends and family:**

Insert your USB drive into the USB port on the router either directly or with a USB cable.

Computers on your local area network (LAN) can automatically access this USB drive using a web browser or Microsoft Networking.

You can specify read-only access or allow access from the Internet. For more information, see *USB Storage Device Network and Access Settings* on page 73.

Store Files in a Central Location for Printing

This scenario is for a family that has one high-quality color printer directly attached to a computer, but not shared on the local area network (LAN). This family does not have a print server.

- One family member has photos on a Macintosh computer that she wants to print.
- The photo-capable color printer is directly attached to a Windows computer, but not shared on the network.
- The Mac and Windows computer are not visible to each other on the network.

➢ **To print photos from a Mac on the printer attached to a Windows computer:**

1. On the Mac, access the USB drive by typing **\\readyshare** in the address field of a web browser. Then copy the photos to the USB drive.

2. On the Window computer, use a web browser or Microsoft Networking to copy the files from the USB drive to the computer. Then print the files.

Share Large Files over the Internet

Sending files that are larger than 5 MB can pose a problem for many email systems. The router allows you to share large files such as PowerPoint presentations or .zip files over the Internet. You can use FTP to download shared files from the router.

Sharing files with a remote colleague involves the following considerations:

- The two user accounts are admin and guest. The password for admin is the same one that you use to access the router. By default, it is **password**. The guest user account has no password.

- On the FTP site, the person receiving the files uses the guest user account and enters the password. (FTP requires that you type something in the password field.)

- Be sure to select the **FTP (via Internet)** check box in the USB Storage (Advanced Settings) screen. This option supports both downloading and uploading of files.

Note: You can select the HTTP (via Internet) check box on the USB Storage (Advanced Settings) screen to share large files. This option supports downloading files only.

View a USB Device Attached to the Router

➢ **To view basic information about the USB storage device:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **BASIC > ReadySHARE**.

By default, the Basic radio button is selected, and the screen displays a USB storage device if it is attached to the router USB port.

If you logged in to the router before you connected your USB device, you might not see your USB device in this screen. If this happens, log out and then log back in.

5. To view the files and folders on the USB device, click the network device name or the share name.

6. To view more detail or to change the USB device settings, click the **Edit** button.

The USB Storage (Advanced Settings) screen displays. For more information, see *USB Storage Device Network and Access Settings* on page 73.

USB Storage Device Network and Access Settings

You can set up the device name, workgroups, and network folders for your USB device.

➢ **To view or change the USB storage advanced settings:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

A login screen displays.

3. Enter the router user name and password.

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

The BASIC Home screen displays.

4. Select **ADVANCED > USB Storage > Advanced Settings**.
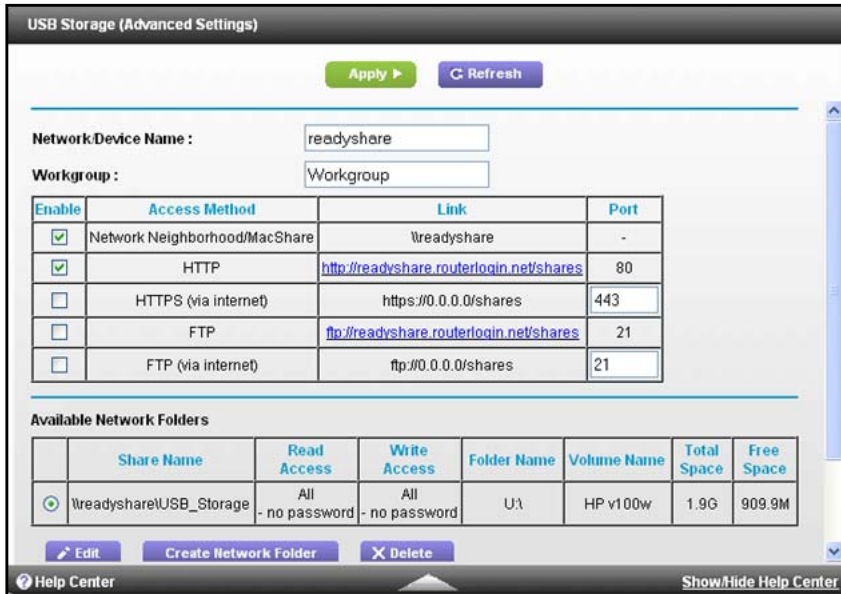
5. Specify access to the USB storage device:

- **Network Device Name**. The default is readyshare. This is the name used to access the USB device connected to the router.

- **Workgroup**. If you are using a Windows workgroup rather than a domain, the workgroup name is displayed here. The name works only in an operating system that supports NetBIOS, such as Microsoft Windows.

- **Access Method**. Select the check boxes for the access methods that you want:

  - **Network Neighborhood/MacShare. Enabled by default.**

  - **HTTP**. Enabled by default. You can type **http://readyshare.routerlogin.net/shares** to access the USB drive.

  - **HTTP (via Internet)**. Disabled by default. If you enable this feature, remote users can type http://*<public IP address/shares>* (for example, http://1.1.10.102/shares) or a URL domain name to access the USB drive over the Internet. This feature supports file uploading only.

  - **FTP**. Disabled by default.

  - **FTP (via Internet)**. Disabled by default. If you select this check box, remote users can access the USB drive through FTP over the Internet. This feature supports both downloading and uploading of files.

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

Your changes are saved.

Available Network Folders

You can view or change the network folders on the USB storage device.

➢ **To view network folders:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

5. Scroll down to the Available Networks Folder section of the screen.

   • **Share Name**. If only one device is connected, the default share name is USB_Storage. (Some router models have more than one USB port.)

      You can click the name, or you can type it in the address field of your web browser. If Not Shared is shown, the default share has been deleted, and no other share for the root folder exists. Click the link to change this setting.

   • **Read Access and Write Access**. Show the permissions and access controls on the network folder: All - no password (the default) allows all users to access the network folder. The password for admin is the same one that you use to log in to the router.

   • **Folder Name**. Full path of the network folder.

   • **Volume Name**. Volume name from the storage device (either USB drive or HDD).

   • **Total Space and Free Space**. Show the current utilization of the storage device.

➢ **To add a network folder:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **ADVANCED > ReadySHARE**.

5. Click the **Edit** button.

6. Click the **Create Network Folder** button.

USB Device	U: (HP v100w) ▾	
Folder	U:\Photos\	Browse
Share Name	Vacation Photos	
Read Access	All - no password ▾	
Write Access	All - no password ▾	
Apply		
Close Window		

   If the screen does not display, your web browser might be blocking pop-ups. If it is, then change the browser settings to allow pop-ups.

7. Click the **Browse** button and select the folder.

8. Fill in the Share Name field.

9. In the Read Access list and the Write Access list, select the settings that you want.

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

10. Click the **Apply** button.

    The folder is added on the USB device.

➢ **To edit a network folder:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

The BASIC Home screen displays.

4. Select **ADVANCED > ReadySHARE**.

5. Click the **Edit** button.

The Edit Network Folder screen displays the same settings shown in the Create a Network Folder screen.

6. Change the settings in the fields as needed.

7. Click the **Apply** button.

Your changes are saved.

Specify Approved USB Devices

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

➢ **To set up approved USB devices:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

A login screen displays.

3. Enter the router user name and password.

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

The BASIC Home screen displays.

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

5. **Click the Approved Devices** button.
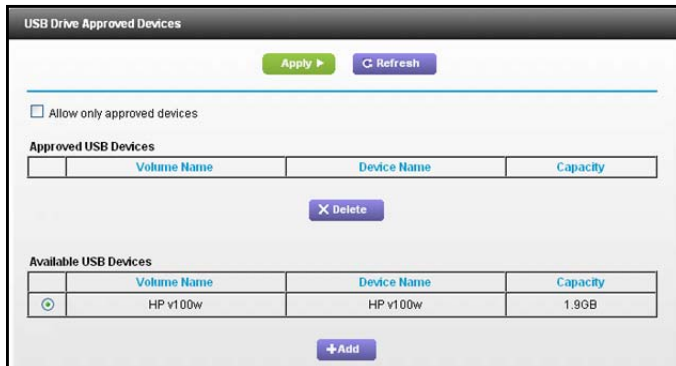
This screen shows the approved USB devices and the available USB devices. You can remove or add approved USB devices.

6. In the Available USB Devices list, select the drive that you want to approve.

7. Click the **Add** button.

8. Select the **Allow only approved devices** check box.

9. Click the **Apply** button.

   Your change takes effect.

If you want to work with another USB device, first click the **Safely Remove USB Device** button for the currently connected USB device and remove the device. Connect the other USB device, and repeat this process.

Safely Remove a USB Drive

If you want to physically disconnect a USB drive from the router USB port, first, log in to the router and then safely remove the USB drive.

➢ **To remove a USB disk drive safely:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **USB Storage > Basic Settings**.

5. Click the **Safely Remove USB Device** button.

   This takes the drive offline.

Physically disconnect the USB drive.

ReadySHARE Printer 7

ReadySHARE Printer is compatible with Macs and Windows computers. It lets you connect a USB printer to the router's USB port, and access it wirelessly.

This chapter contains the following sections:

- *ReadySHARE Printer*
- *USB Control Center Utility*

ReadySHARE Printer

You can connect a USB printer to the router's USB port, and share it among Windows and Mac computers on the network.

➢ **To set up ReadySHARE Printer:**

1. Connect the USB printer to one of the router's USB ports with a USB printer cable.
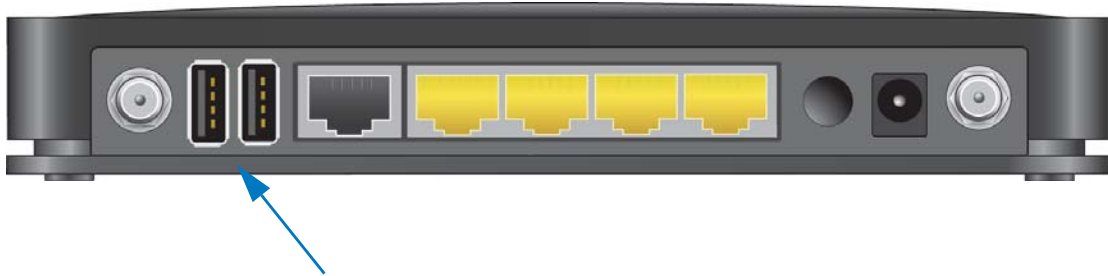
2. Install the USB printer driver software *on each computer* that shares the printer. If you do not have the printer driver, contact the printer manufacturer to find and download the most recent printer driver software.

3. On each computer that shares the printer, download the NETGEAR USB Control Center utility.

    The NETGEAR USB utility has a Mac version and a Windows version. To access them, see the ReadySHARE Printer area of the page when you visit *www.netgear.com/readyshare*.

    ReadySHARE® Printer
    Wirelessly print from your home network to a connected USB printer
    » **Easy to Set-up: Instructions**
    » **PC Utility**
    » **MAC Utility**
    Supported Routers: WNDR4500, WNDR3800, WNDRMAC

    Note: You *must* install this utility before you can use the ReadySHARE Printer feature. For the ReadySHARE Printer feature to work, this utility must be running in the background.

4. Follow the instructions to install the NETGEAR USB Control Center utility.

5. Select the language.

The first time you access the utility, you are asked to select the printer.

6. Select the printer and click the **Connect** button.
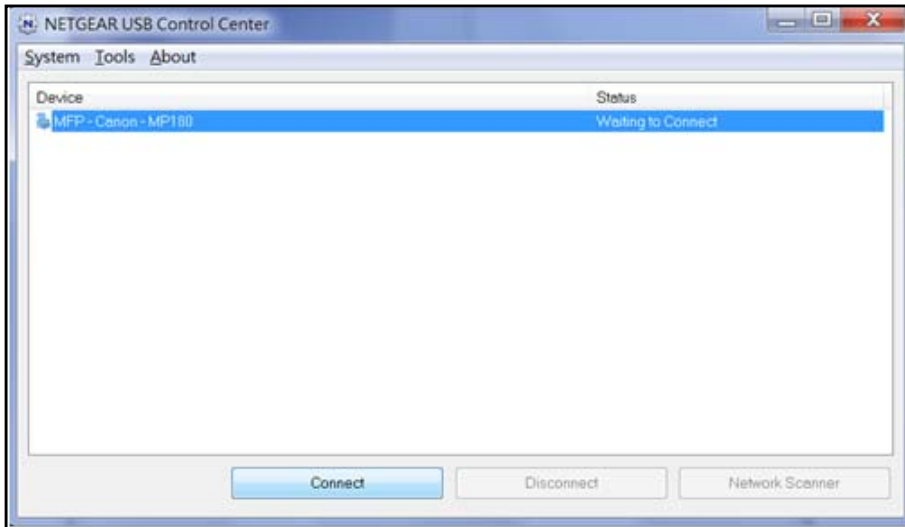
Once the connection is established, the status changes to Manually connected by *xxx*.
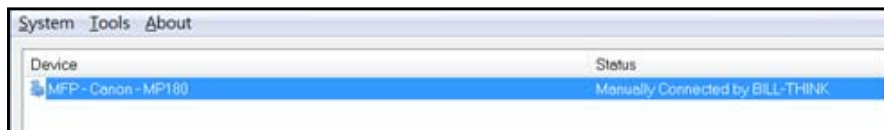
You can click the **Disconnect** button at any time to release the connection. The status then changes to Available.
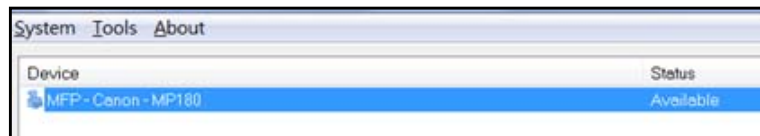
After you click the Connect button once on each computer in the network, the utility on each of them manages the printing queue and handling. The status of the printer is Available on all of the computers.

- When the status is Available, you can use the USB printer.
- When the status is Manually connected by *xxx*, only the *xxx* computer can use the printer. Other network devices must wait until the *xxx* computer has released the connection, or until the connection times out (the default time-out value is 30 seconds).

- You can set the value for the default time-out time from the Tools > Control Center - Configuration screen.

- The USB Control Center utility must be running for the computer to be able to print to the USB printer attached to the router. If you exit the utility, printing does not work.

- Some firewall software, such as Comodo, blocks the ReadySHARE Print utility from accessing the USB printer. If you do not see the printer in the utility, you can disable the firewall temporarily to allow the utility to work.

7. If your printer supports scanning, make sure that the printer is in the Available state, and click the **Network Scanner** button.

   The scanner screen opens so you can use the printer for scanning.
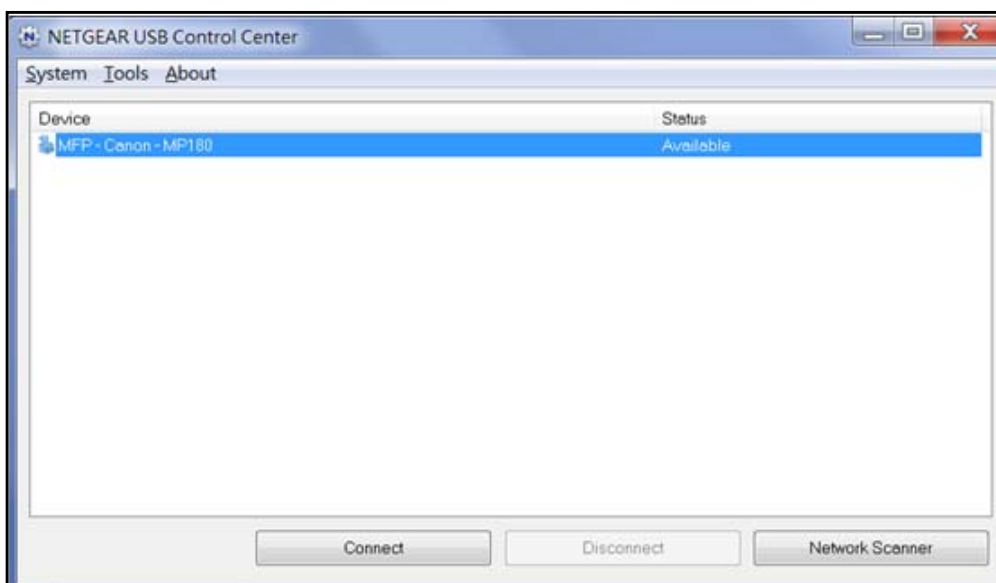
USB Control Center Utility

The USB Control Center utility allows you to control a shared USB device from a computer that is connected to the USB port on your router. The utility allows you to control a printer and a scanner.

You must install the utility on each computer on your network from which you want to control the device. You can download this utility for a Windows or Mac computer at *www.netgear.com/readyshare*.

When you launch the USB Control Center Utility, a screen similar to the following displays:
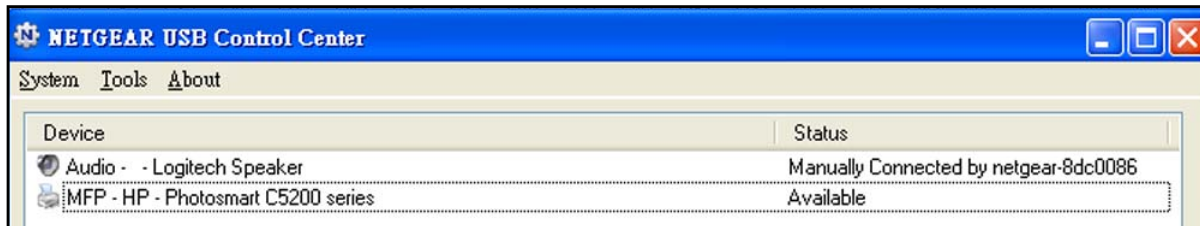
Figure 6. NETGEAR USB Control Center utility

The main screen shows a device icon, the description for this USB device, and its status:

*   **Available**. The device is available from the computer that you are using.
*   **Waiting to Connect**. You need to connect to this device from the computer that you are using. The first time you connect, you might be prompted to install the device driver.

The following menu selections display:

*   **System**. Exit the utility.
*   **Tools**. Access the Control Center - Configuration screen to set up your shared USB device. For more information, see *Control Center Configuration* on page 85.
*   **About**. View details about the USB Control Center software.

Control Center Configuration

➢ **To specify Control Center configuration:**

1. Select **Tools > Configuration**.

2. Specify the following settings:

   • **Automatically execute when logging on Windows**. Enable the utility to start automatically when you are logged in to Windows.

   • **Timeout**. Specify the time-out value for holding the USB resource when it is not in use.

   • **Language**. Select the display language for this utility.

3. Click the **OK** button.

   Your changes are saved.

USB Printer

The first time you use a printer, click the **Connect** button. You might be asked to install the driver for this printer. After the driver is installed, the printer status changes to Available.

Note: Some USB printers (for example, HP and Lexmark printers) request that you do not connect the USB cable until you are prompted to do so by the printer driver installation software.

If the USB printer is detected and connected automatically, you need to disconnect the printer and wait for the prompt asking you to click Connect.

Once the printer shows Available status, it is no longer grayed out in a Paused state in the Windows Printers and Faxes screen.
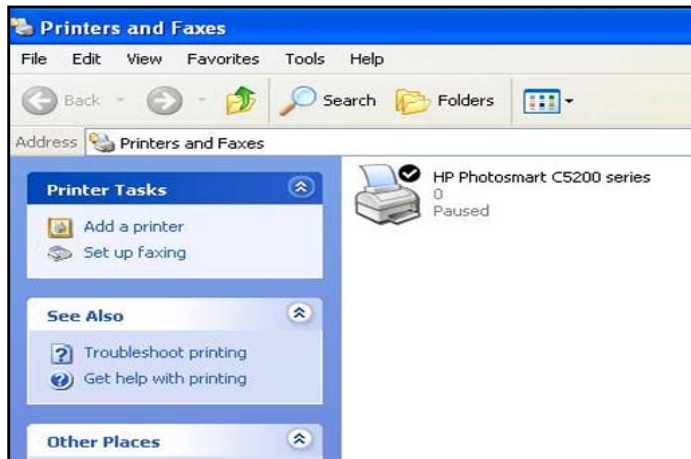
Figure 7. Printers and Faxes screen

This USB printer is ready. The utility does not need to hold the connection of this USB printer. When this printer has a print job, the USB utility connects to this USB printer automatically and prints. After the print job is done, the printer status returns to the Paused state.

Scan with a Multifunction Printer

You can use the scan feature of a multifunction printer.

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

    This activates the scanner screen to perform scans.

Administration

8

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

This chapter includes the following sections:

Update the Router Firmware

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

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

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **ADVANCED > Administration > Router Update**.

5. Click the **Check** button.

   The router finds new firmware information if any is available and displays a message asking if you want to download and install it.

6. Click the **Yes** button.

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

   WARNING:

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

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

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LTE™ Modem Upgrade

You can check to see if new LTE™ modem software is available, and install it. When the upgrade is in process, you cannot access the Internet through your router.

➢ **To upgrade the LTE™ modem software:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **ADVANCED > Administration > LTE™ Modem Upgrade**.

5. To see if an upgrade is available, click the **Check** button.

   The router checks online and finds an upgrade file if it is available.

6. Download the upgrade file.

7. Click the **Browse** button and locate the file that you downloaded.

⚠️ **WARNING:**

   When uploading, *do not* interrupt the web browser by closing the window, clicking a link, or loading a new page. If the browser is interrupted, it could affect the success of the upgrade.

8. Click the **Upload** button.

9. Click **Yes** to confirm.

   The LTE™ modem software is upgraded. Your router restarts. The upgrade process typically takes about one minute.

Change the admin Password

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

➢ **To set the admin password:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **ADVANCED > Administration > Set Password**.

5. Enter the old password, and type the new password twice.

6. To be able to recover the password, select the **Enable Password Recovery** check box.

   NETGEAR recommends that you enable password recovery.

7. To change the login time-out, type a number of minutes in the **minutes** field.

   This number controls how long the router waits to automatically log you out when there is no activity after you have logged in to the router.

8. Click the **Apply** button.

   Your changes take effect.

Recover the admin Password

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

➢ **To set up password recovery:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **ADVANCED > Administration > Set Password**.

5. Select the **Enable Password Recovery** check box.

6. Select two security questions and provide answers to them.

7. Click the **Apply** button.

   Your changes are saved.

➢ **To recover your password:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Click **Cancel**.

   If password recovery is enabled, you are prompted to answer two security questions.

4. Enter the saved answers to the security questions.

5. Enter the serial number of your router.

   The serial number is on the router's label.

Reboot the Router

Rebooting the router disconnects all computers and mobile devices from the router's network.

➢ **To reboot the router:**

1. Launch a web browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

    A login screen displays.

3. Enter the router user name and password.

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

    The BASIC Home screen displays.

4. Select the **ADVANCED** tab.

5. In the Router Information pane, click the **Reboot** button.

    A confirmation message displays.

6. Click the **OK** button.

The router reboots

View Router Status

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

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

    A login screen displays.

3. Enter the router user name and password.

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

    The BASIC Home screen displays.

4. Select **ADVANCED > Administration > Router Status**.

The following information displays:

- **Active Connection**. The current WAN interface the router is using.

- **Account Name**. The router model.

- **Firmware Version**. The version of the router firmware. It changes if you upgrade the router firmware.

- **Ethernet Port**. The Ethernet WAN port.

  - **MAC Address**. The Media Access Control address. This is the unique physical address used by the Ethernet (LAN) port of the router.

  - **IP Address**. The IP address used by the Ethernet (LAN) port of the router. The default is 192.168.0.1.

  - **Network Type**. The connection type on the Ethernet WAN port, for example DHCP, PPTP, PPPoE, or L2TP.

  - **IP Subnet Mask**. The IP subnet mask used by the Internet (WAN) port of the router. Gateway IP Address.

  - **Domain Name Server**. The Domain Name Server addresses used by the router. A Domain Name Server translates human-language URLs such as www.netgear.com into IP addresses.

- **Mobile Broadband Modem**. Information about the modem and SIM card.

  - **Modem Identity**.

  - **Modem SW version**. Software or firmware version.

  - **Modem driver version**. Kernel driver version.

  - **IMSI**. International Mobile Subscriber Identity.

  - **IMEI**. International Mobile Station Equipment Identity.

- **Operator**. The Internet service provider name that has connected.
- **Network Mode**. The technology used for mobile network connectivity.

- **Wireless Broadband Port**. The basic information for the mobile interface.

  - **Connection Status**.

  - **IP Address**. The IP address from the ISP when the modem is used as the WAN interface.

  - **Protocol**. The mobile protocol, DHCP or PPTP.

  - **IP Subnet Mask**. The IP subnet mask used by the wireless broadband port of the router.

  - **Gateway IP Address**.

  - **Domain Name Server**. The Domain Name Server addresses used by the router. A Domain Name Server translates human-language URLs such as www.netgear.com into IP addresses.

- **LAN Port**.

  - **MAC Address**. The Media Access Control address. This is the unique physical address used by the Ethernet (LAN) port of the router.

  - **IP Address**. The IP address used by the Ethernet (LAN) port of the router. The default is 192.168.0.1.

  - **DHCP**. Identifies whether the router's built-in DHCP server is active for devices on the LAN.

  - **IP Subnet Mask**.

- **Wireless Port**.

  - **Name (SSID)**. The wireless network name (SSID) that the router uses.

  - **Region**. The geographic region where the router is being used.

  - **Channel**. The operating channel of the wireless port being used. The default channel is Auto. When Auto is selected, the router finds the best operating channel available.

  - **Mode**. The wireless communication mode: 300 Mbps, 145 Mbps, or Up to 54 Mbps.

  - **Wireless AP**. Indicates whether the radio feature of the router is enabled. If this feature is not enabled, the WiFi LED on the front panel is off.

  - **Broadcast Name**. Indicates whether the router is broadcasting its SSID.

View Mobile Broadband Status

➢ **To view mobile broadband status:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

A login screen displays.

3. Enter the router user name and password.

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

The BASIC Home screen displays.

4. Select **ADVANCED**

5. In the Internet Connection pane, click the **Connection Status** button.

The following information displays:

- **Connection Status**. Shows whether the router is connected to the Internet.
- **Received Signal Quality (in dbm)**. Shows the signal quality of current radio receiver
- **Network mode**. The mobile network protocol used for the Internet connection.
- **Bytes Transmitted**. Total data transmitted in bytes.
- **Bytes Received**. Total data received in bytes
- **Tx B/s**. Data rate of transmitted data.
- **Rx B/s**. Data rate of received data.
- **System Uptime**. The length of time since the router was powered on.
- **Connection Duration**. The length of time that the router has been connected to the Internet.
- **Operator**. Mobile operator network that is connected.

6. To change the poll interval, type a number in the **Poll Interval** field and click the **Set Interval** button.

Show Statistics

➢ **To view statistics for the Internet connection:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

    A login screen displays.

3. Enter the router user name and password.

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

    The BASIC Home screen displays.

4. Select **ADVANCED**

5. In the Internet Connection pane, click the **Show Statistics** button.

Show Statistics

System Up Time 8 days 12:47:12

Port	Status	TxPkts	RxPkts	Collisions	Tx B/s	Rx B/s	Up Time
WAN	Link Up	726128	699974	0	98	98	8 days 11:13:23
LAN1	Link Down						--
LAN2	100M/Full	426858	366400	0	166	43	8 days 12:47:12
LAN3	Link Down						--
LAN4	100M/Full						8 days 12:47:12
WLAN	300M	0	0	0	0	0	8 days 12:46:51

Poll Interval: 5   (5~86400 (secs))   Set Interval   Stop

The following information displays:

*   **System Up Time**. The time elapsed since the router was last restarted.

*   **Port**. The statistics for the WAN (Internet) and LAN (Ethernet) ports. For each port, the screen displays:

    -   **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.

Administration

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- **Rx B/s**. The current reception (inbound) bandwidth used on the WAN and LAN ports.
- **Up Time**. The time elapsed since this port acquired the link.
- **Poll Interval**. The interval at which the statistics are updated in this screen.

6. To change the poll interval, type a number in the **Poll Interval** field and click the **Set Interval** button.

View Devices Currently on the Network

Use the Attached Device screen to view all computers or devices that are currently connected to your network.

➢ **To view the Attached Devices screen:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

    A login screen displays.

3. Enter the router user name and password.

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

    The BASIC Home screen displays.

4. Select **Attached Devices**.

Wired devices are connected to the router with Ethernet cables. Wireless devices have joined the wireless network. The following information displays:

- **# (number)**. The order in which the device joined the network.
- **IP Address**. The IP address that the 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.
- **Device Name**. If the device name is known, it is shown here.
  - To update the screen, click the **Refresh** button.

View Logs of Router Activity

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

➢ **To view logs:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **ADVANCED > Administration > Logs**.
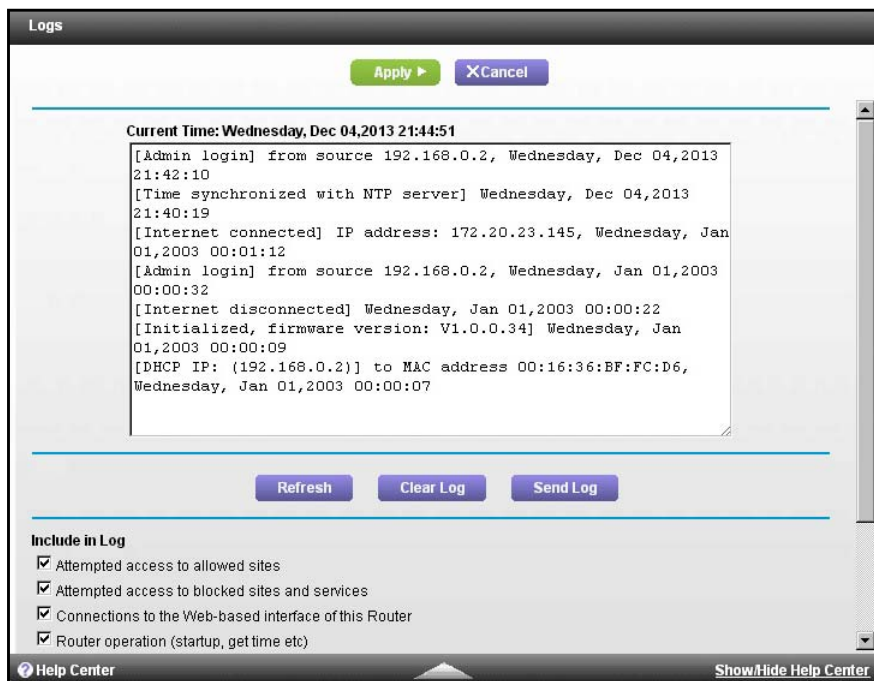
The log screen shows the following information:

- **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 change the actions that are logged, clear or select the **Include in Log** check boxes.

6. To refresh the log screen, click the **Refresh** button.

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

8. To send the log immediately, click the **Send Log** button.

Manage the Configuration File

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

Back Up the Configuration Settings

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

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

5. Click the **Back Up Settings** button.

6. Choose a location to store the `.cfg` file that is on a computer on your network.

7. Click the **Back Up** button.

   A copy of the current settings is saved.

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. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

5. Click the **Browse** button and find the `.cfg` file.

6. Click the **Restore** button.

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

> ⚠ **WARNING:**
>
> **Do not interrupt the reboot process.**

Erase the Current Configuration Settings

You can use the Erase button to erase the configuration and restore the factory default settings. You might want to do this if you move the router to a different network. You can also use the Restore Factory Settings button on the router to erase the configuration and restore the factory settings. (For more information, see *Factory Settings* on page 133.)

➢ **To erase the configuration settings:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

5. Click the **Erase** button.

   The factory settings are restored. For more information, see *Factory Settings* on page 133.

Static Routes

Static routes provide more routing information to your router. Typically, you do not need to add static routes. You must configure static routes only for unusual cases such as multiple routers or multiple IP subnets on your network.

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

- Your primary Internet access is through a cable modem to an ISP.
- You have an ISDN router on your home network for connecting to the company where you are employed. This router's address on your LAN is 192.168.0.100.
- Your company's network address is 134.177.0.0.

When you first configured your router, two implicit static routes were created. A default route was created with your ISP as the gateway, and a second static route was created to your local network for all 192.168.0.x addresses. With this configuration, if you attempt to access a device on the 134.177.0.0 network, your router forwards your request to the ISP. The ISP forwards your request to the company where you are employed, and the company's firewall is likely to deny the request.

In this case you must define a static route, telling your router that 134.177.0.0 should be accessed through the ISDN router at 192.168.0.100. In this example:

- The Destination IP Address and IP Subnet Mask fields specify that this static route applies to all 134.177.x.x addresses.
- The Gateway IP Address field specifies that all traffic for these addresses should be forwarded to the ISDN router at 192.168.0.100.
- A metric value of 1 works because the ISDN router is on the LAN.
- Private is selected only as a precautionary security measure in case RIP is activated.

➢ **To set up a static route:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

5. Click the **Add button**.

6. In the Route Name field, type a name for this static route (for identification purposes only).

7. Select the **Private** check box if you want to limit access to the LAN only.

   If Private is selected, the static route is not reported in RIP.

8. Select the **Active** check box to make this route effective.

9. Type the IP address of the final destination.

10. Type the IP subnet mask for this destination. If the destination is a single host, type **255.255.255.255**.

11. Type the gateway IP address, which must be on the same LAN segment as the router.

12. Type a number from 1 through 15 as the metric value.

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

13. Click the **Apply** button.

    The static route is added.

➢ **To edit a static route:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

   The Static Routes screen displays.

5. In the table, select the radio button next to the route.

6. Click the **Edit** button.

   The Static Routes screen adjusts.

---

7. Edit the route information.

8. Click the **Apply** button.

➢ **To delete a static route:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

   The Static Routes screen displays.

5. In the table, select the radio button next to the route.

6. Click the **Delete** button.

   The route is removed from the table.

Remote Management

The remote management feature lets you access your router over the Internet to view or change its settings.

Be sure to change the router default login password 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. For more information, see *Change the admin Password* on page 90.

➢ **To set up remote management:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

5. Select the **Turn Remote Management On** check box.

6. Under Allow Remote Access By, specify the external IP addresses to be allowed to access the router's remote management.

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

    • To allow access from a single IP address on the Internet, select the **Only This Computer** radio button. Enter the IP address that will 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 specify IP addresses, select the **IP Address List** radio button and enter the allowed IP addresses.

    • 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.

9. When you access your router from the Internet, type your router's WAN IP address into your browser's address or location field followed by a colon (:) and the custom port number.

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

Universal Plug and Play

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

➢ **To specify Universal Plug and Play settings:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

   The UPnP screen displays.

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

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

6. In the **Advertisement Period** field, type the number of minutes.

   This setting specifies how often the router broadcasts its UPnP information. This value can range from 1 to 1440 minutes. The default period is 30 minutes. Shorter durations ensure that control points 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. In the **Advertisement Time to Live** field, type the number of hops.

   Hops are the UPnP steps a packet takes between routers. The number of hops can range from 1 to 255. The default value is 4 hops, which should be fine for most home networks.

If you notice that some devices are not updated or reached correctly, you might need to increase this value.

8. Click the **Apply** button.

   The UPnP Portmap Table displays the IP address of each UPnP device that is accessing the router and which ports (internal and external) that device 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.

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

Monitor Internet Traffic

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

➢ **To monitor Internet traffic:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.
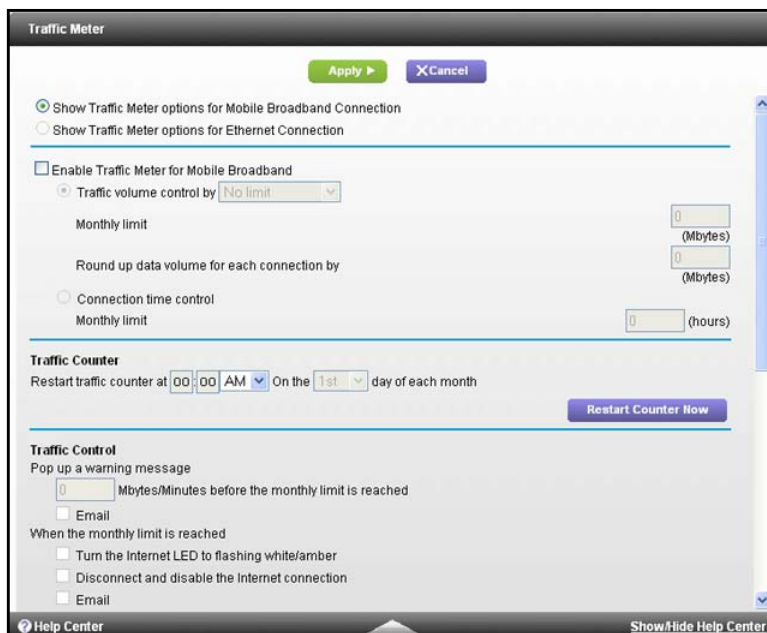
   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

Scroll to view more settings.

5. Select the **Enable Traffic Meter** check box.

6. (Optional) Control the volume of Internet traffic.

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

   - Select the **Traffic volume control by** radio button and then select one of the following options:

     - **No Limit**. No restriction is applied when the traffic limit is reached.

     - **Download only**. The restriction is applied to incoming traffic only.

     - **Both Directions**. The restriction is applied to both incoming and outgoing traffic.

   - Select the **Connection time control** radio button and enter the allowed hours in the Monthly limit field.

7. (Optional) If your ISP charges for extra data volume when you make a new connection, enter the extra data volume in MB in the Round up data volume for each connection by field.

8. In the Traffic Counter section, set the traffic counter to begin at a specific time and date.

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

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

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

   - The Internet LED blinks white or amber.

   - The Internet connection is disconnected and disabled.

10. Click the **Apply** button.

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

11. To update the Traffic Statistics section, click the **Refresh** button.

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

Diagnostics

You can perform diagnostics for the router. For normal operation, these tests are not required.

➢ **To run the diagnostics:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

    A login screen displays.

3. Enter the router user name and password.

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

    The BASIC Home screen displays.

4. Select **ADVANCED > Administration > Diagnostics**.

The following options are available:

- **Ping an IP address**. This test sends a ping packet request to the specified IP address. This procedure is often used to test a connection. If the request times out because no reply is received, this result usually means that the destination is unreachable. However, some network devices can be configured not to respond to a ping.

- **Perform a DNS Lookup**. A DNS (Domain Name Server) converts the Internet name (for example, www.netgear.com) to an IP address. If you need the IP address of a web, FTP, mail, or other server on the Internet, you can do a DNS lookup to find the IP address.

- **Display the Routing Table**. This operation displays the internal routing table. This information is used by technical support and other staff who understand routing tables.

- **Reboot the Router**. Use this button to perform a remote reboot (restart). You can reboot the router if it seems to have become unstable or is not operating normally.

  Rebooting disconnects any computers or devices that are connected to the network or using the network to access the Internet. Connections to the Internet are automatically reestablished when possible.

- **Save diagnostics information**. Use this button to view the diagnostics information.

Troubleshooting 9

This chapter provides information to help you diagnose and solve problems you might have with your router.

This chapter contains the following sections:

- *Troubleshoot with the LEDs*
- *Cannot Log In to the Router*
- *Problems with Date and Time*
- *Forgotten WiFi Password*
- *WiFi Connectivity*
- *Troubleshoot Your Network Using the Ping Utility*

Troubleshoot with the LEDs

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

After you turn on power to the router, the following sequence of events should occur:

1. The Power LED ⏻ lights amber within a few seconds, indicating that the self-test is running.
2. After about 30 seconds, verify the following:
   - The Power LED lights solid white.
   - The Internet LED is lit.

Power LED Is Off or Blinking

- Make sure that the power cord is securely connected to your router and that the power adapter is securely connected to a functioning power outlet.
- Check that you are using the 12 V DC, 2.5A power adapter that NETGEAR supplied for this product.
- If the Power LED blinks slowly and continuously, the router firmware is corrupted. This can happen if a firmware upgrade is interrupted, or if the router detects a problem with the firmware. If the error persists, you have a hardware problem.

Power LED Stays Amber

When the router is turned on, the Power LED lights amber for about 20 seconds and then lights white. If the LED does not turn white, the router has a problem.

If the Power LED is still amber one minute after you turn on power to the router:

1. Turn off the power and then turn it back on to see if the router recovers.
2. Press and hold the **Restore Factory Settings** button.

   The router returns to its factory settings.

   For more information, see *Troubleshoot Your Network Using the Ping Utility* on page 114.

LEDs Never Turn Off

When the router is turned on, the LEDs turn on for about 10 seconds and then turn off. If all the LEDs stay on, there is a fault within the router.

If all LEDs are still on one minute after power-up:

- Cycle the power to see if the router recovers.
- Press and hold the **Restore Factory Settings** button to return the router to its factory settings. For more information, see *Troubleshoot Your Network Using the Ping Utility* on page 114.

Internet LED Is Off

Check the following:

- Make sure that the Ethernet cable connections are secure at the router and at the modem.

- Make sure that power is turned on to the connected modem or computer.

- Be sure that you are using the correct cable.

   When connecting the router's Internet port to a modem, use the cable that was supplied with the modem. This cable could be a standard straight-through Ethernet cable or an Ethernet crossover cable.

WiFi LED Is Off

If the WiFi LED stays off, check to see if the WiFi On/Off button on the router has been pressed. This button turns the wireless radios in the router on and off. The WiFi LED is lit when the wireless radio is turned on.

Cannot Log In to the Router

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

- If you are using an Ethernet-connected computer, check the Ethernet connection between the computer and the router as described in the previous section.

- Make sure that the IP address of your computer is on the same subnet as the router. If you are using the recommended addressing scheme, your computer's address is in the range of 192.168.0.2 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 router, and reboot your computer.

- If your router's IP address was changed and you do not know the current IP address, clear the router's configuration to factory defaults. This sets the router's IP address to 192.168.0.1. For more information, see *Factory Settings* on page 133.

- 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.

- Make sure that you are using the correct login information. The login user name is **admin**, and the default password is **password**. Make sure that Caps Lock is off when you enter this information.

- Do not install your router as an additional router behind another router in your network. This network configuration is not supported.

- If you are attempting to set up your NETGEAR router as a replacement for an ADSL gateway in your network, the router cannot perform many gateway services. For example, the router cannot convert ADSL or cable data into Ethernet networking information. This network configuration is not supported.

Problems with Date and Time

The Email screen displays the current date and time of day. The router uses the Network Time Protocol (NTP) to obtain the current time from one of several network time servers on the Internet. Each entry in the log is stamped with the date and time of day. Problems with the date and time function can include the following:

- Date shown is January 1, 2000.

  Cause: The router has not yet successfully reached a network time server. Check that your Internet access settings are configured correctly. If you have just completed configuring the router, wait at least five minutes, and check the date and time again.

- Time is off by one hour.

  Cause: The router does not automatically sense daylight saving time. On the Email screen, select or clear the **Automatically adjust for daylight savings time** check box.

Forgotten WiFi Password

The default WiFi network name and password are on the product label. These settings are unique to your router, so you do not have to change them. If you did change the WiFi password and have forgotten it, you can use an Ethernet cable to connect a computer and log in to the router so you can view its WiFi settings.

➢ **To use an Ethernet connection to log in and view the WiFi settings:**

1. Use an Ethernet cable to connect a computer to a LAN Ethernet port on the router.
2. Launch an Internet browser from the computer.
3. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
4. Enter the router user name and password.

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

   The BASIC Home screen displays.
5. Select **Wireless**.

   The Wireless screen displays.
6. Scroll down to the Security Options section of the screen to view the wireless password.

WiFi Connectivity

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

- Does the wireless device or computer that you are using find your wireless network?

  If not, check the WiFi LED on the router. If it is off, you can press the **WiFi On/Off** button on the router to turn the router wireless radios back on.

  If you disabled the router's SSID broadcast, your wireless network is hidden and does not display in your wireless client's scanning list. (By default, SSID broadcast is enabled.)

- Does your wireless device support the security that you are using for your wireless network (WPA or WPA2)?

If your wireless device finds your network, but the signal strength is weak, check these conditions:

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

- Are objects between the router and your computer blocking the WiFi signal?

Troubleshoot Your Network Using the Ping Utility

Most network devices and routers contain a ping utility that sends an echo request packet to the designated device. The device then responds with an echo reply. You can easily troubleshoot a network by using the ping utility in your computer or workstation.

Test the LAN Path to Your Router

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

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

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

   ping www.routerlogin.net

3. Click the **OK** button.

   You 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 could 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 router and computer are connected to a separate Ethernet switch, make sure that the link LEDs are lit for the switch ports that are connected to your computer and router.

- Wrong network configuration.

  Verify that the Ethernet card driver software and TCP/IP software are both installed and configured on your computer.

  Verify that the IP address for your router and your computer are correct and that the addresses are on the same subnet.

Test the Path from Your Computer to a Remote Device

After verifying that the LAN path works correctly, test the path from your computer to a remote device.

1. From the Windows toolbar, select **Start > 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's DNS server.

If the path is functioning correctly, replies like those shown in the previous section are displayed.

If you do not receive replies:

- Check that your computer has the IP address of your router listed as the default gateway. If DHCP assigns the IP configuration of your computer, this information is not visible in your computer Network Control Panel. Verify that the IP address of the router is listed as the default gateway.

- Check to see that the network address of your computer (the portion of the IP address specified by the subnet mask) is different from the network address of the remote device.

- Check that your cable or DSL modem is connected and functioning.

- If your ISP assigned a host name to your computer, enter that host name as the account name in the Internet Setup screen.

- Your ISP could 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 this is the case, configure your router to "clone" or "spoof" the MAC address from the authorized computer.

Set Up an Ethernet WAN Internet Connection

10

In addition to using your router with a 4G LTE™ Internet connection as usual, you can set it up to use an Ethernet WAN connection to broadband Internet service. To use an Ethernet WAN connection, you need a broadband modem with Internet service (such as a broadband cable modem and an account with a cable modem ISP).

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

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

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

This chapter contains the following sections:

- *Cable a WAN Ethernet Internet Connection*
- *Advanced Internet Setup*
- *IPv6*
- *Troubleshoot an Ethernet WAN Internet Connection*

# Cable a WAN Ethernet Internet Connection

You can connect the router to a cable or DSL modem with an Ethernet cable and set up the router to use that modem's Internet service instead of the mobile service.

➢ **To install the router with an Ethernet Internet connection:**

1. Prepare your modem.

   a. Unplug your modem's power.

   b. If the modem has a battery backup, remove its batteries.

   c. If your modem was already connected to another router, disconnect the cable between your modem and that router.

   Make sure that your modem is turned off and is cabled only to the wall jack for your Internet service.

2. Connect your modem.

   a. Plug in, then turn on your modem. (Replace the batteries if you removed them.)

   b. Use an Ethernet cable to connect your modem to the Internet port of your router.

| Internet
port | Ethernet LAN
ports 1–4 | Power On/Off
button | Power adapter
connector |
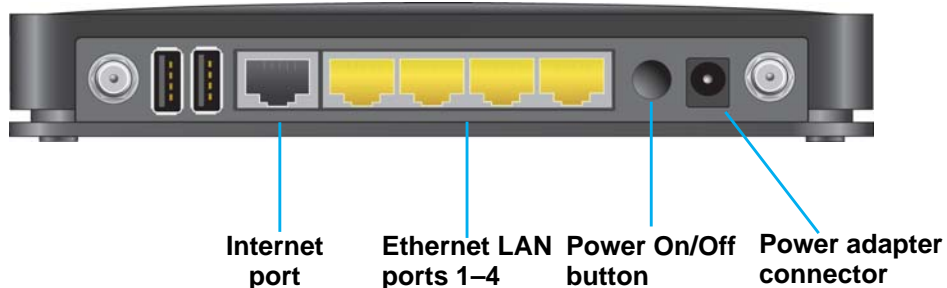
3. Connect the power adapter to the router, and plug the power adapter into an outlet.

4. If no LEDs are lit, press the **Power On/Off** button on the rear panel of the router.

   The Power LED ⏻ lights.

5. Connect a computer to the router.

   • For a WiFi connection, on your computer or wireless device, find and connect to the WiFi network name on the router label.

   • For a wired connection, use the included Ethernet cable to connect a computer to a yellow Ethernet LAN port on the rear panel of the router.

6. Launch an Internet browser.

7. In the address field, type **www.routerlogin.net** or **www.routerlogin.com**.

   A login screen displays.

8. Enter **admin** for the user name and **password** for the password.

   When the router connects to the Internet, the Internet LED lights white and the WAN LED lights.

Specify the Internet Connection Mode

If you want to change from using your 4G LTE™ Internet connection to an Ethernet WAN connection, you must change the router configuration either with the Internet Connection Setup Wizard or by logging in to the router and changing the Internet connection mode. For more information, see *Use the Internet Setup Wizard* on page 18.

➢ **To log in to the router and change the Internet connection mode:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

4. Select **ADVANCED > Setup > Broadband Settings**.

5. Select one of the following Internet connection methods:
   - Always use Mobile Broadband connection
   - Always use Ethernet connection

6. Click the **Apply** button.

   Your changes take effect.

Advanced Internet Setup

You can use the Advanced Internet Setup screen to specify the settings for your WAN Ethernet Internet service.

➢ **To change the Internet setup:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

The BASIC Home screen displays.

4. Select **ADVANCED > Setup > Internet Setup**.
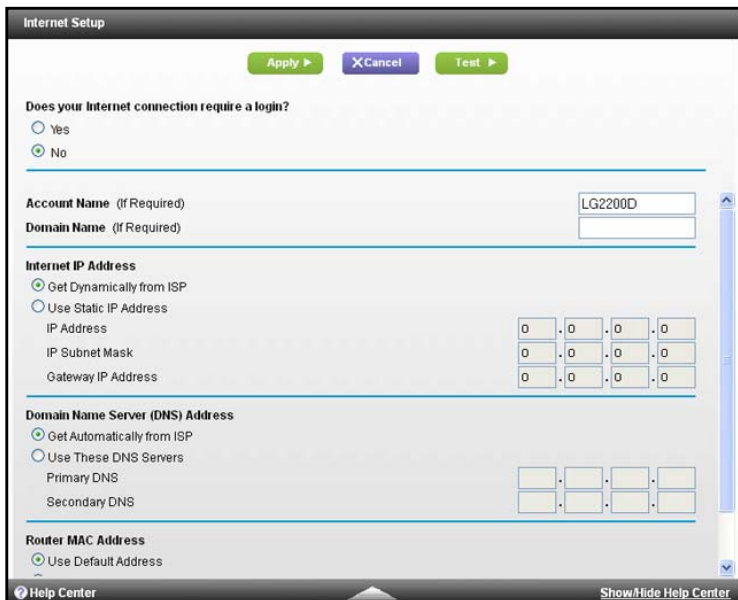
The fields that display depend on whether your Internet service requires a login.

5. Select the **Yes** or **No** radio button.
   - **Yes**. Select the encapsulation method and enter the login name. If you want to change the login time-out, enter a new value in minutes.
   - **No**. Enter the account and domain names, only if needed.

6. Enter the settings for the IP address and DNS server.

   The default settings usually work fine. If you have problems with your connection, check the ISP settings.

7. Click the **Apply** button.

   Your settings are saved.

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

   The NETGEAR website displays within one minute. For information about what to do if this does not occur, see *Troubleshoot an Ethernet WAN Internet Connection* on page 130.

The following descriptions explain all of the possible fields in the Internet Setup screen. The fields that display in this screen depend on whether an ISP login is required.

Does Your Internet connection require a login? Select the **Yes** or **No** radio button.

These fields display when no login is required:

- **Account Name (If required)**. Enter the account name provided by your ISP. This might also be called the host name.

- **Domain Name (If required)**. Enter the domain name provided by your ISP.

These fields display when your ISP requires a login:

- **Internet Service Provider**. PPPoE or PPPoA.

- **Login**. The login name provided by your ISP. This login name is often an email address.

- **Password**. The password that you use to log in to your ISP.

- **Service Name (if Required)**. If your ISP provided a service name, enter it here.

- **Connection Mode**. Always On, Dial on Demand, or Manually Connect.

- **Idle Timeout (In minutes)**. If you want to change the login time-out, enter a new value in minutes. This setting determines how long the router keeps the Internet connection active when there is no Internet activity from the LAN. A value of 0 (zero) means never log out.

Internet IP Address.

- **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 gateway IP address that your ISP assigned. The gateway is the ISP router to which your router connects.

Domain Name Server (DNS) Address. The DNS server is used to look up site addresses based on their names.

- **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.

NAT (Network Address Translation). NAT allows computers on your home network to share the router Internet connection. NAT is enabled by default because it is needed in most situations. The following settings are available:

- Enable

- Disable

Router MAC Address. The Ethernet MAC address that the router uses on the Internet port. Some ISPs register the MAC address of the network interface card in your computer when your account is first opened. They accept traffic only from the MAC address of that computer. This feature allows your router to use your computer's MAC address (also called cloning).

- **Use Default Address**. Use the default MAC address.

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

- **Use This MAC Address**. Enter the MAC address that you want to use.

IPv6

You can use this feature to set up an IPv6 Internet connection type if genie does not detect it automatically.

➢ **To set up an IPv6 Internet connection type:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.
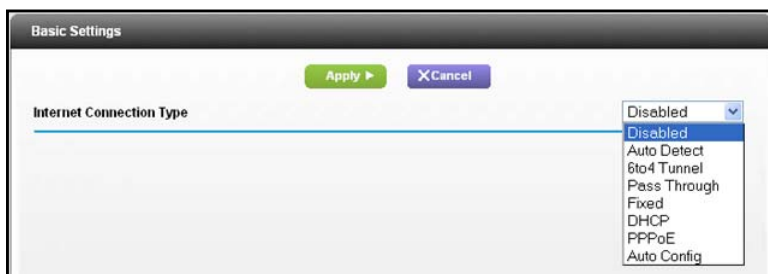
   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

5. In the Internet Connection Type list, select the IPv6 connection type.

   Your Internet service provider (ISP) can provide this information.

   - If your ISP did not provide details, you can select **IPv6 Tunnel**.

   - If you are not sure, select **Auto Detect** so that the router detects the IPv6 type that is in use.

   - If your Internet connection does not use PPPoE, DHCP, or fixed, but is IPv6, select **Auto Config**.

   For more information about Internet connection types, see the following sections.

6. Click the **Apply** button.

   Your changes take effect.

Requirements for Entering IPv6 Addresses

IPv6 addresses are denoted by eight groups of hexadecimal quartets that are separated by colons. Any four-digit group of zeros within an IPv6 address can be reduced to a single zero or altogether omitted.

The following errors invalidate an IPv6 address:

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

Auto Detect

➢ **To set up an IPv6 Internet connection through auto detection:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

   The IPv6 screen displays.

5. In the Internet Connection Type list, select **Auto Detect**.

   The screen adjusts:

   The router automatically detects the information in the following fields:

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

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

6. Specify how the 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.

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

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

8. Click the **Apply** button.

IPv6 Auto Config

➢ **To set up an IPv6 Internet connection through auto configuration:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

   The IPv6 screen displays.

5. In the Internet Connection Type list, select **Auto Config**.

The screen adjusts:

The router automatically detects the information in the following fields:

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

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

6. Specify how the 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.

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

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

8. Click the **Apply** button.

IPv6 6to4 Tunnel

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

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

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

   The IPv6 screen displays.

5. In the Internet Connection Type list, select **6to4 Tunnel**.

   The screen adjusts:

   The router automatically detects the information in the **Router's IPv6 Address On LAN** field.

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

6. Configure the remote 6to4 relay router settings by selecting one of the following buttons:
   - **Auto**. Your router uses any remote relay router that is available on the Internet. This is the default setting.
   - **Static IP Address**. Enter the static IPv4 address of the remote relay router. This address is usually provided by your IPv6 ISP.

7. Specify how the 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.

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

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

9. Click the **Apply** button.

IPv6 Pass Through

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

➢ **To set up a pass-through IPv6 Internet connection:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

   The IPv6 screen displays.

5. In the Internet Connection Type list, select **Pass Through**.

   The screen adjusts, but no additional fields display.

6. Click the **Apply** button.

IPv6 Fixed

➢ **To set up a fixed IPv6 Internet connection:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

The IPv6 screen displays.

5. In the Internet Connection type list, select **Fixed**.

The screen adjusts:

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

    •   **IPv6 Address/Prefix Length**. The IPv6 address and prefix length of the router WAN interface.

    •   **Default IPv6 Gateway**. The IPv6 address of the default IPv6 gateway for the router's WAN interface.

    •   **Primary DNS Server**. The primary DNS server that resolves IPv6 domain name records for the router.

    •   **Secondary DNS Server**. The secondary DNS server that resolves IPv6 domain name records for the router.

    Note: If you do not specify the DNS servers, the router uses the DNS servers that are configured for the IPv4 Internet connection on the Internet Setup screen.

7. Specify how the 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 DHCPv6 client function.

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

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

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

9. Click the **Apply** button.

IPv6 DHCP

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

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

   The IPv6 screen displays.

5. In the Internet Connection Type list, select **DHCP**.

   The screen adjusts:

The router automatically detects the information in the following fields:

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

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

6. Specify how the 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.

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

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

8. Click the **Apply** button.

IPv6 PPPoE

➢ **To set up a PPPoE IPv6 Internet connection:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Enter **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

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

   The BASIC Home screen displays.

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

   The IPv6 screen displays.

5. In the Internet Connection Type list, select **PPPoE**.

   The screen adjusts:

The router automatically detects the information in the following fields:

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

6. In the **Password** field, enter the password for the ISP connection.

7. In the **Service Name** field, enter a service name.

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

   Note: The default setting of the Connection Mode field is Always On to provide a steady IPv6 connection. The router never terminates the connection. If the connection is terminated, for example, when the modem is turned off, the router attempts to reestablish the connection immediately after the PPPoE connection becomes available again.

8. Specify how the 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.

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

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

10. Click the **Apply** button.

Troubleshoot an Ethernet WAN Internet Connection

Check these possible sources of trouble if you are having difficulty connecting to or browsing the Internet.

Connect to the Internet

If you cannot connect to Internet, check the following:

1. The Internet account is active.

   If your ISP has provided you with a SIM card and you have not inserted it into the SIM card slot on the router yet, do so now. For more information, see *Attach the Antennas* on page 11.

2. Wireless broadband coverage is available where the unit is located.

3. Log in to the router and verify that the broadband settings are correct. Check with your ISP if you are unsure.

4. Check the location of the router.

   a. Move the router closer to a window for better access to the Internet signal. A Signal Quality LED that is off indicates no coverage.

   b. Maintain recommended minimum distances between NETGEAR equipment and household appliances to reduce interference.

5. Adjust the antenna positions.

Troubleshoot Internet Browsing

If your router can obtain an IP address but your computer is unable to load any web pages from the Internet:

- The traffic meter is enabled, and the limit might have been reached.

   By configuring the traffic meter not to block, you can resume Internet access. If you have a usage limit, your ISP might charge you for the overage.

- Your computer might not recognize any DNS server addresses.

   A DNS server is a host on the Internet that translates Internet names (such as www addresses) to numeric IP addresses. Typically your ISP provides the addresses of one or two DNS servers for your use. If you entered a DNS address during the router's configuration, reboot your computer and verify the DNS address. Alternatively, you can configure your computer manually with DNS addresses, as explained in your operating system documentation.

- Your computer might not have the router configured as its TCP/IP router.

   If your computer obtains its information from the router by DHCP, computer, and verify the router address.

Supplemental Information

A

This appendix covers the following topics:

- *Factory Settings*
- *Technical Specifications*

Factory Settings

You can return the router to its factory settings. Use the end of a paper clip or a similar object to press and hold the **Restore Factory Settings** button on the bottom of the router for at least seven seconds. The router resets, and returns to the factory configuration settings shown in the following table.

Table 3. Factory default settings

Feature		Default behavior
Router login	User login URL	www.routerlogin.com
	User name (case-sensitive)	admin
	Login password (case-sensitive)	password
Internet connection	WAN MAC address	Use default hardware address
	WAN MTU size	1500
	Port speed	AutoSensing
Local network (LAN)	LAN IP	192.168.0.1
	Subnet mask	255.255.255.0
	DHCP server	Enabled
	DHCP range	192.168.0.2 to 192.168.0.254
	DHCP starting IP address	192.168.0.2
	DHCP ending IP address	192.168.0.254
	DMZ	Disabled
	Time zone	Pacific Time for North America
	Daylight saving time adjustment	Disabled
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)
	Source MAC filtering	Disabled
Mobile broadband	Internet service provider	U.S. Cellular®
	APN	usccinternet
	Access Number	*99#
	PDP type	IPV4V6
	User name	None

Table 3. Factory default settings (continued)

Feature		Default behavior
WiFi	Wireless communication	Enabled
	SSID name	For more information, seeFor more information, seeFor more information, see router label
	Security	WPA2-PSK (AES)
	Broadcast SSID	Enabled
	Transmission speed	Auto[1]
	Country/region	North America
	RF channel	Auto
	Operating mode	Up to 300 Mbps
	Data rate	Best
	Output power	Full
	Access point	Enabled
	Authentication type	Open system
	Wireless card access list	All wireless stations allowed

1. Maximum wireless signal rate derived from IEEE Standard 802.11 specifications. Actual throughput can vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate.

Technical Specifications

Table 4. LG2200D Router specifications

Feature	Description
Data and routing protocols	TCP/IP, RIP-1, RIP-2, DHCP, PPPoE, PPTP, Bigpond, Dynamic DNS, UPnP, and SMB
Power adapter	North America: 120V, 60 Hz, input 12 V DC @ 2.5A, output
Dimensions	Without antennas:172.7 mm x 24.6 mm x 132.4 mm With antennas: 172.7 mm x 226.5 mm x 163.5 mm
Weight	Without antennas: 325 g With antennas: 380 g
Operating temperature	0° to 40° C (32º to 104º F)
Operating humidity	90% maximum relative humidity, noncondensing
Electromagnetic emissions	N/A
LAN	10BASE-T or 100BASE-TX or 1000BASE-T, RJ-45
WAN	10BASE-T or 100BASE-TX or 1000BASE-T, RJ-45
Wireless	Maximum wireless signal rate complies with the IEEE 802.11 standard. For more information, 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, 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	2.412–2.462 GHz (US) 2.412–2.472 GHz (Japan) 2.412–2.472 GHz (Europe ETSI)
802.11 security	WPA-PSK, WPA2-PSK, and WPA/WPA2

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