# NETGEAR®

# Orbi
# High–Performance AC3000
# Tri-band WiFi System

## User Manual

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USA

## Support

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

## Conformity

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

## Compliance

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

See the regulatory compliance document before connecting the power supply.

## Trademarks

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# Overview

# 1

The Orbi™ High-Performance AC3000 Tri-band WiFi System creates dedicated high-speed WiFi connections to your Internet service. The Orbi system includes a router and a satellite. The router connects to your modem or gateway. The satellite extends the WiFi signal throughout your home.

This chapter contains the following sections:

- *Orbi Router and Satellite Overview*
- *LED Behavior*
- *Connect Your Router*
- *Place Your Satellite*

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

# Orbi Router and Satellite Overview

The top of the Orbi router is blue. The top of the Orbi satellite is white.
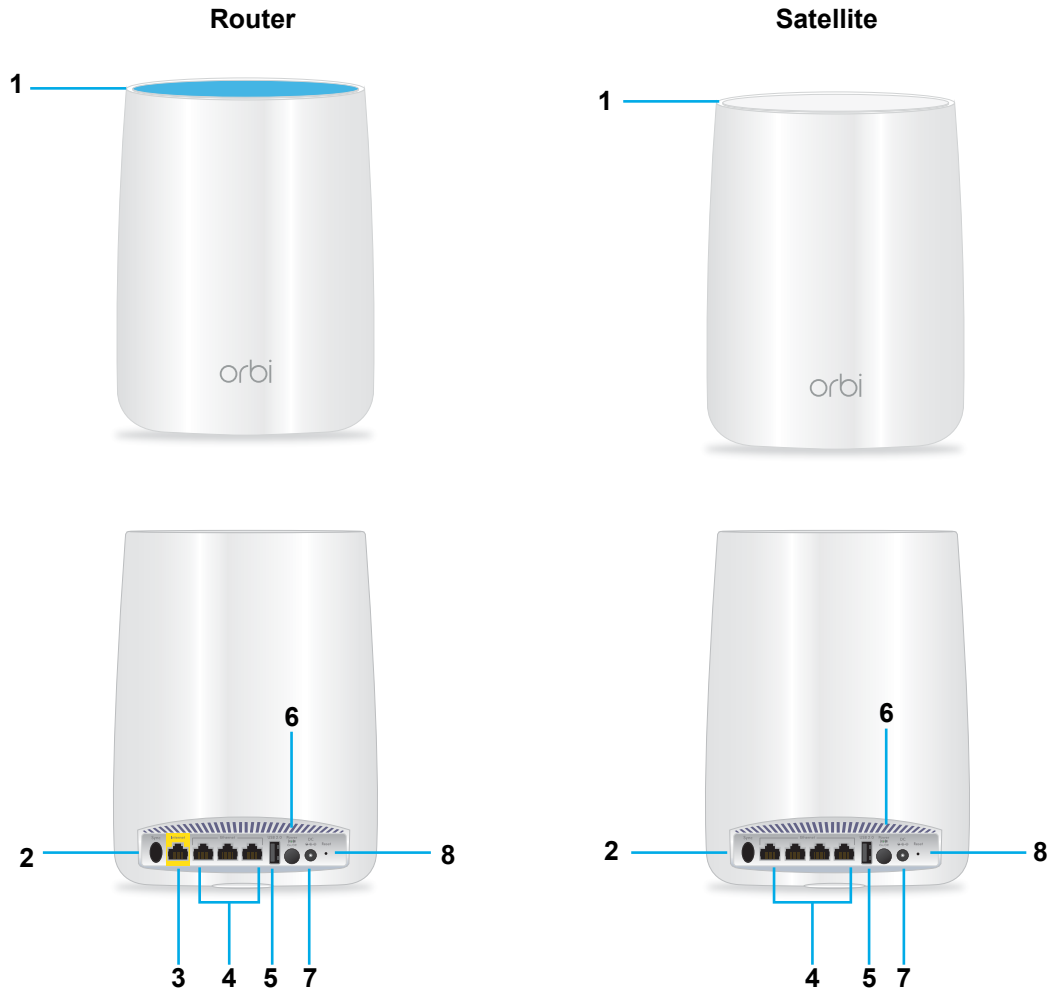
**Router**    **Satellite**



**Figure 1. Orbi router and satellite, front and back views**

1. Ring LED (not shown in image)

2. **Sync** button (also used for WPS connection)

3. Internet port (the Orbi satellite does not include an Internet port)

4. Ethernet ports

5. USB port

6. **Power On/Off** button and Power LED

7. DC Power connector

8. **Reset** button

# LED Behavior

The following table describes the Orbi LED behavior.

**Table 1.  LED descriptions**

| LED | LED behavior |
|-----|--------------|
| Power | The Power LED is located above the **Power On/Off** button on the rear panel.<br>• **Solid green**.Power is on.<br>• **Solid amber**. The router or satellite is rebooting.<br>• **Blinking amber**. Resetting to factory default settings.<br>• **Blinking red**. The firmware is corrupted.<br>• **Off**. Power is not supplied. |
| Router ring | The ring LED is located on the top.<br>• **Solid white**. The router is booting.<br>• **Off**. The router finished booting and is working normally.<br>• **Blinking white**. The router is resetting to factory settings.<br>• **Blinking amber**. The router cannot connect to the Internet. See *Cannot Access the Internet* on page 100.<br>• **Blinking blue and magenta**. The Internet connection is blocked because you set up Internet traffic metering and reached the maximum allowed amount of Internet traffic. |
| Satellite ring | The ring LED is located on the top.<br>• **Solid white**. The satellite is booting.<br>• **Off**. The satellite finished booting and is working normally.<br>• **Blue for 10 seconds**. The connection between the router and the satellite is good.<br>• **Amber for 10 seconds**. The connection between the router and the satellite is fair.<br>• **Blinking magenta**. The satellite is not connected to the router.<br>• **Magenta for 10 seconds**. The satellite cannot get an IP address from the router. |
| Router ring and satellite ring during sync | The ring LEDs are located on the top.<br>• **Blinking white**. The **Sync** button was pressed.<br>• **Blue for 3 seconds**.The sync between the router and satellite succeeded.<br>• **Magenta for 3 seconds**. The router and satellite failed to sync. See *The Router and Satellite Do Not Sync* on page 99. |

# Connect Your Router

➢ **To cable your router:**

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

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

2. Plug in and turn on your modem.

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

3. Connect your modem to the Internet port of your router with the yellow Ethernet cable that came with your router.



4. Connect the power adapter to your router and plug the power adapter into an outlet.
5. If the Power LED does not light, press the **Power On/Off** button on the rear panel of the router.

# Place Your Satellite

We recommend that you place your satellite in the middle of your home.



**Figure 2. Single-story house with the Orbi satellite placed in the center**
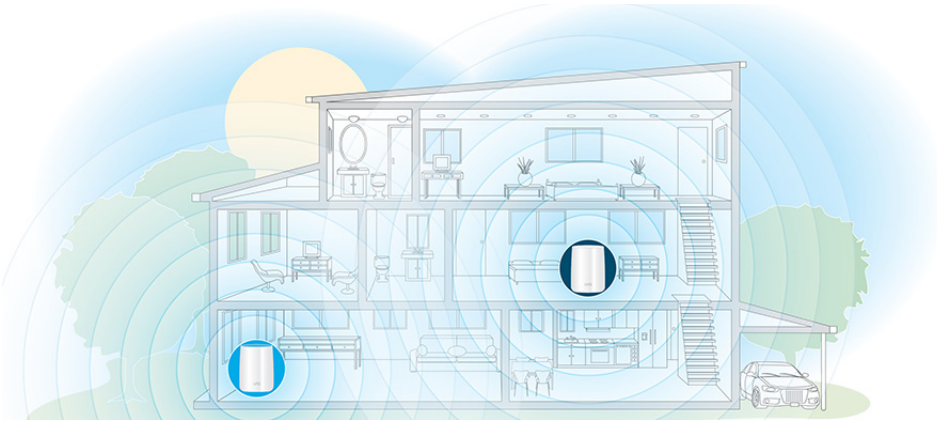
**Figure 3. Multilevel house with the Orbi satellite placed upstairs**

➢ **To place your satellite:**

1. Place the satellite in the middle of your house.

   This location delivers the best WiFi coverage.

2. Connect the satellite to a power source.

3. If the Power LED on the back of the satellite does not light, press the **Power On/Off** button.

4. Wait for the satellite's ring LED to light solid white, then pulse white, and then pulse magenta.

   The satellite's ring LED might pulse magenta for up to one minute while the satellite attempts to sync with the Orbi router.

   After the satellite's ring LED pulses magenta, it lights one of the following colors for 10 seconds and then turns off:

   • **Solid blue**. The connection between the router and the satellite is good.

   • **Solid amber**. The connection between the router and the satellite is fair. Consider moving the satellite closer to the router.

   • **Solid magenta**. The satellite cannot connect to the router. Move the satellite closer to the router.

5. If the satellite's ring LED is still pulsing magenta after about one minute, and you already moved the satellite closer to the router, press the **Sync** button on the back of the router and on the back of the satellite.

   If the Orbi satellite syncs with the router, the satellite's ring LED pulses white, then lights solid blue to indicate a good connection, and then turns off.

# Connect to the Network and Access the Router

# 2

This chapter contains the following sections:

- *Connect to the Network*
- *Types of Logins*
- *Use a Web Browser to Access the Router*
- *Change the Language*
- *Access the Router With NETGEAR genie App*

# Connect to the Network

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

## Wired Connection

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

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

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

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

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

   The WiFi network name is on the router label. The WiFi network name is the same for the router and the satellite in the Orbi kit.

   **Note:** If you bought the router and the satellite separately, their default WiFi network names are different.

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

   The password is on the router label.

   Your WiFi-enabled computer or mobile device connects to the WiFi network.

## WiFi Connection Using WPS

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

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

1. Make sure that the router is receiving power (its Power LED is lit).
2. Check the WPS instructions for your computer or WiFi device.
3. Press the **Sync** button on the router.

4. Within two minutes, on your WiFi-enabled computer or mobile device, press its **WPS** button or follow its instructions for WPS connections.

   Your computer or mobile device connects to the WiFi network.

## Labels

The router label shows the login information, the WiFi network name and password, the router's MAC address, and the router's serial number.
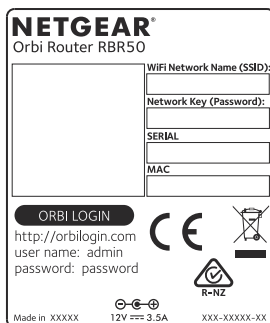


**Figure 4. Router label**

The label on the satellite shows the WiFi network name and password, the satellite's MAC address, and the satellite's serial number.
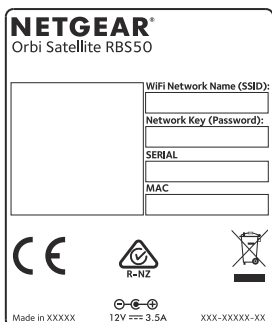


**Figure 5. Satellite label**

# Types of Logins

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

Types of logins:

* **Internet service login**. The login that your Internet service provider (ISP) gave you logs you in to your Internet service. Your service provider gave you this login information in a letter or some other way. If you cannot find this login information, contact your service provider.

- **WiFi network key or password**. Your router and satellite are preset with the same WiFi network name (SSID) and password for WiFi access. This information is on the router label and the satellite label.

- **Router login**. This logs you in to the router interface from a web browser as admin.

# Use a Web Browser to Access the Router

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

## Automatic Internet Setup

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

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

- The ISP configuration information for your DSL account

- ISP login name and password

- Fixed or static IP address 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.

Installation and basic setup takes about 15 minutes to complete.

➢ **To automatically set up your router:**

1. Turn the router on by pressing the **On/Off** button.

2. Make sure that your WiFi-enabled computer or mobile device is connected to the router with an Ethernet cable (wired) or wirelessly with the preset security settings listed on the label.

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

3. Launch a web browser.

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

   - The first time that you set up the Internet connection for your router, the browser goes to **orbilogin.com**, and the Orbi login page displays.

- If you already set up the Internet connection, enter **orbilogin.com** in the address field for your browser to start the installation process.

4. Follow the onscreen instructions.

   The router connects to the Internet.

5. If the browser does not display the web page, do the following:
   - Make sure that the computer is connected to one of the four LAN Ethernet ports or over WiFi to the router.
   - Make sure that the router is receiving power, and that its Power LED is lit.
   - Close and reopen the browser or clear the browser cache.
   - Browse to **orbilogin.com.**
   - If the computer is set to a static or fixed IP address (this setting is uncommon), change it to obtain an IP address automatically from the router.

6. If the router does not connect to the Internet, do the following:
   a. Review your settings.

      Make sure that you selected the correct options and typed everything correctly.

   b. Contact your ISP to verify that you are using the correct configuration information.
   c. Read *Chapter 14, Troubleshooting*.

      If problems persist, register your NETGEAR product and contact NETGEAR technical support.

## Log In to the Router

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

➢ **To log in to the router:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.
2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

# Change the Language

By default, the language is set as Auto.

➢ **To change the language:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

4. In the upper right corner, select a language from the menu.

5. When prompted, click the **OK** button to confirm this change.

   The page refreshes with the language that you selected.

# Access the Router With NETGEAR genie App

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

- Automatically repair common WiFi network problems.

- Easily manage router features like Live Parental Controls, Internet traffic meter, speed test, and more.

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

1. Visit the NETGEAR genie web page at *NETGEAR.com/genie*.

2. Follow the onscreen instructions to install the app on your smartphone, tablet, or computer.

3. Launch the genie app.

   The genie app dashboard page displays.

# Specify Your Internet Settings

# 3

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

This chapter contains the following sections:

- *Use the Internet Setup Wizard*
- *Manually Set Up the Internet Connection*
- *Specify IPv6 Internet Connections*
- *Change the MTU Size*

# 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 a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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

   

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

   If you select **No**, you are taken to the Internet Setup page (see *Manually Set Up the Internet Connection* on page 19).

6. Click the **Next** button.

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

# Manually Set Up the Internet Connection

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

## Specify an Internet Connection Without a Login

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

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

4. Select **Internet**.



5. Leave the Does your Internet connection require a login **No** radio button selected.

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

7. If your Internet connection requires a domain name, type it in the **Domain Name (If Required)** field.

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

8. Select an Internet IP Address radio button:
   • **Get Dynamically from ISP**. Your ISP uses DHCP to assign your IP address. Your ISP automatically assigns these addresses.
   • **Use Static IP Address**. Enter the IP address, IP subnet mask, and the gateway IP address that your ISP assigned. The gateway is the ISP router to which your router connects.

9. Select a Domain Name Server (DNS) Address radio button:
   • **Get Automatically from ISP**. Your ISP uses DHCP to assign your DNS servers. Your ISP automatically assigns this address.
   • **Use These DNS Servers**. If you know that your ISP requires specific servers, select this option. Enter the IP address of your ISP's primary DNS server. If a secondary DNS server address is available, enter it also.

10. Select a Router MAC Address radio button:
    • **Use Default Address**. Use the default MAC address.
    • **Use Computer MAC Address**. The router captures and uses the MAC address of the computer that you are now using. You must use the one computer that the ISP allows.
    • **Use This MAC Address**. Enter the MAC address that you want to use.

11. Click the **Apply** button.

    Your settings are saved.

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

    If the NETGEAR website does not display within one minute, see *Chapter 14, Troubleshooting*.

## Specify an Internet Connection That Uses a Login

➢ **To view or change the basic Internet setup:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.
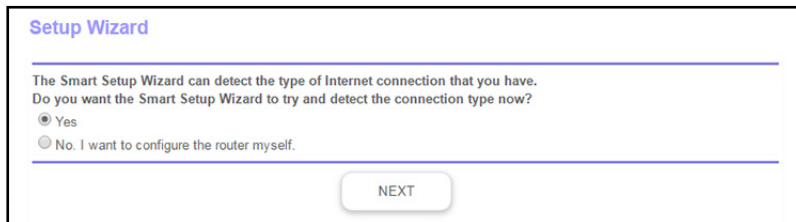2. Enter **orbilogin.com**.

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

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

   The BASIC Home page displays.

4.  Select **Internet**.



5.  Select the Does your Internet connection require a login **Yes** radio button.

    The page adjusts.

6.  From the **Internet Service Provider** menu, select the encapsulation method:

    The selections are **PPPoE**, **PPTP**, or **L2TP**.

7.  In the **Login** field, enter the login name your ISP gave you.

    This login name is often an email address.

8.  In the **Password** field, type the password that you use to log in to your Internet service.

9.  If your ISP requires a service name, type it in the **Service Name (if Required)** field.

10. From the **Connection Mode** menu, select **Always On**, **Dial on Demand**, or **Manually Connect**.

11. To change the number of minutes until the Internet login time out, in the **Idle Timeout (In minutes)** field, type the number of minutes.

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

12. Select an Internet IP Address radio button:

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

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

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

    • **Get Automatically from ISP**. Your ISP uses DHCP to assign your DNS servers. Your ISP automatically assigns this address.

- **Use These DNS Servers**. If you know that your ISP requires specific servers, select this option. Enter the IP address of your ISP's primary DNS server. If a secondary DNS server address is available, enter it also.

14. Select a Router MAC Address radio button:

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

15. Click the **Apply** button.

Your settings are saved.

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

If the NETGEAR website does not display within one minute, see *Chapter 14, Troubleshooting*.

# Specify IPv6 Internet Connections

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

➢ **To set up an IPv6 Internet connection:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

A login window opens.

3. Enter the router user name and password.

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

The BASIC Home page displays.

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

The IPv6 page displays.

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

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

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

6.  Click the **Apply** button.

    Your settings are saved.

## Requirements for Entering IPv6 Addresses

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

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

## Use Auto Detect for an IPv6 Internet Connection

> **To set up an IPv6 Internet connection through auto detection:**

1.  Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2.  Enter **orbilogin.com**.

    A login window opens.

3.  Enter the router user name and password.

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

    The BASIC Home page displays.

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

    The IPv6 page displays.

**5.** From the **Internet Connection Type** menu, select **Auto Detect**.



The router automatically detects the information in the following fields:

- **Connection Type**. This field indicates the connection type that is detected.

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

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

**6.** Select an IP Address Assignment radio button:

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

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

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

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

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

**8.** Click the **Apply** button.

Your settings are saved.

# Use Auto Config for an IPV6 Internet Connection

➢ **To set up an IPv6 Internet connection through auto configuration:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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

   The IPv6 page displays.

5. From the **Internet Connection Type** menu, select **Auto Config**.



The router automatically detects the information in the following fields:

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

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

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

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

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

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

8. Select an IP Address Assignment radio button:

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

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

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.

Your settings are saved.

# Set Up an IPv6 6rd Tunnel Internet Connection

The 6rd protocol makes it possible to deploy IPv6 to sites using a service provider's IPv4 network. 6rd uses the service provider's own IPv6 address prefix. This limits the operational domain of 6rd to the service provider's network and is under direct control of the service provider. The IPv6 service provided is equivalent to native IPv6. The 6rd mechanism relies on an algorithmic mapping between the IPv6 and IPv4 addresses that are assigned for use within the service provider's network. This mapping allows for automatic determination of IPv4 tunnel endpoints from IPv6 prefixes, allowing stateless operation of 6rd.

With a 6rd Tunnel configuration, the router follows the RFC5969 standard, supporting two ways to establish a 6rd tunnel IPv6 WAN connection:

• **Auto Detect Mode**. In IPv6 Auto Detect mode, when the router receives option 212 from the DHCPv4 option, auto detect selects the IPv6 as 6rd Tunnel setting. The router uses the 6rd option information to establish the 6rd connection.

• **Manual Mode**. Select **6rd**. If the router receives option 212, the fields are automatically completed. Otherwise, you must enter the 6rd settings.

➢ **To set up an IPv6 6rd Tunnel Internet connection:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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

   The IPv6 page displays.

5. In the **Internet Connection Type** menu, select **6rd**.



The router automatically detects the information in the following sections:

- **6rd (IPv6 Rapid Development) Configuration.** The router detects the service provider's IPv4 network and attempts to establish an IPv6 6rd Tunnel connection. If the IPv4 network returns 6rd parameters to the router, the page adjusts to display the correct settings in this section.

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

6. Select an IPv6 Domain Name Server (DNS) Address radio button:
   - **Get Automatically from ISP**. Your ISP uses DHCP to assign your DNS servers. Your ISP automatically assigns this address.
   - **Use These DNS Servers**. If you know that your ISP requires specific servers, select this option. Enter the IP address of your ISP's primary DNS server. If a secondary DNS server address is available, enter it also.

7. Select an IP Address Assignment radio button:
   - **Use DHCP Server**. This method passes more information to LAN devices, but some IPv6 systems might not support the DHCv6 client function.
   - **Auto Config**. This is the default setting.

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

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.

Your settings are saved.

## Set Up an IPv6 6to4 Tunnel Internet Connection

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

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

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

A login window opens.

3. Enter the router user name and password.

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

The BASIC Home page displays.

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

The IPv6 page displays.

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



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

6. Select a Remote 6to4 Relay Router radio button:
   - **Auto**. Your router uses any remote relay router that is available on the Internet. This is the default setting.
   - **Static IP Address**. Enter the static IPv4 address of the remote relay router. Your IPv6 ISP usually provides this address.

7. Select an IPv6 Domain Name Server (DNS Address) radio button:
   - **Get Automatically from ISP**. Your ISP uses DHCP to assign your DNS servers. Your ISP automatically assigns this address.
   - **Use These DNS Servers**. If you know that your ISP requires specific servers, select this option. Enter the IP address of your ISP's primary DNS server. If a secondary DNS server address is available, enter it also.

8. Select an IP Address Assignment radio button:
   - **Use DHCP Server**. This method passes more information to LAN devices, but some IPv6 systems might not support the DHCPv6 client function.
   - **Auto Config**. This is the default setting.

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

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.

Your settings are saved.

## Set Up an IPv6 Pass Through Internet Connection

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

➢ **To set up a pass-through IPv6 Internet connection:**

**1.** Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

**2.** Enter **orbilogin.com**.

A login window opens.

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

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

The BASIC Home page displays.

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

The IPv6 page displays.

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

The page adjusts, but no additional fields display.

**6.** Click the **Apply** button.

Your settings are saved.

## Set Up an IPv6 Fixed Internet Connection

➢ **To set up a fixed IPv6 Internet connection:**

**1.** Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

**2.** Enter **orbilogin.com**.

A login window opens.

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

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

The BASIC Home page displays.

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

The IPv6 page displays.

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



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

   - **IPv6 Address/Prefix Length**. The IPv6 address and prefix length of the router WAN interface.

   - **Default IPv6 Gateway**. The IPv6 address of the default IPv6 gateway for the router's WAN interface.

   - **Primary DNS Server**. The primary DNS server that resolves IPv6 domain name records for the router.

   - **Secondary DNS Server**. The secondary DNS server that resolves IPv6 domain name records for the router.

   **Note:** If you do not specify the DNS servers, the router uses the DNS servers that are configured for the IPv4 Internet connection on the Internet Setup page. (See *Manually Set Up the Internet Connection* on page 19.)

7. Select an IP Address Assignment radio button:

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

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

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

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

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

9. Click the **Apply** button.

   Your settings are saved.

## Set Up an IPv6 DHCP Internet Connection

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

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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

   The IPv6 page displays.

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



The router automatically detects the information in the following fields:

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

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

6. Select an IPv6 Domain Name Server (DNS) Address radio button:

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

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

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

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

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

9. Select an IP Address Assignment radio button::
   - **Use DHCP Server**. This method passes more information to LAN devices, but some IPv6 systems might not support the DHCv6 client function.
   - **Auto Config**. This is the default setting.

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

10. (Optional) Select the **Use This Interface ID** check box and specify the interface ID 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.

11. Click the **Apply** button.

    Your settings are saved.

## Set Up an IPv6 PPPoE Internet Connection

➢ **To set up a PPPoE IPv6 Internet connection:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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

   The IPv6 page displays.

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



   The router automatically detects the information in the following fields:

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

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

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

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

7. In the **Password** field, enter the password for the ISP connection.

8. In the **Service Name** field, enter a service name.

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

   **Note:** The default setting of the **Connection Mode** 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.

9. Select an IPv6 Domain Name Server (DNS) Address radio button:

  - **Get Automatically from ISP**. Your ISP uses DHCP to assign your DNS servers. Your ISP automatically assigns this address.

  - **Use These DNS Servers**. If you know that your ISP requires specific servers, select this option. Enter the IP address of your ISP's primary DNS server. If a secondary DNS server address is available, enter it also.

10. (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.

11. Click the **Apply** button.

  Your settings are saved.

# Change the MTU Size

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

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

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

  - A secure website that does not open, or displays only part of a web page

  - Yahoo email

  - MSN portal

  - America Online's DSL service

- You use VPN and experience severe performance problems.

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

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

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➢ **To change the MTU size:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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

   The WAN Setup page displays.

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

6. Click the **Apply** button.

   Your settings are saved.

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

**Table 2.  Common MTU sizes**

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

# 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:

- *Set Up Parental Controls*
- *Allow or Block Access to Your Network*
- *Use Keywords to Block Internet Sites*
- *Block Services From the Internet*
- *Manage Network Access Control Lists*
- *Schedule When to Block Internet Sites and Services*
- *Set Up Security Event Email Notifications*

# Set Up Parental Controls

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

After you set up and enable parental controls, you can change the web filtering level for each device on the network through the network map page on the genie app.

➢ **To set up Parental Controls:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

4. Select **Parental Controls**.

   The Live Parental Controls website opens.

5. Click the button for the app or version that you want to download and use.

6. Follow the onscreen instructions to download and install the genie app.

7. Open the genie app and select **Parental Controls**.

   After installation, Live Parental Controls automatically starts.

8. Click the **Next** button, read the note, and click the **Next** button again to proceed.

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

   **Setting up Live Parental Controls**
   Welcome, this setup wizard will quickly configure NETGEAR Live Parental Controls Powered by OpenDNS on your NETGEAR router.
   In order to use Live Parental Controls, you need a free OpenDNS account. Do you already have one?

   ⦿ Yes, use my existing OpenDNS account.
   ⦾ No, I need to create a free OpenDNS account.

9. Select a radio button as follows:

   • If you already own an OpenDNS account, leave the **Yes** radio button selected.

   • If you do not own an OpenDNS account, select the **No** radio button.

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

a. Complete the fields.

b. Click the **Next** button.

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

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

The Setup is complete.

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

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

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

# Allow or Block Access to Your Network

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

➢ **To set up access control:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

A login window opens.

3. Enter the router user name and password.

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

The BASIC Home page displays.

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

The Access Control page displays.

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

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

6. Select an access rule:

   • **Allow all new devices to connect**. With this setting, if you buy a new device, it can access your network. You don't need to enter its MAC address on this page. We recommend that you leave this radio button selected.

   • **Block all new devices from connecting**. With this setting, if you buy a new device, before it can access your network, you must enter its MAC address for an Ethernet connection and its MAC address for a WiFi connection in the allowed list.

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

7. To allow the computer or device you're currently using to continue to access the network, select the check box next to your computer or device, and click the **Allow** button.

8. To view a list of allowed or blocked devices that are not connected, click one of the following links:

   • **View list of allowed devices not currently connected to the network**

   • **View list of blocked devices not currently connected to the network**

   The list displays.

9. Click the **Apply** button.

   Your settings are saved.

# Use Keywords to Block Internet Sites

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

➢ **To block Internet sites:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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



5. Select a keyword blocking option:
   - **Per Schedule**. Turn on keyword blocking according to a schedule that you set. (See *Schedule When to Block Internet Sites and Services* on page 44.)
   - **Always**. Turn on keyword blocking all the time, independent of the Schedule page.

6. In the **Type keyword or domain name here** field, enter a keyword or domain that you want to block.

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

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

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

8. Click the **Apply** button.

   Keyword blocking takes effect.

## Delete Keywords

➢ **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.

   Your settings are saved.

## Avoid Blocking on a Trusted Computer

You can exempt one trusted computer from blocking. The computer that you exempt must be assigned a fixed IP address. You can use the reserved IP address feature to specify the IP address. See *Reserve LAN IP Addresses* on page 125.

➢ **To specify a trusted computer:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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

   The Block Sites page displays.

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 settings are saved.

## Block Services From the Internet

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

➢ **To block services:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

The BASIC Home page displays.

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

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

     For information about how to specify the schedule, see *Schedule When to Block Internet Sites and Services* on page 44.

6. Click the **Add** button.



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

   The settings for this service automatically display in the fields.

8. To add a service or application that is not the list, select **User Defined.**

   a. If you know that the application uses either TCP or UDP, select the appropriate protocol.

      Otherwise, select **TCP/UDP (both)**.

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

9. To specify how to filter the services, select one of the following radio buttons:
   - **Only This IP Address**. Block services for a single computer.
   - **IP Address Range**. Block services for a range of computers with consecutive IP addresses on your network.
   - **All IP Addresses**. Block services for all computers on your network.

**10.** Click the **Add** button.

Your settings are saved.

# Manage Network Access Control Lists

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

➢ **To manage devices that are allowed or blocked:**

**1.** Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

**2.** Enter **orbilogin.com**.

A login window opens.

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

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

The BASIC Home page displays.

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

The Access Control page displays.

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

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

The list displays.

**7.** Select the check box for a device.

**8.** Use the **Add** button, **Edit** button, and **Remove from the** list button as needed.

**9.** Click the **Apply** button.

Your settings are saved.

# Schedule When to Block Internet Sites and Services

When you schedule blocking, the same schedule is used to block sites and to block services. For information about how to specify what you want the router to block, see *Use Keywords to Block Internet Sites* on page 40 and *Avoid Blocking on a Trusted Computer* on page 42.

➢ **To schedule blocking:**

**1.** Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

**2.** Enter **orbilogin.com**.

A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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

5. Specify when to block keywords and services:

   • **Days to Block**. Select the check box for each day that you want to block the keywords or select the **Every Day** check box, which automatically selects the check boxes for all days.

   • **Time of Day to Block**. Select a start and end time in 24-hour format, or select **All Day** for 24-hour blocking.

6. Select your time zone from the list.

7. If you live in a region that observes daylight saving time, select the **Automatically adjust for daylight savings time** check box.

8. Click the **Apply** button.

   Your settings are saved.

# Set Up Security Event Email Notifications

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

➢ **To set up email notifications:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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



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

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

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

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

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

8. In the **Outgoing Mail Server Port Number** field, enter your mail server's port number.

   You might be able to find this information in the configuration window of your email program.

9. If your outgoing email server requires authentication, select the **My Mail Server requires authentication** check box and do the following:

   a. In the **User Name** field, type the user name for the outgoing email server.

   b. In the **Password** field, type the password for the outgoing email server.

10. To send alerts immediately, select the **Send Alerts Immediately** check box.

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

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

    • From **Send logs according to this schedule** menu, select the schedule type.

    • From the **Day** menu, select the day.

    • From the **Time** menu, select the time, and select the **am** or **pm** radio button.

12. Click the **Apply** button.

Your settings are saved.

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

# Optimize Performance

# 5

This chapter contains the following sections:

- *WiFi Multimedia Quality of Service*
- *Improve Network Connections With Universal Plug N Play*

# WiFi Multimedia Quality of Service

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

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

➢ **To disable WMM QoS:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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



5. Clear the **Enable WMM (Wi-Fi multimedia) settings (2.4 GHz b/g/n)** check box.

6. Clear the **Enable WMM (Wi-Fi multimedia) settings (5 GHz a/n/ac)** check box.

7. Click the **Apply** button.

   Your settings are saved.

# Improve Network Connections With Universal Plug N Play

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

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

➢ **To enable Universal Plug and Play:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

    A login window opens.

3. Enter the router user name and password.

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

    The BASIC Home page displays.

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

    The UPnP page displays.

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

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

6. Type the advertisement period in minutes.

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

7. Type the advertisement time to live in hops.

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

8. Click the **Apply** button.

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

Table also displays what type of port is open and whether that port is still active for each IP address.

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

# Specify Network Settings

# 6

This chapter includes the following sections:

- *View or Change WAN Settings*
- *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*
- *Manage Reserved LAN IP Addresses*
- *Custom Static Routes*
- *Specify Basic WiFi Settings*
- *View or Change Advanced WiFi Settings*
- *Use the Router as a WiFi Access Point*
- *Generate a New Backhaul Password*

# View or Change WAN Settings

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

➢ **To view the WAN settings:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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



5. View or change the following settings:

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

   • **Default DMZ Server**. This feature is sometimes helpful when you are playing online games or videoconferencing, but it makes the firewall security less effective. See *Set Up a Default DMZ Server* on page 57.

   • **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, select this check box to disable it.

   • **MTU Size (in bytes)**. The normal MTU (maximum transmit unit) value for most Ethernet networks is 1500 bytes, or 1492 bytes for PPPoE connections. Change the

MTU only if you are sure that it is necessary for your ISP connection. See *Change the MTU Size* on page 41.

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

6. Click the **Apply** button.

   Your settings are saved.

# Dynamic DNS

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

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

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

## Set Up a New Dynamic DNS Account

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

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.
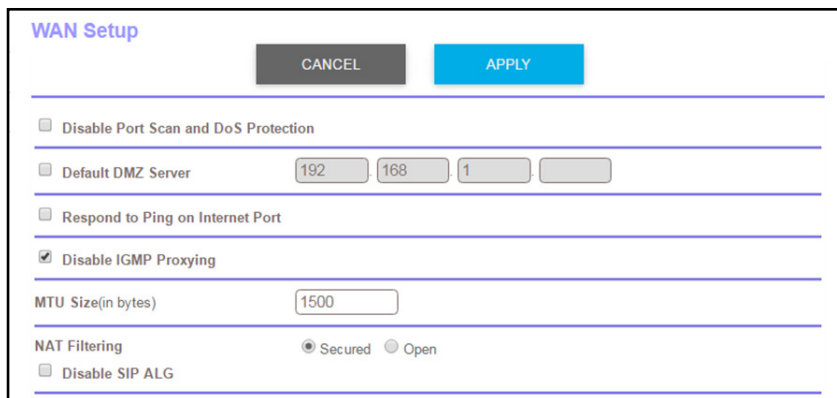
2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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

   The Dynamic DNS page displays.

5.  Select the **Use a Dynamic DNS Service** check box.



6.  In the **Service Provider** list, select **NETGEAR**.

7.  Select the **No** radio button.

8.  In the **Host Name** field, type the name that you want to use for your URL.

    The host name is sometimes called the domain name. Your free URL includes the host name that you specify, and ends with mynetgear.com. For example, specify *MyName*.mynetgear.com.

9.  In the **Email** field, type the email address that you want to use for your account.

10. In the **Password (6-32 characters)** field, type the password for your account.

11. Click the **Register** button.

12. Follow the onscreen instructions to register for your NETGEAR Dynamic DNS service.

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

    A message displays the Dynamic DNS status.

## Specify a DNS Account That You Already Created

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

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

1.  Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2.  Enter **orbilogin.com**.

    A login window opens.

3.  Enter the router user name and password.

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

The BASIC Home page displays.

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

    The Dynamic DNS page displays.

5.  Select the **Use a Dynamic DNS Service** check box.



6.  In the **Service Provider** list, select your provider.

7.  Select the **Yes** radio button.

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

8.  In the **Host Name** field, type the host name (sometimes called the domain name) for your account.

9.  For a no-IP Dyn account, in the **User Name** field, enter the user name for your account.

10. For a NETGEAR account at no-IP, in the **Email** field, type the email address for your account.

11. In the **Password (6-32 characters)** field, type the password for your DDNS account.

12. Click the **Apply** button.

    Your settings are saved.

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

    A message displays the Dynamic DNS status.

## Change the Dynamic DNS Settings

➢  **To change your settings:**

1.  Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2.  Enter **orbilogin.com**.

    A login window opens.

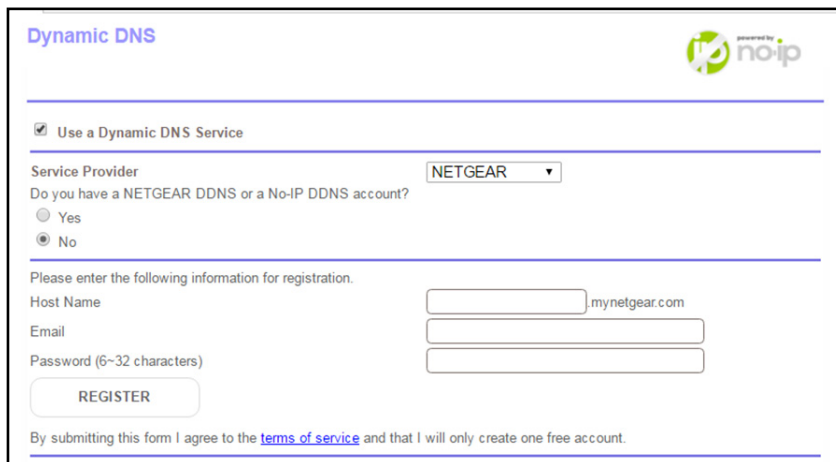3. Enter the router user name and password.

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

The BASIC Home page displays.

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

The Dynamic DNS page displays.

5. Change your DDNS account settings as necessary.

6. Click the **Apply** button.

Your settings are saved.

# Set Up a Default DMZ Server

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

⚠️ **WARNING:**

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

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

➢ **To set up a default DMZ server:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

A login window opens.

3. Enter the router user name and password.

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

The BASIC Home page displays.

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

    The WAN Setup page displays.

5.  Select the **Default DMZ Server** check box.

6.  Type the IP address.

7.  Click the **Apply** button.

    Your settings are saved.

# Change the Router's Device Name

The router's device name is its model number. This device name displays in a file manager when you browse your network.

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

1.  Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2.  Enter **orbilogin.com**.

    A login window opens.

3.  Enter the router user name and password.

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

    The BASIC Home page displays.

4.  Select **ADVANCED > Setup > Device Name**.

    | Device Name | Cancel | Apply |
    | --- | --- | --- |

    Device Name identifies this router. It is used by many different features on the router.

    Device Name : RBR50

    Please use alpha numericals up to 16 characters

5.  In the **Device Name** field, type a new name.

6.  Click the **Apply** button.

    Your settings are saved.

# Change the LAN TCP/IP Settings

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

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

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

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

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

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.
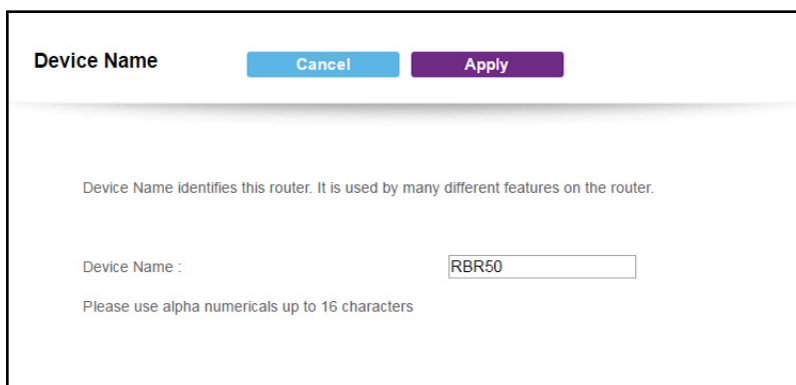
2. Enter **orbilogin.com**.

    A login window opens.

3. Enter the router user name and password.

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

    The BASIC Home page displays.

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



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

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

8. Click the **Apply** button.

   Your settings are saved.

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

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

# Specify the IP Addresses That the Router Assigns

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

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

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

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

The BASIC Home page displays.

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



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 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 a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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



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.

# Manage Reserved LAN IP Addresses

When you specify a reserved IP address for a computer on the LAN, that computer always receives the same IP address each time it accesses the router's DHCP server. Assign reserved IP addresses to computers or servers that require permanent IP settings.

## Reserve an IP Address

➢ **To reserve an IP address:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

**2.** Enter **orbilogin.com**.

A login window opens.

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

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

The BASIC Home page displays.

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



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



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

Choose an IP address from the router's LAN subnet, such as 192.168.1.x.

**7.** Type the MAC address of the computer or server.

> **Tip:** If the computer is already on your network, you can copy its MAC address from the Attached Devices page and paste it here.

**8.** Click the **Apply** button.

The reserved address is entered into the table.

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

## Edit a Reserved IP Address

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

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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



5. Select the radio button next to the reserved address.

6. Click the **Edit** button.

   The Address Reservation page displays.

7. Change the settings.

8. Click the **Apply** button.

   Your settings are saved.

## Delete a Reserved IP Address Entry

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

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

A login window opens.

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

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

The BASIC Home page displays.

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



**5.** Select the radio button next to the reserved address.

**6.** Click the **Delete** button.

The address is removed.

# Custom Static Routes

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

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

• Your main Internet access is through a cable modem to an ISP.

• Your home network includes an ISDN router for connecting to the company where you are employed. This router's address on your LAN is 192.168.1.100.

• Your company's network address is 134.177.0.0.

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

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

- The **Destination IP Address** and **IP Subnet Mask** fields specify that this static route applies to all 134.177.x.x addresses.

- The **Gateway IP Address** field specifies that all traffic for these addresses will be forwarded to the ISDN router at 192.168.1.100.

- A metric value of 1 works because the ISDN router is on the LAN.

- The **Private** check box is selected only as a precautionary security measure in case RIP is activated.

## Set Up a Static Route

➢ **To set up a static route:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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

   The Static Routes page displays.

5. Click the **Add** button.



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

7. To limit access to the LAN only, select the **Private** check box.

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

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

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.

    This address 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.

## Edit a Static Route

➢ **To edit a static route:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

    A login window opens.

3. Enter the router user name and password.

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

    The BASIC Home page displays.

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

    The Static Routes page displays.

5. In the table, select the radio button for the route.

6. Click the **Edit** button.

    The Static Routes page adjusts.

7. Edit the route information.

8. Click the **Apply** button.

    Your settings are saved.

## Delete a Static Route

➢ **To delete a static route:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

A login window opens.

3. Enter the router user name and password.

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

The BASIC Home page displays.

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

The Static Routes page displays.

5. In the table, select the radio button for the route.

6. Click the **Delete** button.

The route is removed from the table.

# Specify Basic WiFi Settings

The router and satellite come preset with the same WiFi network name (SSID) and the same WiFi security. You can find the SSID and password on the router label and on the satellite label. If you log in to the router and change the WiFi settings, the router automatically sends the new settings to the satellite.

If you change your WiFi settings, make a note of the new settings and store it in a safe place where you can easily find it.

If your computer or mobile device is using a WiFi connection when you change the network name (SSID) or other WiFi security settings, you are disconnected when you click the **Apply** button. To avoid this problem, use a computer with a wired connection to access the router.

➢ **To specify basic WiFi settings:**

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

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

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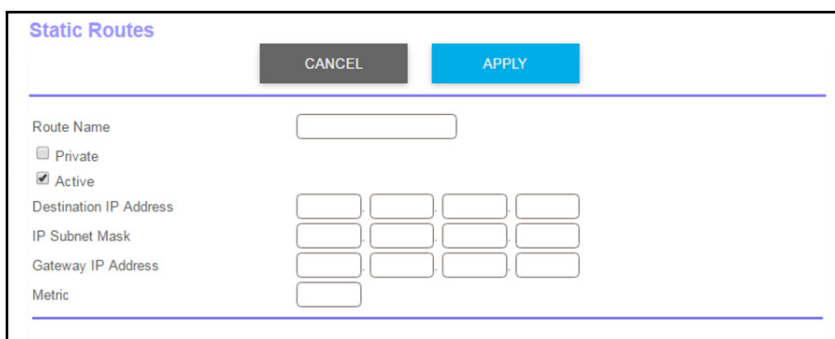
3. Enter the router user name and password.

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

The BASIC Home page displays.

4. Select **Wireless**.



5. 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.

6. To change the WiFi 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).

7. Click the **Apply** button.

   Your settings are saved. The router sends the new settings to the satellite.

   If you are using a WiFi connection and you changed the SSID, you are disconnected from the network.

8. Make sure that you can connect to the WiFi network with its new settings.

   If you cannot connect using WiFi, check the following:

   - Is your WiFi-enabled computer or mobile device connected to another WiFi network in your area? Some WiFi devices automatically connect to the first open network without WiFi security that they discover.
   - Is your computer or WiFi device trying to connect to your network with its old settings (before you changed the settings)? If so, update the WiFi network selection in your computer or WiFi device to match the current settings for your network.

## Change the WiFi Password or Security Level

The router and satellite come preset with the same WiFi network name (SSID) and the same WiFi security. You can find the SSID and password on the router label and on the satellite label. If you log in to the router and change the WiFi settings, the router automatically sends the new settings to the satellite. We recommend that you do not disable security.

➢ **To change the WPA settings:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

4. Select **Wireless**.



5. Under Security Options, select a WPA option:
   - WPA2-PSK [AES]
   - WPA-PSK [TKIP] + WPA2-PSK [AES]

   The WPA2 option uses the newest standard for the strongest security, but some older computers and WiFi devices cannot use WPA2. If your network includes old computers and WiFi devices, select the **WPA-PSK [TKIP] + WPA2-PSK [AES]** radio button.

   The **Password (Network Key) f**ield displays.

6. In the **Password (Network Key)** field, enter the network key (password) that you want to use.

   It is a text string from 8 to 63 characters.

7. Write down the new password and keep it in a secure place for future reference.

8. Click the **Apply** button.

   Your settings are saved.

# View or Change Advanced WiFi Settings

➢ **To view or change advanced WiFi settings:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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



> **Note:** The backhaul password is a security key that is used in WiFi communication between the router and the satellite. For information about generating a new backhaul password, see *Generate a New Backhaul Password* on page 73.

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 WiFi device.

7. Click the **Apply** button.

   Your settings are saved.

# Use the Router as a WiFi Access Point

You can set up the router to run as an access point (AP) on the same local network as another router or gateway.

For example, you can use the Orbi router as a WiFi access point that connects to a gateway or modem router that you already use for your Internet service. In this situation, you do not need to change the settings for the gateway or modem router.

➢ **To set up the Orbi router as an AP after you set up your Internet connection:**

1. Use an Ethernet cable to connect the Internet port of this router to a LAN port on your existing router or gateway.

2. Launch a web browser from a computer or WiFi device that is connected to the network.

3. Enter **orbilogin.com**.

   A login window opens.

4. Enter the router user name and password.

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

   The BASIC Home page displays.

5. Select **ADVANCED > Advanced Setup > Router/AP Mode**.

   The Router/AP Mode page displays.

6. Select the **AP Mode** radio button.
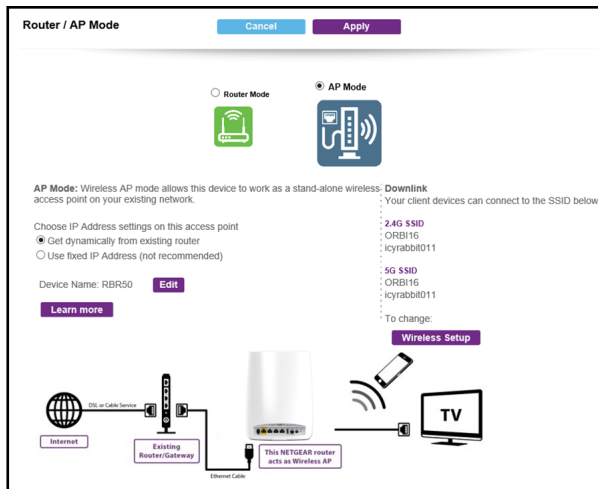


7. Select the IP address setting:
   - **Get dynamically from existing router**. The other router on the network assigns an IP address to this router while this router is in AP mode.
   - **Enable fixed IP settings on this device (not recommended)**. Use this setting if you want to manually assign a specific IP address to this router while it is in AP mode. Using this option effectively requires advanced network experience.

**Note:** To avoid interference with other routers or gateways in your network, we recommend that you use different WiFi settings on each router. You can also turn off the WiFi radio on the other router or gateway and use the Orbi only for WiFi client access.

8. Click the **Apply** button.

   The IP address of the router changes, and you are disconnected.

9. To reconnect, close and restart your browser and enter **orbilogin.com**.

# Generate a New Backhaul Password

The backhaul password is a security key that is used in WiFi communication between the router and the satellite. You can generate a new backhaul password. After you generate a new backhaul password, you must use the **Sync** button to build a new backhaul connection so that the router and satellite can communicate with each other using WiFi.

➢ **To generate a new backhaul password:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.
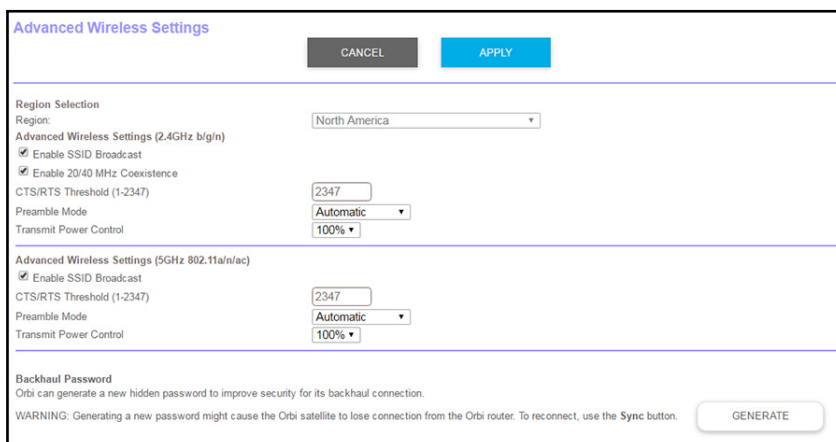
2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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



5. In the Backhaul Password section, click the **GENERATE** button.

   The router generates a new backhaul password.

# Manage Your Network

# 7

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

The chapter includes the following sections:

- *Update the Router Firmware*
- *Change the admin Password*
- *Recover the admin Password*
- *View Router Status*
- *View and Manage Logs of Router Activity*
- *View Devices Currently on the Network*
- *Monitor Internet Traffic*
- *Manage the Router Configuration File*
- *Set Up Remote Management*
- *Use Remote Access*

# 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 pages when new firmware is available. You can respond to that message to update the firmware, or you can check to see if new firmware is available and update your product.

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

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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

   The Router Update page displays.

5. Click the **Check** button.

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

6. Click the **Yes** button.

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

   ⚠ **WARNING:**

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

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

# Change the admin Password

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

---

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

---

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

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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

   | Set Password | | |
   |---|---|---|
   | | CANCEL | APPLY |

   Old Password
   Set Password
   Repeat New Password
   ☑ Enable Password Recovery
       Security Question #1*: What is the name of your first employer? ▼
       Answer*: Netgear
       Security Question #2*: What was the first name of your first manager? ▼
       Answer*: Lisa
       *=required information
   Last time password was recovered: **Thursday, Aug 04, 2016 15:37:22**

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

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

   We recommend that you enable password recovery.

7. Click the **Apply** button.

   Your settings are saved.

# Set Up Password Recovery

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

➢ **To set up password recovery:**

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

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

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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

   

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

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

7. Click the **Apply** button.

   Your settings are saved.

# Recover the admin Password

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

➢ **To recover your password:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Click the **Cancel** button.

   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 label.

6. Click the **Continue** button.

   A window opens and displays your recovered password.

7. Click the Login again button.

   A login window opens.

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

# View Router Status

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

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

4. Click the **ADVANCED** tab.



# Display Internet Port Statistics

➢ **To display Internet port statistics:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

4. The BASIC Home page displays

5. Click the **ADVANCED** tab.

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

System Up Time  00:07:06

| Port | Status | TxPkts | RxPkts | Collisions | Tx B/s | Rx B/s | Up Time |
|------|--------|--------|--------|------------|--------|--------|---------|
| WAN | 100M/Full | 20398 | 57240 | 0 | 3706 | 198882 | 00:06:35 |
| LAN 1 | Link Down | | | | | | 00:00:00 |
| LAN 2 | Link Down | 397 | 0 | 0 | 0 | 0 | 00:00:00 |
| LAN 3 | Link Down | | | | | | 00:00:00 |
| WLAN b/g/n | 400M | 7875 | 45 | 0 | 24 | 10 | 00:06:28 |
| WLAN a/n/ac | 866M | 5167 | 445 | 0 | 1548 | 76 | 00:06:26 |
| WLAN Backhaul | 1733M | 3914 | 81 | 0 | 17142 | 14 | 00:06:26 |

Poll Interval : 5 (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 page displays the following information:
  - **Status**. The link status of the port.
  - **TxPkts**. The number of packets transmitted on this port since reset or manual clear.
  - **RxPkts**. The number of packets received on this port since reset or manual clear.
  - **Collisions**. The number of collisions on this port since reset or manual clear.
  - **Tx B/s**. The current transmission (outbound) bandwidth used on the WAN and LAN ports.
  - **Rx B/s**. The current reception (inbound) bandwidth used on the WAN and LAN ports.
  - **Up Time**. The time elapsed since this port acquired the link.
  - **Poll Interval**. The interval at which the statistics are updated in this page.

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

# Check the Internet Connection Status

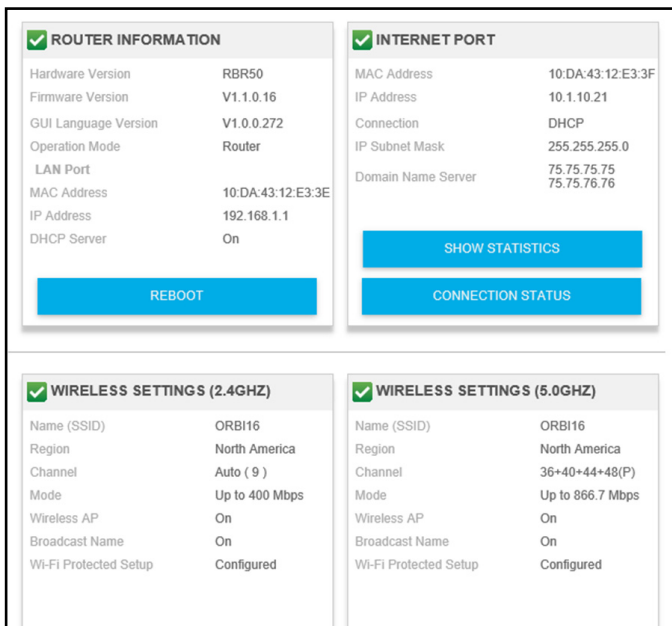➢ **To check the Internet connection status:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.
2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

4. Click the **ADVANCED** tab.
5. In the Internet Port pane, click the **Connection Status** button.

The following information displays:

- **IP Address**. The IP address that is assigned to the router.

- **Subnet Mask**. The subnet mask that is assigned to the router.

- **Default Gateway**. The IP address for the default gateway that the router communicates with.

- **DHCP Server**. The IP address for the Dynamic Host Configuration Protocol server that provides the TCP/IP configuration for all the computers that are connected to the router.

- **DNS Server**. The IP address of the Domain Name Service server that provides translation of network names to IP addresses.

- **Lease Obtained**. The date and time when the lease was obtained.

- **Lease Expires**. The date and time that the lease expires.

6. To return the status of all items to 0, click the **Release** button.

7. To refresh the page, click the **Renew** button.

8. To exit the page, click the **Close Window** button.

# View and Manage Logs of Router Activity

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

➢ **To view and manage logs:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

The BASIC Home page displays.

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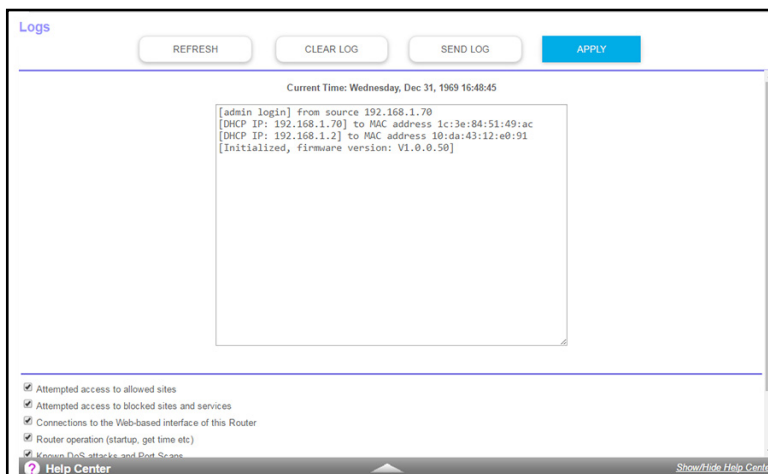


The Logs page shows the following information:

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

5. To refresh the log page, click the **Refresh** button.
6. To clear the log entries, click the **Clear Log** button.
7. To email the log immediately, click the **Send Log** button.

# View Devices Currently on the Network

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

➢ **To view devices on the network:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.
2. Enter **orbilogin.com**.

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

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

The BASIC Home page displays.

4. Select **Attached Devices**.

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

The IP address for devices can change because the router assigns an IP address to each device when it joins the network. The unique MAC address for each device does not change.

5. To update this page, 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 a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

A login window opens.

3. Enter the router user name and password.

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

The BASIC Home page displays.

4. Select **ADVANCED > Advanced Setup > Traffic Meter**.
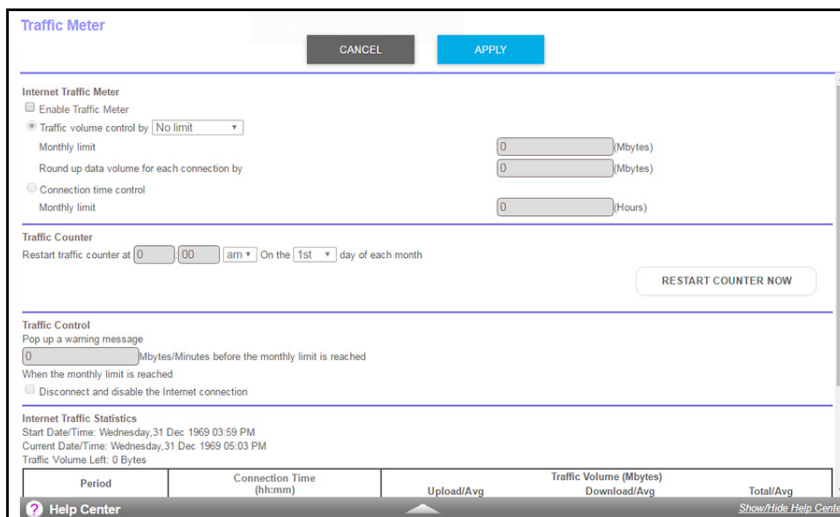
5. Select the **Enable Traffic Meter** check box.

6. To control the volume of Internet traffic, 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. 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.

   To start the traffic counter immediately, click the **Restart Counter Now** button.

9. If you want the router to issue a warning message before the monthly limit of Mbytes or hours is reached, in the Traffic Control section, enter a numeric value.

   By default, the value is 0 and no warning message is issued.

10. To stop the Internet connection when the limit is attained, select the **Disconnect and disable the Internet connection** check box.

11. Click the **Apply** button.

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

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

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

# Manage the Router Configuration File

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

## Back Up Settings

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

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

The BASIC Home page displays.

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



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

6. Specify a location on your network.

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

## Erase the Current Configuration Settings

You can erase the current configuration and restore the factory default settings. You might want to do this if you move the router to a different network. (See *Factory Settings* on page 197.)

➢ **To erase the configuration settings:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

A login window opens.

3. Enter the router user name and password.

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

The BASIC Home page displays.

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

The Backup Settings page displays.

5. Click the **Erase** button.

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

## Restore Configuration Settings

➢ **To restore configuration settings that you backed up:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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

   The Backup Settings page displays.

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

6. Click the **Restore** button.

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

⚠ **WARNING:**

**Do not interrupt the reboot process.**

# Set Up Remote Management

You can access your router over the Internet to view or change its settings. You must know the router's WAN IP address to use this feature. For information about remote access using Dynamic DNS, see *Chapter 7, Manage Dynamic DNS and Access Storage Devices Through the Internet*.

**Note:** Be sure to change the password for the user name admin to a secure password. The ideal password contains no dictionary words from any language and contains uppercase and lowercase letters, numbers, and symbols. It can be up to 30 characters. See *Change the admin Password* on page 76.

➢ **To set up remote management:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

A login window opens.

3. Enter the router user name and password.

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

The BASIC Home page displays.

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

The Remote Management page displays.

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



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

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

Select one of the following:

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

7. Specify the port number for accessing the router.

Normal web browser access uses the standard HTTP service port 80. For greater security, enter a custom port number for the remote router access. 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 settings are saved.

# Use Remote Access

➢ **To use remote access:**

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

2. Type your router's WAN IP address into your browser's address or location field followed by a colon (:) and the custom port number.

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

# Customize Internet Traffic Rules for Ports

8

You can use port forwarding and port triggering to set up rules for Internet traffic. You need networking knowledge to set up these features.

This chapter includes the following sections:

- *Port Forwarding to a Local Server*
- *Port Triggering*

# Port Forwarding to a Local Server

If your home network includes a server, you can allow certain types of incoming traffic to reach the server. For example, you might want to make a local web server, FTP server, or game server visible and available to the Internet.

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

## Set Up Port Forwarding to a Local Server

➢ **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 use the same IP address. To specify this setting, use the reserved IP address feature. See *Manage Reserved LAN IP Addresses* on page 62.

3. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

4. Enter **orbilogin.com**.

   A login window opens.

5. Enter the router user name and password.

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

   The BASIC Home page displays.

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

   

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

8. In the **Service Name** menu, select the service name.

   If the service that you want to add is not in the list, create a custom service. See *Add a Custom Port Forwarding Service* on page 91.

9. In the **Server IP Address** field, enter the IP address of the computer that will provide the service.

10. Click the **Add** button.

   The service displays in the list.

# Add a Custom Port Forwarding Service

➢ **To add a custom service:**

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

   You can usually find this information by contacting the publisher of the application or user groups or news groups.

2. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

3. Enter **orbilogin.com**.

   A login window opens.

4. Enter the router user name and password.

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

   The BASIC Home page displays.

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

   The Port Forwarding/Port Triggering page displays.

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

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



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

9. In the **Protocol** menu, select the protocol.

   If you are unsure, select **TCP/UDP**.

10. In the **External Port range** field, enter the port numbers.

11. Specify the internal ports by one of these methods:
    - Leave the **Use the same port range for Internal port** check box selected.
    - Type the port numbers in the **Internal port range** field.

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

13. Click the **Apply** button.

    The service is now in the list on the Port Forwarding/Port Triggering page.

## Edit a Port Forwarding Service

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

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

    A login window opens.

3. Enter the router user name and password.

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

    The BASIC Home page displays.

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

    The Port Forwarding/Port Triggering page displays.

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

6. In the table, select the radio button next to the service name.

7. Click the **Edit Service** button.

    The Ports - Custom Services page displays.

8. Specify changes to any of the following settings:
    - **Service Name**. Type the service name.
    - **Service Type**. If you are unsure, select **TCP/UDP**.
    - **External port range**.
    - For the internal ports, leave the **Use the same port range for Internal port** check box selected or enter the ports in the **Internal port range** field.
    - **Internal IP address**. Type the IP address in the **Internal IP address** fields, or select the radio button for an attached device listed in the table.

9. Click the **Apply** button.

    Your settings are saved.

## Delete a Port Forwarding Entry

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

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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

   The Port Forwarding/Port Triggering page displays.

5. Select the **Port Forwarding** radio button as the service type.

6. In the table, select the radio button next to the service name.

7. Click the **Delete Service** button.

## Application Example: Make a Local Web Server Public

If you host a web server on your local network, you can use port forwarding to allow web requests from anyone on the Internet to reach your web server.

➢ **To make a local web server public:**

1. Assign your web server either a fixed IP address or a dynamic IP address using DHCP address reservation.

   In this example, your router always gives your web server an IP address of 192.168.1.33.

2. In the Port Forwarding/Port Triggering page, configure the router to forward the HTTP service to the local address of your web server at **192.168.1.33**.

   HTTP (port 80) is the standard protocol for web servers.

3. (Optional) Register a host name with a Dynamic DNS service, and specify that name on the Dynamic DNS page of the router.

   Dynamic DNS makes it much easier to access a server from the Internet because you can type the name in the Internet browser. Otherwise, you must know the IP address that the ISP assigned, which typically changes.

## How the Router Implements the Port Forwarding Rule

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

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

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

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

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

3. The router changes the destination in the message to IP address 192.168.1.123 and sends the message to that computer.

4. Your web server at IP address 192.168.1.123 receives the request and sends a reply message to your router.

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

# 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 N Play (UPnP). See *Improve Network Connections with Universal Plug and Play* on page 54.

---

# Add a Port Triggering Service

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

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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

   The Port Forwarding/Port Triggering page displays.

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

   The page adjusts.

6. Click the **Add Service** button.



7. In the **Service Name** field, type a descriptive service name.

8. In the **Service User** menu, select **Any,** or select **Single address** and enter the IP address of one computer:

   • **Any** (the default) allows any computer on the Internet to use this service.

   • **Single address** restricts the service to a particular computer.

9. Select the service type, either **TCP** or **UDP** or **TCP/UDP** (both).

   If you are not sure, select **TCP/UDP**.

10. In the **Triggering Port** field, enter the number of the outbound traffic port that will open the inbound ports.

11. Enter the inbound connection port information in the **Connection Type**, **Starting Port**, and **Ending Port** fields.

12. Click the **Apply** button.

The service is now in the Portmap Table. You must enable port triggering before the router used port triggering for the service that you added. See *Enable Port Triggering* on page 96.

# Enable Port Triggering

➢ **To enable port triggering:**

1. Launch a web browser from a WiFi-enabled computer or mobile device that is connected to the network.

2. Enter **orbilogin.com**.

   A login window opens.

3. Enter the router user name and password.

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

   The BASIC Home page displays.

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

   The Port Forwarding/Port Triggering page displays.

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



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

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

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

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

# 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 define:

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.

# Troubleshooting

# 9

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

This chapter includes the following sections:

- *Quick Tips*
- *The Router and Satellite Do Not Sync*
- *Cannot Log In to the Router*
- *Cannot Access the Internet*
- *WiFi Connectivity*
- *Troubleshoot Your Network Using the Ping Utility*

# Quick Tips

This section describes tips for troubleshooting some common problems.

## Sequence to Restart Your Network

When you restart your network, follow this sequence:

1. Turn off *and* unplug the modem.
2. Turn off the router.
3. Plug in the modem and turn it on. Wait two minutes.
4. Turn on the router and wait two minutes.

## WiFi Settings

Make sure that the WiFi settings in the WiFi-enabled computer or mobile device and the router match. The WiFi network name (SSID) and WiFi security settings must match exactly. If you set up an access list, you must add each WiFi-enabled computer or mobile device's MAC address to the router's access list.

## Network Settings

Make sure that the network settings of the computer are correct. Wired and wirelessly connected computers must use network (IP) addresses on the same network as the router. The simplest way to do this is to configure each computer to obtain an IP address automatically using DHCP.

Some cable modem service providers require you to use the MAC address of the computer initially registered on the account. You can view the MAC address on the Attached Devices page.

# The Router and Satellite Do Not Sync

➢ **To sync the router and the satellite:**

1. Press the **Sync** button on the router and then press the **Sync** button on the satellite within two minutes.

   When the satellite syncs with the router, the satellite's ring LED pulses white, then lights solid blue to indicate a good connection, and then turns off.

2. If the router and satellite do not sync, move the satellite closer to router.

   **Note:** To make it easier to press both **Sync** buttons within two minutes, you can move the satellite into the same room as the router.

3. Connect the satellite to a power source.

4. If the Power LED on the back of the satellite does not light, press the **Power On/Off** button.

5. Wait for the satellite's ring LED to light solid white, then pulse white, and then pulse magenta.

6. Press the **Sync** button on the router and then press the **Sync** button on the satellite within two minutes.

   The satellite syncs with the router.

7. Move the satellite to a location closer to the middle of your home.

8. Connect the satellite to a power source.

9. If the Power LED on the back of the satellite does not light, press the **Power On/Off** button.

10. Wait for the satellite's ring LED to light solid white, then pulse white, and then pulse magenta.

# Cannot Log In to the Router

Make sure that your computer or mobile device is connected to the Orbi WiFi network. If you do not want to use a WiFi connection, you can connect your computer to the Orbi router with an Ethernet cable.

If you changed the admin password and you forgot what it is, see *Recover the admin Password* on page 78.

# Cannot Access the Internet

➢ **Check your network and Internet connections:**

1. Make sure that your WiFi-enabled computer or mobile device is connected to the Orbi network.

2. If you are connected to Orbi but you cannot access the Internet, check to see if your Internet connection is working.

3. Launch a web browser from a computer or WiFi device that is connected to the network.

4. Enter **orbilogin.com**.

   A login window opens.

5. Enter the router user name and password.

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

   The BASIC Home page displays.

6. Click the **ADVANCED** tab.

   The ADVANCED Home page displays.

7. Check that an IP address is shown for the Internet port.

   If 0.0.0.0 is shown, your router did not obtain an IP address from your Internet service provider (ISP).

   If your router cannot obtain an IP address from the ISP, you can force your cable or DSL modem to recognize your new router by restarting your network. For more information, see *Sequence to Restart Your Network* on page 99.

If your router is still unable to obtain an IP address from the ISP, the problem might be one of the following:

- Your Internet service provider (ISP) might require a login program. Ask your ISP whether they require PPP over Ethernet (PPPoE) or some other type of login.
- If your ISP requires a login, the login name and password might be set incorrectly.
- Your ISP might check for your computer's host name. Assign the computer host name of your ISP account as the account name on the Internet Setup page.
- If your ISP allows only one Ethernet MAC address to connect to Internet and checks for your computer's MAC address, do one of the following:
  - Inform your ISP that you bought a new network device and ask them to use the router's MAC address.
  - Configure your router to clone your computer's MAC address.

## Troubleshoot Internet Browsing

If your router can obtain an IP address but your computer is unable to load any web pages from the Internet, it might be for one of the following reasons:

- The traffic meter is enabled, and the limit was reached.

  By configuring the traffic meter not to block Internet access when the traffic limit is reached, you can resume Internet access. If your ISP sets a usage limit, they might charge you for the overage.

- Your computer might not recognize any DNS server addresses. A DNS server is a host on the Internet that translates Internet names (such as www addresses) to numeric IP addresses.

  Typically, your ISP provides the addresses of one or two DNS servers for your use. If you entered a DNS address during the router's configuration, restart your computer.

  Alternatively, you can configure your computer manually with a DNS address, as explained in the documentation for your computer.

- The router might not be configured as the default gateway on your computer.

  Reboot the computer and verify that the router address (www.routerlogin.net) is listed by your computer as the default gateway address.

- You might be running login software that is no longer needed. If your ISP provided a program to log you in to the Internet (such as WinPoET), you no longer need to run that software after installing your router.You might need to go to Internet Explorer and select **Tools > Internet Options**, click the **Connections** tab, and select **Never dial a connection**. Other browsers provide similar options.

## Troubleshoot PPPoE

If you are using PPPoE, try troubleshooting your Internet connection.

➢ **To troubleshoot a PPPoE connection:**

1. Launch a web browser from a computer or WiFi device that is connected to the network.
2. Enter **orbilogin.com**.

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

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

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

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

   The Connection Status window opens.
6. Check the Connection Status window to see if your PPPoE connection is active and working.

   If the router is not connected, click the **Connect** button.

   The router continues to attempt to connect indefinitely.
7. If you cannot connect after several minutes, the router might be set up with an incorrect service name, user name, or password, or your ISP might be experiencing a provisioning problem.

Unless you connect manually, the router does not authenticate using PPPoE until data is transmitted to the network.

## WiFi Connectivity

If you are experiencing trouble connecting to the Orbi WiFi network, try to isolate the problem:

- Does the WiFi-enabled computer or mobile device that you are using find your WiFi network?

  If you disabled the router's SSID broadcast, then your WiFi network is hidden and does not display in the list of networks that your computer or WiFi device finds. (By default, SSID broadcast is enabled.)

- Does your WiFi-capable device support the security that you are using for your WiFi network (WPA or WPA2)?

- To view the WiFi settings for the router, use an Ethernet cable to connect a computer to a LAN port on the router. Then log in to the router, and select **BASIC > Wireless**.

  **Note:** Be sure to click the **Apply** button if you change settings.

- If you are trying to connect to the 5 GHz 1 or 5 GHz 2 band, does your WiFi-enabled computer or mobile device support this standard?

- Did your computer or WiFi device automatically connect to a different WiFi network in your area, such as a WiFi hotspot?

# Troubleshoot Your Network Using the Ping Utility

Most network devices and routers contain a ping utility that sends an echo request packet to the designated device. The device then responds with an echo reply. You can easily troubleshoot a network using the ping utility in your computer or workstation.

## Test the LAN Path to Your Router

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

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

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

   **ping www.routerlogin.net**

3. Click the **OK** button.

   You should see a message like this one:

   ```
   Pinging <IP address > with 32 bytes of data
   ```

   If the path is working, you see this message:

   ```
   Reply from < IP address >: bytes=32 time=NN ms TTL=xxx
   ```

If the path is not working, you see this message:

```
Request timed out
```

If the path is not functioning correctly, you might be experiencing 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.

➢ **To test the path from your computer to a remote device:**

1. From the Windows toolbar, click the **Start** button and select **Run**.
2. In the Windows Run window, type:

   **ping -n 10** <*IP address*>

   where <IP address> is the IP address of a remote device such as your ISP DNS server.

If the path is functioning correctly, messages display that are similar to those shown in *Test the LAN Path to Your Router* on page 103.

If you do not receive replies, check the following:

- Check to see that the IP address of your router is listed as the default gateway for your computer. If DHCP assigns the IP configuration of your computers, this information is not visible in your computer Network Control Panel. Verify that the IP address of the router is listed as the default gateway..

- Check to see that the network address of your computer (the portion of the IP address specified by the subnet mask) is different from the network address of the remote device.

- Check to see that your cable or DSL modem is connected and functioning.

- If your ISP assigned a host name to your computer, enter that host name as the account name on the Internet Setup page.

- Your ISP might be rejecting the Ethernet MAC addresses of all but one of your computers.

  Many broadband ISPs restrict access by allowing traffic only from the MAC address of your broadband modem. Some ISPs additionally restrict access to the MAC address of a single computer connected to that modem. If your ISP does this, configure your router to "clone" or "spoof" the MAC address from the authorized computer.

# Supplemental Information

A

This appendix covers the following topics:

- *Factory Settings*
- *Technical Specifications*

# Factory Settings

You can return the router or the satellite to its factory settings. Use the end of a paper clip or a similar object to press and hold the **Reset** button on the back of the router or satellite for at least seven seconds. The router or satellite resets, and returns to the factory settings.

The following table shows the factory default settings for the router.

**Table 3.  Factory default settings for the router**

| Feature | | Default Setting |
|---|---|---|
| Router login | User login URL | orbilogin.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 | 192.168.1.1 |
| | Subnet mask | 255.255.255.0 |
| | DHCP server | Enabled |
| | DHCP range | 192.168.1.2 to 192.168.1.254 |
| | DHCP starting IP address | 192.168.1.2 |
| | DHCP ending IP address | 192.168.1.254 |
| | DMZ | Disabled |
| | Time zone | GMT for WW except NA and GR, GMT+1 for GR, GMT-8 for NA |
| | Time zone adjusted for daylight saving time | Disabled |
| | SNMP | Disabled |
| Firewall | Inbound (communications coming in from the Internet) | Disabled (except traffic on port 80, the HTTP port) |
| | Outbound (communications going out to the Internet) | Enabled (all) |
| | Source MAC filtering | Disabled |

**Table 3.  Factory default settings for the router (continued)**

| Feature | | Default Setting |
|---|---|---|
| WiFi | WiFi communication | Enabled |
| | SSID name | See router and satellite labels |
| | Security | WPA2-PSK (AES) |
| | Broadcast SSID | Enabled |
| | Transmission speed | Auto[1] |
| | Country/region | United States in the US; otherwise, varies by region |
| | RF channel | 2.4 GHz: Auto<br>5 GHz: CH48 (for front haul)<br>5 GHz: CH153 (for back haul) in NA/PR/AU/CA and CH104 (for back haul) in EU |
| | Operating mode | |

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. 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<br>• UK, Australia: 240V, 50 Hz, input<br>• Europe: 230V, 50 Hz, input<br>• All regions (output): 12V/3.5A DC output |
| Dimensions | 6.7 x 3.1 x 8.89 in (170.3 x 78.9 x 225.8 mm) each |
| Weight | 1.96 lb (890.5g) each |
| Operating temperature | 0° to 40° C (32º to 104º F) |
| Operating humidity | 90% maximum relative humidity, noncondensing |
| Electromagnetic emissions | FCC Part 15 Class B<br>VCCI Class B<br>EN 55 022 (CISPR 22), Class B C-Tick N10947 |
| LAN | 10BASE-T or 100BASE-TX or 1000BASE-T, RJ-45 |
| WAN | 10BASE-T or 100BASE-TX or 1000BASE-T, RJ-45 |
| WiFi | Maximum wireless signal rate complies with the IEEE 802.11 standard.[1] |
| Radio data rates | 2.4 GHz: Max 400 Mbps<br>5 GHz Front haul: Max 866 Mbps<br>5 GHz Back haul: Max 1733 Mbps |
| Data encoding standards | IEEE® 802.11b/g/n 2.4 GHz–256 QAM support<br>IEEE® 802.11b/n/ac 5 GHz–256 QAM support |
| Maximum computers per wireless network | Limited by the amount of WiFi network traffic generated by each node (typically 50–70 nodes).<br>2.4 GHz: 127<br>5 GHz (front haul): 127 |
| Operating frequency range | 2.4 GHz: 2.412–2.462 GHz (US)<br>　　　　 2.412–2.472 GHz (Japan)<br>　　　　 2.412–2.472 GHz (Europe ETSI)<br>5 GHz: 5.26 GHz–5.32 GHz<br>　　　 5.5GHz–5.7 GHz |
| 802.11 security | WPA2-PSK, WPA, and WPA2 |

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.