

NETGEAR®

Mobile Broadband 11n Wireless Router MBR1000

User Manual



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San Jose, CA 95134
USA

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Connecting to the Internet

1

This chapter describes how to configure your NETGEAR Mobile Broadband 11n Wireless Router MBR1000 Internet connection. For help with installation, see the *Mobile Broadband 11n Wireless Router MBR1000 Installation Guide*.

Hardware Features

This section acquaints you with the physical aspects of your Mobile Broadband 11n Wireless Router.

Router Stand

Since the router is a vertical-only device, use the stand to position your router upright.

1. Insert the tabs of the stand into the slot on the bottom of your router.
2. Place your router near an AC power outlet in a location where you can connect cables as needed for your home network.

The router must also be located where you can receive a strong mobile broadband signal while indoors if you are planning to connect to the Internet using mobile broadband.



Router Front Panel

The router front panel shown in the following figure contains control buttons and status LEDs.

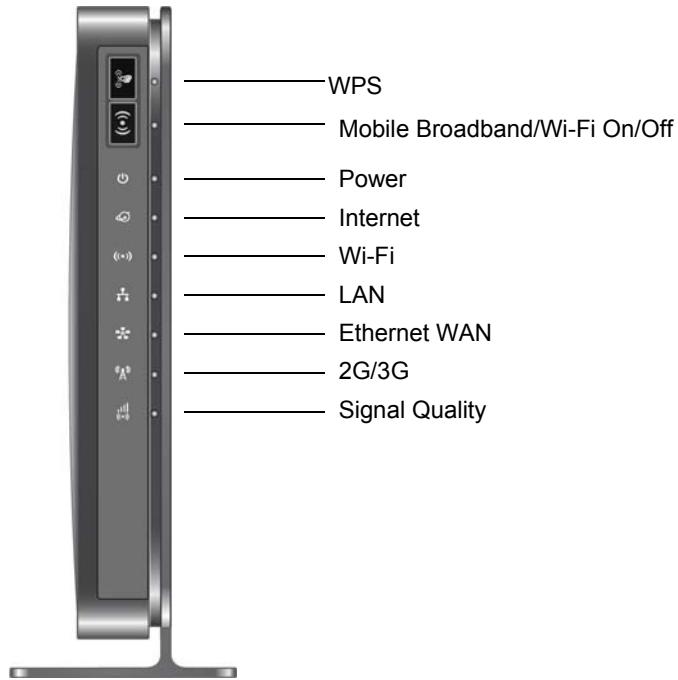


Figure 1.

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

Table 1. Front Panel Button and LED Descriptions

Button/LED	Activity	Description
WPS 	Press this button to open a 2-minute window for the router to connect with other WPS-enabled devices. For more information about using the WPS method to implement security, see Using Push 'N' Connect (WPS) to Configure Your Wireless Network on page 31.	
Wi-Fi 	Turn the mobile broadband and Wi-Fi radios in the router on and off. Use the GUI to select whether the mobile broadband radio or the Wi-Fi radio or both radios will be controlled by this button. The default is the Wi-Fi radio only. Both radios are on by default.	
Power 	Solid green	The router is powered on and operating normally.
	Solid amber	POST (power-on self-test) in progress.
	Off	Power is not supplied to the router.
	Restore Factory Settings button	Press the reset button for 6 seconds. The Power LED lights briefly. When the button is released, the LED blinks red three times and then turns green as the router resets to the factory defaults.

Table 1. Front Panel Button and LED Descriptions

Button/LED	Activity	Description
 Internet Port	Solid green	There is an Internet session.
	Solid red	No Internet connection.
	Blinking green	Data is being transmitted over the Internet connection.
	Blinking green and red	Traffic meter limit has been reached.
	Off	No Internet connection detected or device in bridge mode.
 Wi-Fi	Solid blue	The Wi-Fi local port is initialized.
	Blinking blue	Data is being transmitted or received over the Wi-Fi link.
	Off	The wireless access point is turned off.
 LAN Ports	Solid green	The local Ethernet ports have detected wired links with PCs.
	Blinking	Data is being transmitted or received.
	Off	No link is detected on these ports.
 WAN Port	Solid green	The Ethernet WAN port has detected an active link.
	Blinking	Data is being transmitted or received.
	Off	No link is detected on these ports.
 2G/3G	Solid blue	Indicates the router is in 3G+ coverage.
	Solid green	Indicates the router is in 2G coverage.
	Off	No mobile broadband coverage is detected.
 Signal Quality	Solid blue	Excellent mobile broadband coverage detected.
	Solid green	Good mobile broadband coverage detected.
	Solid amber	Marginal mobile broadband coverage detected.
	Off	No mobile broadband coverage detected.

Router Back Panel

The back panel of the router contains port connections.

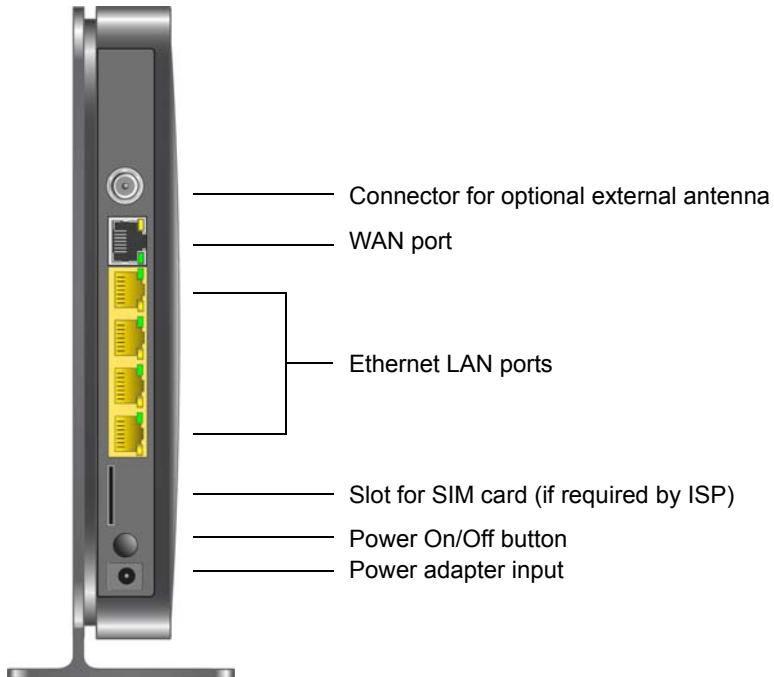


Figure 2.

Router Label

The label on the left side of the router shows the router's MAC address, serial number, security PIN, IMEI or ESN number, and factory default login information.

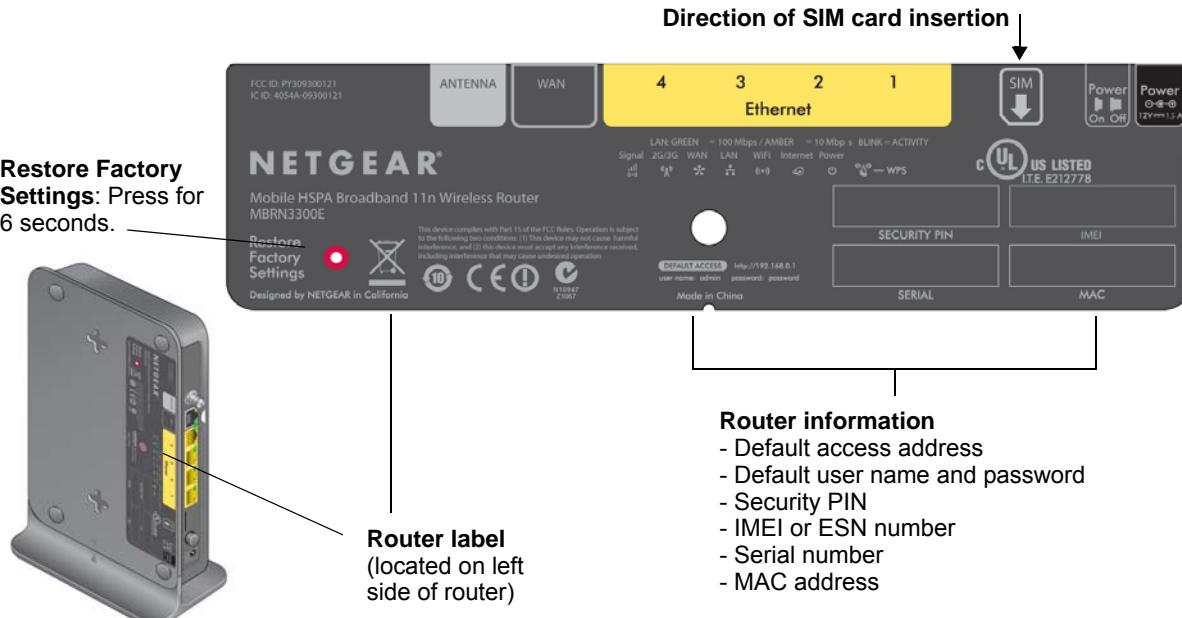


Figure 3.

Logging In to Your Router

When you first connect to your router during installation, a Setup Wizard displays. For help using the Setup Wizard to configure your Internet and wireless network, see the *Mobile Broadband 11n Wireless Router MBR1000 Installation Guide*.

After the initial configuration, you can use your Web browser to log in to the router to view or change its settings. Links to Knowledge Base and documentation are also available on the router main menu.

Note: Your computer must be configured for DHCP. For help with configuring DHCP, click the documentation that came with your computer or see the link to the online document in ***Preparing Your Network*** in Appendix B.

When you have logged in, if you do not click **Logout**, the router waits 5 minutes after no activity before it automatically logs you out.

To log in to the router:

1. Type **http://www.routerlogin.net** in the address field of your browser, and then press Enter. A login window displays:



2. Enter **admin** for the user name and your password (or the default, **password**). For information about how to change the password, see ***Changing the Built-In Password*** on page 55.

Note: If you changed your password and do not remember what it is, you can restore the router to its factory settings. See ***Factory Default Settings*** on page 99.

3. If the router has not been configured, the Smart Wizard screen displays. After the router has been configured, one of the following screens appears:
 - **Firmware Upgrade Assistant screen.** After initial setup, the Firmware Upgrade Assistant screen displays unless the **Check for Updated Firmware Upon Log-in** check box is cleared.

Note: You can disable this automatic checking and updating feature during future logins by clearing the **Check for Updated Firmware Upon Log-in** check box, but NETGEAR recommends that you keep this feature enabled to ensure your router is using the latest updated firmware.

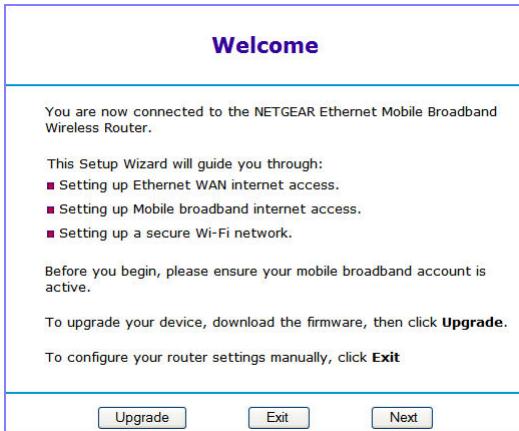


- **Router Status screen.** The Router Status screen displays the current router connection status. See [Router Status](#) on page 47.

4. You can use different methods to configure your router.
 - Select Setup Wizard from the router menu to set up your Internet connection and wireless network configuration. See [Accessing the Configuration Assistant after Installation](#) on page 13.
 - You can manually configure the router settings. See [Manually Configuring Your Internet Settings](#) on page 14.

Accessing the Configuration Assistant after Installation

1. Log in to the router as described in *Logging In to Your Router* on page 11. The Configuration Assistant opens.



2. Click **Next**.

The Configuration Assistant prompts you to set up your Internet connection and wireless network as described in the *Mobile Broadband 11n Wireless Router MBR1000 Installation Guide*.

- a. Select your Internet connection mode:

- **Use Ethernet first and if fail use mobile broadband connection**
- **Always use mobile broadband connection**
- **Always use Ethernet connection**



- b. Click **Next**.
- c. Select your country and then your Internet Service Provider.
- d. Click **Done**.

Manually Configuring Your Internet Settings

For you to connect to the network, an active broadband service account is required. Contact your ISP for your user name, password, and the network name. You must also configure some or all of the settings described in the following sections, depending on how you have chosen to connect to the Internet:

- **Broadband Settings** on page 14
- **Mobile Broadband Settings** on page 16 (not required if using Ethernet connection only)
- **Ethernet Broadband Settings** on page 18 (not required if using mobile broadband connection only)

Broadband Settings

To manually configure your broadband Internet settings:

1. Log in to the router as described in **Logging In to Your Router** on page 11.
2. From the main menu, select Broadband Settings.

Broadband Settings

Internet Connection Mode
Use Ethernet connection first and if fail use mobile broadband connection

Failover Detection Method

DNS lookup using WAN DNS Server

Perform a DNS lookup by a hostname

Ping this IP address

0 . 0 . 0 . 0

Retry Interval is 30 (In Seconds)

Failover after 4 (In Intervals)

Resume after 60 (In Seconds)

Enable Hardware link detection

Failover after 30 (In Seconds)

Buttons: Apply, Cancel

3. Adjust the settings as needed based on your Internet connection. The fields in this screen are described in **Table 2**.

4. The following buttons are available:

- **Apply.** Apply the changes that you made.
- **Cancel.** Discard changes.

Table 2. Broadband Settings Fields

Fields and Check Boxes	Description
Internet Connection Mode	<p>The choices are:</p> <ul style="list-style-type: none"> • Use Ethernet first and if fail use mobile broadband connection • Always use mobile broadband connection • Always use Ethernet connection
Failover Detection Method ¹	Select the failover method and enter the related information: <ul style="list-style-type: none"> • DNS lookup using WAN DNS Server • Perform a DNS lookup by a hostname • Ping this IP address
Retry Interval is ¹	Enter the retry interval.
Failover after ¹	Enter how many retry attempts to make before failing over.
Resume after ¹	Enter how long to wait for primary link is stabilized before resuming to use the primary link.
Enable Hardware link detection	Enter when to failover when the Ethernet link is dropped. This is independent of the DNS / Ping detection methods.

¹ This field is available only when the Internet Connection Mode is **Use Ethernet first and if fail use 3G mobile connection**.

Mobile Broadband Settings

To manually configure your mobile broadband Internet settings:

1. Log in to the router as described in [Logging In to Your Router](#) on page 11.
2. From the main menu, select Mobile Broadband Settings.

Mobile Broadband Settings

User Name	<none>
Password	<none>
Country	Australia
Internet Service Provider	Optus (internet)
Initialize Script	AT&F&D2&C1S0=0
<input checked="" type="checkbox"/> Connect automatically at startup	
<input checked="" type="checkbox"/> Reconnect automatically When connection is lost	
<input checked="" type="checkbox"/> Roaming automatically	
<input checked="" type="checkbox"/> Use internal antenna	
Wireless Button Configuration	
<input checked="" type="radio"/> Control WiFi Only	<input type="radio"/> Control Both WiFi and Wireless Broadband
Connection Status	Attaching to Network
Connect Disconnect Apply Cancel Refresh	

3. Adjust the settings as needed based on your Internet connection. The fields in this screen are described in [Table 3](#).
4. The following buttons are available:
 - **Connect**. Manually connect to the network.
 - **Disconnect**. Disconnect from the current network.
 - **Apply**. Apply the changes that you made.
 - **Cancel**. Discard changes.
 - **Refresh**. Update the connection status.

Table 3. Mobile Broadband Settings Fields

Fields and Check Boxes	Description
User Name	Internet account login user name.
Password	Internet account password for authentication.
Country	Select your country from the drop-down list.
Internet Service Provider	Select your Internet Service Provider from the drop-down list.
Access Number	The remote site's phone number.
PIN code	Pin code of the SIM card, where applicable.
APN	Access point name.
PDP type	<p>Select the type of packet data protocol:</p> <ul style="list-style-type: none"> • IP • PDP-IP • PPP • PPP-IP
Connect automatically at startup	When this check box is selected, the modem automatically connects to the network when powered up. This should be selected after login information is provided.
Reconnect automatically when connection is lost	When this check box is selected, the modem will attempt to reconnect to the network when the connection is lost. Under normal situations, this setting should be selected.
Roaming automatically	When this check box is checked, the unit might roam to any available operator in range and might incur roaming charges.
Use internal antenna	If this check box is selected, the router will use the internal antenna rather than the external antenna.
Wireless Button Configuration	<p>Select the option to determine the behavior of the WPS push button on the front panel when pressed.</p> <ul style="list-style-type: none"> • Control Wi-Fi Only: Pressing the push button toggles the Wi-Fi function. If Wi-Fi is turned on, pressing the push button turns off the Wi-Fi. Pressing it again will turn on the Wi-Fi. This function is available only if the Wi-Fi function is enabled. The Wireless Broadband function is unaffected. • Control Both Wi-Fi and Wireless Broadband: Pressing the push button toggles both the Wi-Fi function and wireless broadband at the same time. If Wi-Fi is turned on, pressing the push button turns off the Wi-Fi. At the same time, the wireless broadband connection is disconnected. If you press the push button again, Wi-Fi is turned on and the router attempts to re-establish the wireless broadband connection. Depending on the coverage, wireless broadband coverage might or might not be connected successfully.
Connection status	Current WAN port status.

Ethernet Broadband Settings

To manually configure your Ethernet Broadband Internet settings:

1. Log in to the router as described in [Logging In to Your Router](#) on page 11.
2. From the main menu, select Ethernet Broadband Settings.

The following question displays at the top of the screen: **Does Your Internet Connection Require A Login?**

Does Your Internet Connection Require A Login?

Yes
 No

Select the option based on the type of account you have with your ISP.

- If you need to enter login information every time you connect to the Internet or you have a PPPoE account with your ISP, select **Yes**.
- Otherwise, select **No**.

Then fill out the appropriate screen (see [Login required](#) on page 19 or [Login not required](#) on page 21).

Note: If you have installed PPP software such as WinPoET (from Earthlink) or Ethernet (from PacBell), then you have PPPoE. Select **Yes**. After selecting **Yes** and configuring your router, you do not need to run the PPP software on your PC to connect to the Internet.

- Login required

Ethernet Broadband Settings

Does Your Internet Connection Require A Login?

Yes
 No

Internet Service Provider

Login

Password

Service Name (If Required)

Connection Mode

Idle Timeout (In Minutes)

Internet IP Address

Get Dynamically From ISP
 Use Static IP Address . . .

Domain Name Server (DNS) Address

Get Automatically From ISP
 Use These DNS Servers

Primary DNS . . .
 Secondary DNS . . .

Adjust the settings as needed based on your Internet connection. The fields in this screen are described in [Table 4](#).

Table 4. Ethernet Broadband Settings Fields When Login Required

Fields and Checkboxes	Description
Internet Service Provider	Select the service provided by your ISP. <ul style="list-style-type: none"> • Other (PPPoE) is the most common. • PPTP is used in Austria and other European countries. • Telstra BigPond is for Australia only.

Table 4. Ethernet Broadband Settings Fields When Login Required (Continued)

Fields and Checkboxes	Description
Login	<p>This is usually the name that you use in your email address. For example, if your main mail account is JerAB@ISP.com, then put JerAB in this field.</p> <p>Some ISPs (such as 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, then type it in the Login field.</p>
Password	Type the password that you use to log in to your ISP.
Service Name (If Required)	If your ISP provided a service name, enter it here. Otherwise, this can be left blank.
Connection Mode	<p>Set the connection mode to Dial on Demand, Always On, or Manually Connect.</p> <ul style="list-style-type: none"> With the default setting, Dial on Demand, a PPPoE connection automatically starts when there is outbound traffic to the Internet, and it automatically terminates if the connection is idle based on the value in the Idle Timeout field. When the connection mode is set to Always On, the PPPoE connection automatically starts when the computer boots up, but the connection does not time out. The router will keep trying to bring up the connection if it is disconnected for some reason. If you select Manually Connect, you must go to the Router Status screen and click the Connect button to connect to the Internet. The manual connection does not time out, and you have to click the Disconnect button on the Router Status screen to disconnect it.
Idle Timeout (In Minutes)	An idle Internet connection will be terminated after this time period. If this value is zero (0), then the router will keep the connection alive by reconnecting immediately whenever the connection is lost.
Internet IP Address	<p>If you log in to your service or your ISP did not provide you with a fixed IP address, the router finds an IP address for you automatically when you connect. Select Get Dynamically from ISP.</p> <p>If you have a fixed (static, permanent) IP address, your ISP has provided you with an IP address. Select Use Static IP Address and type in the IP address.</p>
Domain Name Server (DNS) Address	<p>The DNS server is used to look up site addresses based on their names.</p> <ul style="list-style-type: none"> If your ISP gave you one or two DNS addresses, select Use These DNS Servers and type the primary and secondary addresses. Otherwise, select Get Automatically From ISP. <p>Note: If you get “Address not found” errors when you go to a website, it is likely that your DNS servers are not set up correctly. You should contact your ISP to get DNS server addresses.</p>

- Login not required

Ethernet Broadband Settings

Does Your Internet Connection Require A Login?

Yes
 No

Account Name (If Required) MBR1000

Domain Name (If Required)

Internet IP Address

Get Dynamically From ISP
 Use Static IP Address

IP Address . . .

IP Subnet Mask . . .

Gateway IP Address . . .

Domain Name Server (DNS) Address

Get Automatically From ISP
 Use These DNS Servers

Primary DNS . . .

Secondary DNS . . .

Router MAC Address

Use Default Address
 Use Computer MAC Address
 Use This MAC Address 00:1F:33:E0:82:79

Buttons

Adjust the settings as needed based on your Internet connection. The fields in this screen are described in **Table 5**.

Table 5. Ethernet Broadband Settings Fields When Login Not Required

Fields and Check Boxes	Description
Account Name (If Required)	<p>This is also known as the host name or system name. For most users, type your account name or user name in this field. For example, if your main mail account is JerAB@ISP.com, then put JerAB in this field.</p> <p>If your ISP has given you a specific host name, then type it (for example, CCA7324-A).</p>
Domain Name (If Required)	<p>For most users, you can leave this field blank, unless required by your ISP. You can type the domain name of your ISP. For example, if your ISP's mail server is mail.xxx.yyy.zzz, you would type xxx.yyy.zzz as the domain name.</p> <p>If you have a domain name given to you by your ISP, type it in this field. (For example, Earthlink Cable might require a host name of home, and Comcast sometimes supplies a domain name.)</p> <p>If you have a cable modem, this is usually the workgroup name.</p>
Internet IP Address	<p>If you log in to your service or your ISP did not provide you with a fixed IP address, the router finds an IP address for you automatically when you connect. Select Get Dynamically From ISP.</p> <p>If you have a fixed (or static IP) address, your ISP has provided you with the required information. Select Use Static IP Address and type the IP address, subnet mask and gateway IP address into the correct fields.</p> <p>For example:</p> <ul style="list-style-type: none"> • IP Address. 24.218.156.183 • Subnet Mask. 255.255.255.0 • Gateway IP Address. 24.218.156.1
Domain Name Server (DNS) Address	<p>The DNS server is used to look up site addresses based on their names.</p> <ul style="list-style-type: none"> • If your ISP gave you one or two DNS addresses, select Use These DNS Servers and type the primary and secondary addresses. • Otherwise, select Get Automatically From ISP. <p>Note: If you get “Address not found” errors when you go to a website, it is likely that your DNS servers are not set up correctly. You should contact your ISP to get DNS server addresses.</p>

Table 5. Ethernet Broadband Settings Fields When Login Not Required (Continued)

Fields and Check Boxes	Description
Router MAC Address	<p>Your computer's local address is its unique address on your network. This is also referred to as the computer's MAC (Media Access Control) address.</p> <ul style="list-style-type: none"> • Usually, select Use Default MAC Address. • If your ISP requires MAC authentication, then select either Use Computer MAC Address to disguise the router's MAC address with the computer's own MAC address, or Use This MAC Address to manually type the MAC address for a different computer. <p>The format for the MAC address is XX:XX:XX:XX:XX:XX. This value might be changed if Use Computer MAC Address is selected once a value has already been set in the Use This MAC Address selection.</p>

3. The following buttons are available:

- **Apply.** Apply the changes that you made.
- **Cancel.** Discard changes.
- **Test.** Connect to the NETGEAR website. If you connect successfully, your settings work, and you can click **Logout** to exit these screens.

Wireless Network Configuration

2

For a wireless connection, the SSID, also called the wireless network name, and the wireless security settings must be the same for the router and wireless computers or wireless adapters. NETGEAR strongly recommends that you use wireless security.

Note: Computers can connect wirelessly at a range of several hundred feet. If you do not use wireless security, this can allow others outside your immediate area to access your network.

Planning Your Wireless Network

For compliance and compatibility between similar products in your area, the operating channel and region must be set correctly.

To configure the wireless network, you can either specify the wireless settings, or you can use Wi-Fi Protected Setup (WPS) to automatically set the SSID and implement WPA/WPA2 security.

- To manually configure the wireless settings, you must know the following:
 - SSID. The default SSID for the router is NETGEAR-3G.
 - The wireless mode (80.211n, 802.11g, or 802.11b) that each wireless adapter supports.
 - Wireless security option. To successfully implement wireless security, check each wireless adapter to determine which wireless security option it supports.

See [Manually Configuring Your Wireless Settings](#) on page 27.

- Push 'N' Connect (WPS) implements WPA/WPA2 wireless security on the router and your wireless computer or device at the same time. The wireless computer or device must be compatible with WPS.

See [Using Push 'N' Connect \(WPS\) to Configure Your Wireless Network](#) on page 31.

Wireless Placement and Range Guidelines

The range of your wireless connection can vary significantly based on the physical placement of the router. The latency, data throughput performance, and notebook power consumption of wireless adapters also vary depending on your configuration choices.

For best results, place your router according to the following guidelines:

- Near the center of the area in which your PCs will operate.
- In an elevated location such as a high shelf where the wirelessly connected PCs have line-of-sight access (even if through walls).
- Away from sources of interference, such as PCs, microwave ovens, and 2.4 GHz cordless phones (see [Interference Reduction Table](#) on page 104).
- Away from large metal surfaces.
- Put the antenna in a vertical position to provide the best side-to-side coverage. Put the antenna in a horizontal position to provide the best up-and-down coverage.
- If using multiple access points, it is better if adjacent access points use different radio frequency channels to reduce interference. The recommended channel spacing between adjacent access points is 5 channels (for example, use Channels 1 and 6, or 6 and 11).

The time it takes to establish a wireless connection can vary depending on both your security settings and placement. WEP connections can take slightly longer to establish. Also, WEP encryption can consume more battery power on a notebook computer.

Wireless Security Options

Indoors, computers can connect over 802.11n wireless networks at a maximum range of up to 300 feet. Such distances can allow for others outside your immediate area to access your network.

Unlike wired network data, your wireless data transmissions can extend beyond your walls and can be received by anyone with a compatible adapter. For this reason, use the security features of your wireless equipment. The Mobile Broadband 11n Wireless Router provides highly effective security features, which are covered in detail in this chapter. Deploy the security features appropriate to your needs.

There are several ways you can enhance the security of your wireless network:

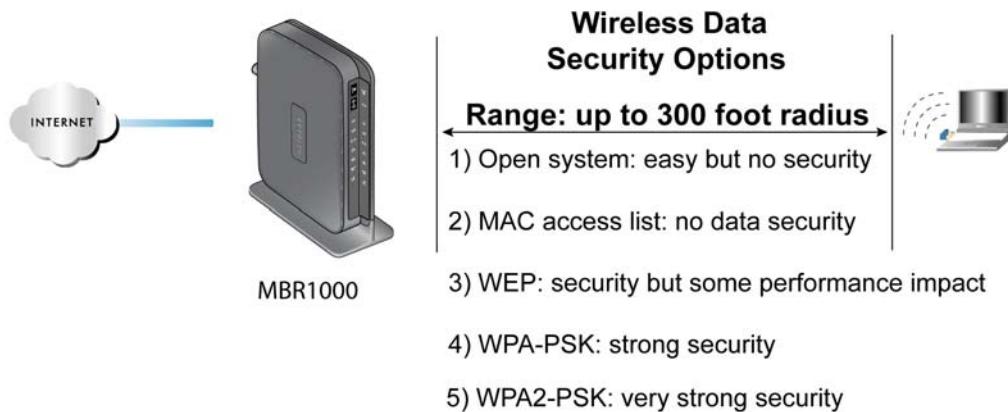


Figure 4. Wireless Security

- **Restrict access based on MAC address.** You can allow only trusted PCs to connect so that unknown PCs cannot wirelessly connect to the router. Restricting access by MAC address adds an obstacle against unwanted access to your network, but the data broadcast over the wireless link is fully exposed.
- **Turn off the broadcast of the wireless network name (SSID).** If you disable broadcast of the SSID, only devices that have the correct SSID can connect. This nullifies wireless network “discovery” feature of some products, such as Windows XP, but the data is still exposed.
- **WEP.** Wired Equivalent Privacy (WEP) data encryption provides data security. WEP Shared Key authentication and WEP data encryption block all but the most determined eavesdropper. This data encryption mode has been superseded by WPA-PSK and WPA2-PSK.
- **WPA-PSK (TKIP), WPA2-PSK (AES).** Wi-Fi Protected Access (WPA) using a pre-shared key to perform authentication and generate the initial data encryption keys. The very strong authentication along with dynamic per frame re-keying of WPA makes it virtually impossible to compromise.

For more information about wireless technology, click the link to the online document [Wireless Networking Basics](#) in Appendix B.

Manually Configuring Your Wireless Settings

Note: If you use a wireless computer to change the wireless network name (SSID) or wireless security, you will be disconnected when you click **Apply**. To avoid this problem, connect your computer to the router with an Ethernet cable while you are making changes.

To view or manually configure the wireless settings:

1. Log in to the router as described in *Logging In to Your Router* on page 11.
2. Select Wireless Settings from the main menu.

The settings for this screen are explained in **Table 6**.

3. Select the region in which the router will operate.
4. For initial configuration and test, leave the other settings unchanged.
5. To save your changes, click **Apply**.
6. Configure and test your computers for wireless connectivity.

Set up your wireless computers with the same SSID and wireless security settings as your router. Check that they have a wireless link and are able to obtain an IP address by DHCP from the router. If there is interference, adjust the channel.

Table 6. Wireless Settings

Settings	Description	
Wireless Network	Name (SSID)	The SSID is also known as the wireless network name. Enter a 32-character (maximum) name in this field. This field is case-sensitive. When there is more than one wireless network, SSIDs provide a means for separating the traffic. To join a network, a wireless computer or device must use the SSID.
	Region	The location where the router is used.
	Channel	The wireless channel used by the gateway. The default is Auto . Do not change the channel unless you experience interference (shown by lost connections or slow data transfers). If this happens, you might need to try different channels to see which works best.
	Mode	The default is Up to 145 Mbps .

Table 6. Wireless Settings (Continued)

Settings	Description
Security Options	None
	You can use this setting to establish wireless connectivity before implementing wireless security. NETGEAR strongly recommends that you implement wireless security.
	WEP
	Use encryption keys and data encryption for data security. You can select 64-bit or 128-bit encryption. See Configuring WEP on page 28.
	WPA-PSK (TKIP)
	Allow only computers configured with WPA to connect to the router. See Configuring WPA, WPA2, or WPA + WPA2 on page 29.
	WPA2-PSK (AES)
	Allow only computers configured with WPA2 to connect to the router. See Configuring WPA, WPA2, or WPA + WPA2 on page 29.
	WPA-PSK (TKIP) + WPA2-PSK (AES)
	Allow computers configured with either WPA-PSK or WPA2-PSK security to connect to the router. See Configuring WPA, WPA2, or WPA + WPA2 on page 29.

Configuring WEP

Note: If you use a wireless computer to configure wireless security settings, you will be disconnected when you click **Apply**. Reconfigure your wireless computer to match the new settings, or access the router from a wired computer to make further changes.

To configure WEP data encryption:

1. Log in to the router as described in [Logging In to Your Router](#) on page 11.
2. From the main menu, select Wireless Settings to display the Wireless Settings screen.

3. In the Security Options section, select the **WEP** (Wired Equivalent Privacy) radio button:
4. Select the **Authentication Type** setting: **Automatic**, **Open System**, or **Shared Key**. The default is **Open System**.

Note: *The authentication is separate from the data encryption. You can select authentication that requires a shared key, but still leaves data transmissions unencrypted. Security is stronger if you use both the Shared Key and WEP encryption settings.*



5. Select the **Encryption Strength** setting:
 - **64-bit**. Enter 10 hexadecimal digits (any combination of 0–9, a–f, or A–F).
 - **128-bit**. Enter 26 hexadecimal digits (any combination of 0–9, a–f, or A–F).
6. Enter the encryption keys. You can manually or automatically program the four data encryption keys. These values must be identical on all computers and access points in your network:
 - **Passphrase**. To use a passphrase to generate the keys, enter a passphrase, and click **Generate**. This automatically creates the keys. Wireless stations must use the passphrase or keys to access the router.

Note: Not all wireless adapters support passphrase key generation.

- **Key 1–Key4**. These values are *not* case-sensitive. You can manually enter the four data encryption keys. These values must be identical on all computers and access points in your network. Enter 10 hexadecimal digits (any combination of 0–9, a–f, or A–F).

7. Select which of the four keys will be the default.

Data transmissions are always encrypted using the default key. The other keys can be used only to decrypt received data. The four entries are disabled if WPA-PSK or WPA authentication is selected.

8. Click **Apply** to save your settings.

Configuring WPA, WPA2, or WPA + WPA2

Both WPA and WPA2 provide strong data security. WPA with TKIP is a software implementation that can be used on Windows systems with Service Pack 2 or later; WPA2 with AES is a hardware implementation; see your device documentation before implementing

it. Consult the product documentation for your wireless adapter for instructions for configuring WPA settings.

Note: If you use a wireless computer to configure wireless security settings, you will be disconnected when you click **Apply**. If this happens, reconfigure your wireless computer to match the new settings, or access the router from a wired computer to make further changes.

To configure WPA or WPA2 in the router:

1. Log in to the router as described in *Logging In to Your Router* on page 11.
2. Select Wireless Settings from the main menu.
3. On the Wireless Setting screen, select the radio button for the WPA or WPA2 option of your choice.
4. For WPA-PSK or WPA2-PSK, enter the passphrase.
5. To save your settings, click **Apply**.

Using Push 'N' Connect (WPS) to Configure Your Wireless Network

To use Push 'N' Connect, your wireless computers or devices must support Wi-Fi Protected Setup (WPS). Compatible equipment usually has the  WPS symbol on it. WPS can configure the network name (SSID) and set up WPA/WPA2 wireless security for the router and the wireless computer or device at the same time.

Here are some considerations regarding WPS:

- NETGEAR's Push 'N' Connect feature is based on the WPS standard. All other Wi-Fi-certified and WPS-capable products should be compatible with NETGEAR products that implement Push 'N' Connect.
- If your wireless network will include a combination of WPS-capable devices and non-WPS-capable devices, NETGEAR suggests that you set up your wireless network and security settings manually first, and use WPS only for adding WPS-capable devices.

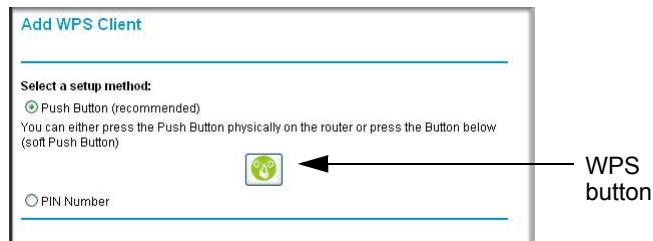
WPS Button

Any wireless computer or wireless adapter that will connect to the router wirelessly is a client. The client must support a WPS button, and must have a WPS configuration utility, such as the NETGEAR Smart Wizard or Atheros Jumpstart.

To use the router WPS button to add a WPS client:

1. Log in to the router as described in [Logging In to Your Router](#) on page 11.
2. On the router main menu, select Add WPS Client, and then click **Next**.

By default, the **Push Button (recommended)** radio button is selected.



3. Either click the onscreen button or press the WPS button on the front of the router.

The router tries to communicate with the client (the computer that wants to join the network) for 2 minutes.

4. Go to the client wireless computer, and run a WPS configuration utility. Follow the utility's instructions to click a WPS button.

5. Go back to the router screen to check for a message.

The router WPS screen displays a message confirming that the client was added to the wireless network. The router generates an SSID, and implements WPA/WPA2 wireless security. The router will keep these wireless settings unless you change them, or you clear the **Keep Existing Wireless Settings** check box in the Advanced Wireless Settings/WPS Settings screen.

6. Note the new SSID and WPA/WPA2 password for the wireless network. You can view these settings in the Wireless Settings screen. See [Manually Configuring Your Wireless Settings](#) on page 27.

To access the Internet from any computer connected to your router, launch a browser such as Microsoft Internet Explorer or Mozilla Firefox. You should see the router's Internet LED blink, indicating communication to the ISP.

Note: If no WPS-capable client devices are located during the 2-minute time frame, the SSID does not change, and no security is set up.

WPS PIN Entry

Any wireless computer or device that will connect to the router wirelessly is a client. The client must support a WPS PIN, and must have a WPS configuration utility, such as the NETGEAR Smart Wizard or Atheros Jumpstart.

The first time you add a WPS client, make sure that the **Keep Existing Wireless Settings** check box on the WPS Settings screen is cleared. This is the default setting for the router, and allows it to generate the SSID and WPA/WPA2 security settings when it implements WPS. After WPS is implemented, the router automatically selects this check box so that your SSID and wireless security settings stay the same if other WPS devices are added later.

To use a PIN to add a WPS client:

1. Log in to the router as described in [Logging In to Your Router](#) on page 11.

2. On the router main menu, select Add WPS Client (computers that will connect wirelessly to the router are clients), and then click **Next**. The Add WPS Client screen displays.
3. Select the **PIN Number** radio button.
4. Go to the client wireless computer. Run a WPS configuration utility. Follow the utility's instructions to generate a PIN. Take note of the client PIN.
5. In the router Add WPS Client screen, enter the client PIN number, and then click **Next**.
 - The router tries to communicate with the client for 4 minutes. If no WPS clients connect during this time, the router wireless settings do not change.
 - The router WPS screen confirms that the client was added to the wireless network. The router generates an SSID, and implements WPA/WPA2 wireless security.
6. Note the new SSID and WPA/WPA2 password for the wireless network. You can view these settings in the Wireless Settings screen. See **Manually Configuring Your Wireless Settings** on page 27.

To access the Internet from any computer connected to your router, launch an Internet browser such as Mozilla Firefox. You should see the router's Internet LED blink.

Adding Wireless Computers That Do Not Support WPS

If you set up your network with WPS, and now you want to add a computer that does not support WPS, you must manually configure that computer. For information about how to view the wireless settings for the router, see **Manually Configuring Your Wireless Settings** on page 27.

Because WPA randomly creates the SSID and WPA/WPA2 keys, they might be difficult to type or remember (that is one reason why the network is so secure). You can change the wireless settings so that they are easier for you to remember. If you do that, then you will need to set up the WPS-compatible computers again.

Note: Making these changes will cause all wireless computers to be disconnected from network. You will then have to set them up with the new wireless settings.

To change wireless settings for the network:

1. Use an Ethernet cable to connect a computer to the router. That way you will not get disconnected when you change the wireless settings.
2. Log in to the router and select Wireless Settings (see **Manually Configuring Your Wireless Settings** on page 27).
3. Make the following changes:

- Change the wireless network name (SSID) to a meaningful name.
- On the WPA/PSK + WPA2/PSK screen, select a passphrase.
- Make sure that the **Keep Wireless Settings** check box is selected in the WPS Settings screen so that your new settings will not be erased if you use WPS.

4. Click **Apply** so that your changes take effect. Write down your settings.

All existing wireless clients are disassociated and disconnected from the router.

5. For the non-WPS devices that you want to connect, open the networking utility and follow the utility's instructions to enter the security settings that you selected in Step 3 (the SSID, WPA/PSK + WPA2/PSK security method, and passphrase).

6. For the WPS devices that you want to connect, follow the procedure **WPS Button** on page 31 or **WPS PIN Entry** on page 32.

The settings that you configured in Step 3 are broadcast to the WPS devices so that they can connect to the router.

Content Filtering

3

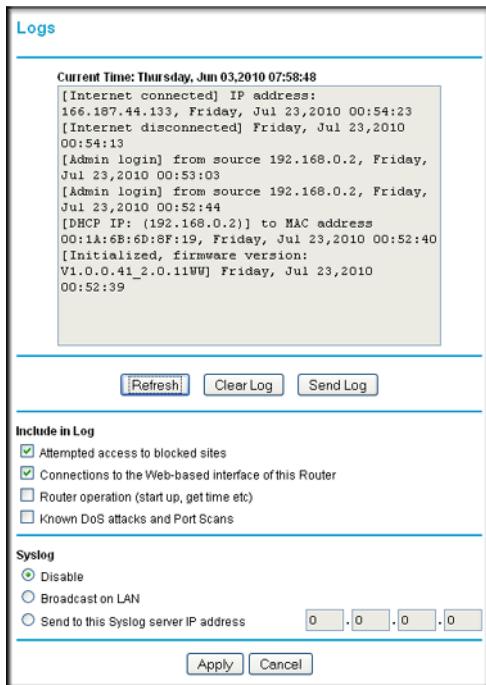
This chapter describes how to use the basic firewall features of the router to protect your network.

Note: For information about the advanced content filtering features port forwarding and port triggering, see *[Port Forwarding and Port Triggering](#)* on page 66.

Viewing, Selecting, and Saving Logged Information

The router logs security-related events such as denied incoming service requests, hacker probes, and administrator logins. If you enabled content filtering in the Block Sites screen, the Logs screen can show you when someone on your network tries to access a blocked site.

On the main menu, under Content Filtering, select Logs to display this screen:



Note: You can enable e-mail notification to receive these logs in an email message. See [Enabling Security Event Email Notification](#) on page 44.

Log entries and action buttons are described in the following table.

Table 7. Security Log Entry and Button Descriptions

Field or Button	Description
Current time	The date and time the log entry was recorded.
Description or action	The type of event and what action was taken, if any.
Source IP	The IP address of the initiating device for this log entry.
Source port and interface	The service port number of the initiating device, and whether it originated from the LAN or WAN.
Destination	The name or IP address of the destination device or website.

Table 7. Security Log Entry and Button Descriptions (Continued)

Field or Button	Description
Destination port and interface	The service port number of the destination device, and whether it is on the LAN or WAN.
Refresh button	Refresh the log screen.
Clear Log button	Clear the log entries.
Send Log button	Email the log immediately.
Apply button	Apply the current settings.
Cancel button	Clear the current settings.

Selecting Which Information to Log

Besides the standard information listed previously, you can choose to log additional information. Those optional selections are as follows:

- Attempted access to blocked site
- Connections to the router menu
- Router operation (start up, get time, and so on)
- Known DoS attacks and port scans

Saving Log Files on a Server

You can choose to write the logs to a computer running a syslog program. To activate this feature, select to the **Broadcast on LAN** radio button, or enter the IP address of the server where the syslog file will be written.

Examples of Log Messages

Following are examples of log messages. In all cases, the log entry shows the time stamp as Day, Year-Month-Date Hour:Minute:Second.

Activation and Administration

Tue, 2002-05-21 18:48:39 - NETGEAR activated

This entry indicates a power-up or reboot with initial time entry.

Tue, 2002-05-21 18:55:00 - Administrator login successful - IP:192.168.0.2

Thu, 2002-05-21 18:56:58 - Administrator logout - IP:192.168.0.2

This entry shows an administrator logging in to and out from IP address 192.168.0.2.

Tue, 2002-05-21 19:00:06 - Login screen timed out - IP:192.168.0.2

This entry shows a time-out of the administrator login.

Wed, 2002-05-22 22:00:19 - Log emailed

This entry shows when the log was emailed.

Dropped Packets

Wed, 2002-05-22 07:15:15 - TCP packet dropped - Source:64.12.47.28,4787,WAN - Destination:134.177.0.11,21,LAN - [Inbound Default rule match]

Sun, 2002-05-22 12:50:33 - UDP packet dropped - Source:64.12.47.28,10714,WAN - Destination:134.177.0.11,6970,LAN - [Inbound Default rule match]

Sun, 2002-05-22 21:02:53 - ICMP packet dropped - Source:64.12.47.28,0,WAN - Destination:134.177.0.11,0,LAN - [Inbound Default rule match]

These entries show an inbound FTP (port 21) packet, User Datagram Protocol (UDP) packet (port 6970), and Internet Control Message Protocol (ICMP) packet (port 0) being dropped as a result of the default inbound rule, which states that all inbound packets are denied.

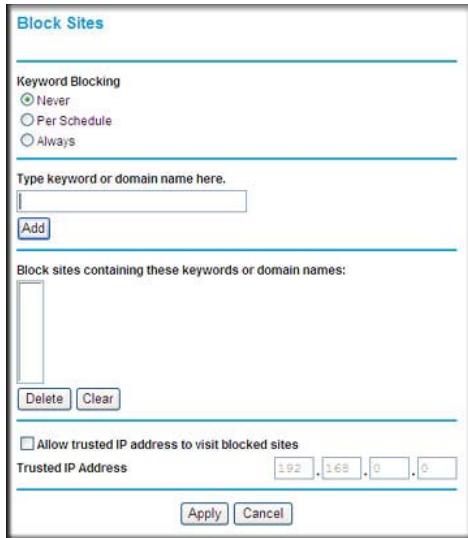
Blocking Sites and Keywords

The router provides a variety of options for blocking Internet-based content and communications services. With its content filtering feature, the router prevents objectionable content from reaching your PCs. You can control access to Internet content by screening for keywords within Web addresses. Content filtering options include:

- Keyword blocking of HTTP traffic.
- Outbound service blocking. Limits access from your LAN to Internet locations or services that you specify as off-limits.
- Denial of service (DoS) protection. Detects and thwarts DoS attacks such as Ping of Death, SYN flood, LAND attack, and IP spoofing.
- Blocking unwanted traffic from the Internet to your LAN.

The router allows you to restrict access to Internet content based on Web addresses and Web address keywords.

1. Log in to the router as described in [Logging In to Your Router](#) on page 11.
2. On the main menu, select Block Sites to display the Block Sites screen:



3. To enable keyword blocking, select one of the following:
 - **Per Schedule.** Turn on keyword blocking according to the settings on the Schedule screen.
 - **Always.** Turn on keyword blocking all the time, independent of the setting in the Schedule screen.
4. Enter a keyword or domain in the **Keyword** field, click **Add Keyword**, and then click **Apply**.

Some examples of keyword applications are shown in the following chart.

Keyword	Result
XXX	Block the URL http://www.badstuf.com/xxx.html .
.com	Only websites with other domain suffixes (such as .edu or .gov) can be viewed.
. (a period)	Block all Internet browsing access.

Up to 32 entries are supported in the Keyword list.

Note: If you block sites, you can set up the router to log attempts to access them. See [Viewing, Selecting, and Saving Logged Information](#) on page 36.

5. To delete a keyword or domain, select it from the list, click **Delete Keyword**, and then click **Apply**.
6. To specify a trusted user, enter that computer's IP address in the **Trusted IP Address** field, and then click **Apply**.
You can specify one trusted user, which is a computer that will be exempt from blocking and logging. Since the trusted user will be identified by an IP address, you should configure that computer with a fixed IP address.
7. Click **Apply** to save your settings.

Blocking Services

1. Log in to the router as described in [Logging In to Your Router](#) on page 11.
2. In the main menu, under Content Filtering, select Block Services to display this screen:

Figure 3-1

3. Select one of the following:
 - **Per Schedule.** Turn on keyword blocking according to the settings in the Schedule screen.
 - **Always.** Turn on keyword blocking all the time, independent of the Schedule screen.
4. Click **Add**, and the following screen displays:

5. Either select a service from the **Service Type** drop-down list, or use the **Service/Type User Defined** field to create a custom service.
6. Click **Add** to create the service, and it will be listed in the Service Table on the Block Services screen.
7. Click **Apply** to save your settings.

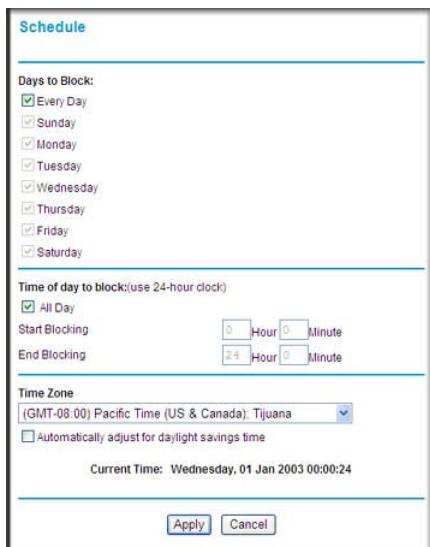
Scheduling

The router uses Network Time Protocol (NTP) to obtain the current time and date from one of several network time servers on the Internet.

Setting Your Time Zone

To localize the time for your log entries, you must specify your time zone:

1. Log in to the router as described in [Logging In to Your Router](#) on page 11.
2. On the main menu under Content Filtering, select Schedule:



3. Select your time zone. This setting will be used for the blocking schedule according to your local time zone and for time-stamping log entries.

If your time zone is currently in daylight savings time, select the **Automatically adjust for daylight savings time** check box.

4. Click **Apply** to save your settings.

Scheduling Firewall Services

If you enabled service blocking in the Block Services screen or port forwarding in the Ports screen, you can set up a schedule for when blocking occurs or when access is not restricted.

1. Log in to the router as described in [Logging In to Your Router](#) on page 11.
2. On the main menu, select the Schedule. The Schedule screen appears.
3. To block Internet services based on a schedule, select **Every Day**, or select one or more days. If you want to limit access completely for the selected days, select **All Day**. Otherwise, to limit access during certain times for the selected days, fill in the **Start Blocking** and **End Blocking** fields.

4. Enter the values in 24-hour time format. For example, 10:30 a.m. would be 10 hours and 30 minutes, and 10:30 p.m. would be 22 hours and 30 minutes. If you set the start time after the end time, the schedule will be effective through midnight the next day.
5. Click **Apply** to save your changes.

Enabling Security Event Email Notification

To set up the router so that you can receive logs and alerts by email, select Email from the router menu to display the following screen:

To receive alerts and logs by email:

1. Select the **Turn Email Notification On** check box.
2. Fill in the fields to send alerts and logs through email.
 - **Your Outgoing Mail Server.** Enter the name or IP address of the outgoing SMTP mail server of your ISP (such as mail.myISP.com).
 - **Send to This Email Address.** Enter the e-mail address where you want to send the alerts and logs. Use a full email address, such as ChrisXY@myISP.com.
 - **My mail server requires authentication.** Select this check box if you need to log in to your SMTP server to send email. If you select this feature, you must enter the user name and password for the mail server.

Tip: If you cannot remember this information, check the settings in your email program.

3. Specify when you want the alerts and logs to be sent:
 - **Send alert immediately.** Select the corresponding check box if you would like immediate notification of a significant security event, such as a known attack, port scan, or attempted access to a blocked site.
 - **Send logs according to this schedule.** Specifies how often to send the logs: **Hourly**, **Daily**, **Weekly**, or **When Full**.
 - **Day for sending log.** Specifies which day of the week to send the log. Relevant when the log is sent weekly.

- **Time for sending log.** Specifies the time of day to send the log. Relevant when the log is sent daily or weekly.

If the **Weekly**, **Daily**, or **Hourly** option is selected and the log fills up before the specified period, the log is automatically e-mailed to the specified email address. After the log is sent, it is cleared from the router's memory. If the router cannot e-mail the log file, the log buffer might fill up. In this case, the router overwrites the log and discards its contents.

4. Click **Apply** so that your changes take effect.

Managing Your Network

4

This chapter describes how to perform network management tasks with your Mobile Broadband 11n Wireless Router.

Router Status

From the main menu, under Maintenance, select Router Status to view this screen.

You can use this screen to view the status of the router, to show statistics, or to view the connection status.

- For information about the fields on this screen, see **Table 8**.
- See **Showing Statistics** on page 49 for information about statistics.
- For information about the Internet connection, see **Connection Status** on page 50.

Router Status	
Active Connection	HSDPA
Account Name	MBRN3300C
Firmware Version	V1.2.2.24
Ethernet Port	
MAC Address	00:1F:33:E0:82:79
IP Address	0.0.0.0
Network Type	DHCPClient
IP Subnet Mask	0.0.0.0
Gateway IP Address	0.0.0.0
Domain Name Server	0.0.0.0
Modem	
EVDO	
Modem Identity	MC5725
Modem SW version	p2006004,51735 [Jun 20 2008 08:55:54]
Modem driver version	v1.7
ESN	0x604EB235
Operator	VERIZON
Network mode	1xEVDO
Wireless Broadband Port	
Connection Status	Connected
IP Address	75.210.81.198
Protocol	PPP
IP Subnet Mask	255.255.255.255
Gateway Ip Address	66.174.216.64
Domain Name Server	66.174.92.14 69.78.96.14
LAN Port	
MAC Address	00:1F:33:E0:82:78
IP Address	192.168.0.1
DHCP	ON
IP Subnet Mask	255.255.255.0
Wireless Port	
Name (SSID)	NETGEAR-3G
Region	United States
Channel	Auto (11)
Wireless AP	ON
Broadcast Name	ON
<input type="button" value="Connection Status"/> <input type="button" value="Refresh"/> <input type="button" value="Show Statistics"/>	

Table 8. Router Status Fields

Field		Description
Firmware Version		This field displays the router firmware version.
Mobile Broadband	Modem Identity	Shows the modem in use.
	Modem sw version	The software version of the modem.
	Modem driver version	The driver version of the modem.
	IMSI	International Mobile Subscriber Identity. SIM card identity.
	IMEI	International Mobile Equipment Identity. Unique identity of the modem.
	Operator	The ISP for the broadband wireless network.
	Network mode	The mode of the current network the modem is connected to. This is dependent on coverage and distance from the cell site.
WAN Port	Connection Status	The status of the Internet connection.
	IP Address	The IP address used by the modem. If no address is shown, the router cannot connect to the Internet.
	Protocol	The protocol for the Internet connection, which is PPP (Point-to-Point).
	IP Subnet Mask	The IP subnet mask used by the router's USB port.
	Gateway IP Address	The IP address used by the router.
	Domain Name Server	The DNS server IP addresses used by the router. These addresses are usually obtained dynamically from the ISP.
LAN Port	MAC Address	The Ethernet MAC address used by the router's LAN port.
	IP Address	The LAN port IP address. The default is 192.168.0.1.
	DHCP	<ul style="list-style-type: none"> Off. The router does not assign IP addresses to PCs on the LAN. On. The router assigns IP addresses to PCs on the LAN.
	IP Subnet Mask	The LAN port IP subnet mask. The default is 255.255.255.0.
Wireless Port (See Manually Configuring Your Wireless Settings on page 27.)	Name (SSID)	The service set ID, also known as the wireless network name.
	Region	The country where the unit is set up for use.
	Channel	The current channel, which determines the operating frequency.
	Wireless AP	Indicates if the access point feature is disabled or not. If not enabled, the Wireless LED on the front panel will be off.
	Broadcast Name	Indicates if the router is configured to broadcast its SSID.

Showing Statistics

Click the **Show Statistics** button on the Router Status screen to display router usage statistics:

System Up Time 00:10:53							
Port	Status	TxPkts	RxPkts	Collisions	Tx B/s	Rx B/s	Up Time
WAN	PPP	150	33	0	0	0	00:10:09
LAN1	10M/100M						00:10:53
LAN2	Link Down	966	1041	0	827	247	--
LAN3	Link Down						--
LAN4	Link Down						--
WLAN	300M	69	0	0	19	0	00:10:53

Poll Interval : (secs)

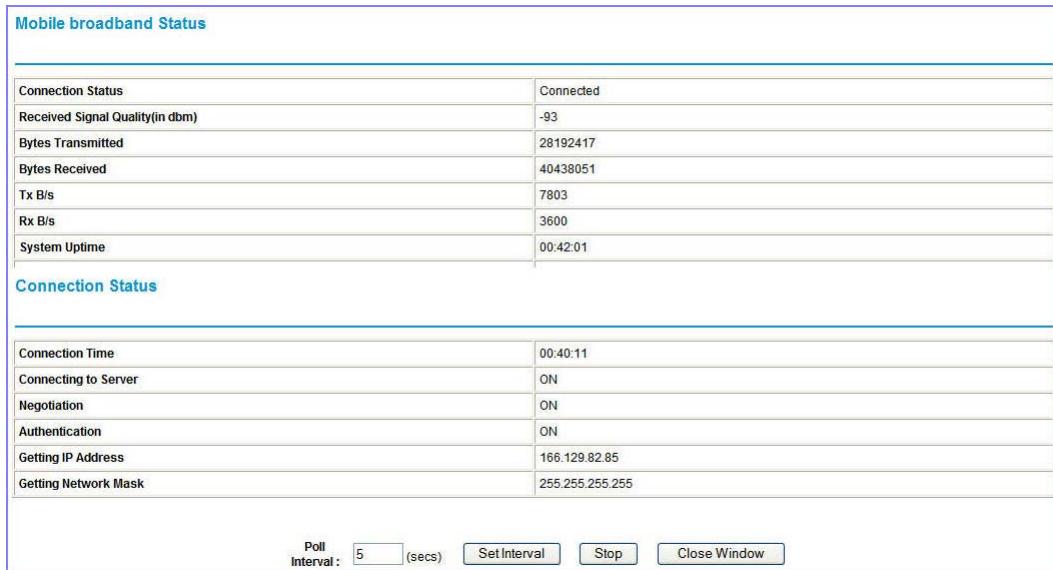
The following table explains the statistic fields.

Table 9. Router Statistics Fields

Field	Description
Status	The link status. Note that LAN2, LAN3, and LAN4 are guest networks.
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 average egress line utilization for this port.
Rx B/s	The average ingress line utilization for this port.
Up Time	The time elapsed since the last power cycle or reset.

Connection Status

Click the **Connection Status** button on the Router Status screen:



The screenshot shows the 'Mobile broadband Status' section of the Router Status screen. It is divided into two main sections: 'Connection Status' and 'Connection Status' (repeated). The first 'Connection Status' section contains the following data:

Connection Status	Connected
Received Signal Quality(in dbm)	-93
Bytes Transmitted	28192417
Bytes Received	40438051
Tx B/s	7803
Rx B/s	3600
System Uptime	00:42:01

The second 'Connection Status' section contains the following data:

Connection Time	00:40:11
Connecting to Server	ON
Negotiation	ON
Authentication	ON
Getting IP Address	166.129.82.85
Getting Network Mask	255.255.255.255

At the bottom of the screen, there is a poll interval timer with a value of 5, and buttons for 'Set Interval', 'Stop', and 'Close Window'.

This screen shows the following statistics:

Table 10. Connection Status Fields

Field	Description
Mobile Broadband Service	Connection Status The status of the Internet connection. <ul style="list-style-type: none">Scanning. The modem is scanning for broadband wireless networks in your area.Connected. The router is connected to the Internet.No USB Device Attached. The router does not detect a USB modem connected to its USB port. Either the modem is disconnected, or it is not correctly seated. To correct the problem remove the modem and reinsert it into the port.
	Received Signal Quality (in dBm) Modem radio reception. A small, negative number indicates good signal quality.
	Bytes Transmitted The number of bytes transmitted in the most recent connection session.
	Bytes Received The number of bytes received in the most recent connection session.
	Tx B/s The transmission rate.
	Rx B/s The receiving rate.
	System Uptime Time elapsed since the last reboot.

Table 10. Connection Status Fields (Continued)

Field	Description	
Connection Status	Connection Time	The time elapsed since the last connection to the Internet through the broadband port.
	Connecting to Server	The connection status.
	Negotiation	Success or Failed.
	Authentication	Success or Failed.
	Getting IP Address	The IP address assigned to the WAN port by the ADSL Internet Service Provider.
	Getting Network Mask	The network mask assigned to the WAN port by the ADSL Internet Service Provider.

Viewing Attached Devices

The Attached Devices screen shows all IP devices that the router discovered on the local network. From the main menu, under Maintenance, select Attached Devices:

Attached Devices			
#	IP Address	Device Name	MAC Address
1	192.168.0.2	BDU\ALL-CONTRACTOR	00:1A:6B:6D:8F:19
<input type="button" value="Refresh"/>			

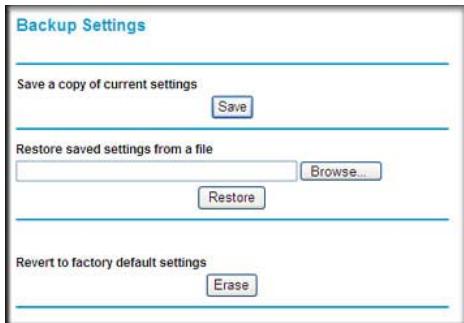
For each device, the table shows the IP address, device name if available, and the Ethernet MAC address. If the router is rebooted, this data is lost until the router redisCOVERS the devices. To force the router to look for attached devices, click the **Refresh** button.

Backing Up, Restoring, or Erasing Your Settings

The configuration settings of the router are stored in a configuration file in the router. This file can be backed up to your computer, restored, or reverted to factory default settings. The procedures in the following sections explain how to do these tasks.

Backing Up the Configuration to a File

1. Log in to the router. Type <http://www.routerlogin.net> in the address field of your Internet browser. Enter **admin** for the user name and your password (or the default, **password**).
2. Under Maintenance on the main menu, select Backup Settings to display the Backup Settings screen.



3. Click **Save** to save a copy of the current settings.
4. Store the .cfg file on a computer on your network.

Restoring the Configuration from a File

To restore the configuration:

1. Log in to the router. Type <http://www.routerlogin.net> in the address field of your Internet browser. Enter **admin** for the user name and your password (or the default, **password**).
2. Under Maintenance on the main menu, select Backup Settings.
3. Enter the full path to the file on your network, or click **Browse** to locate the file.
4. When you have located the .cfg file, click **Restore** to upload the file to the router.

The router reboots.

Erasing the Configuration

You can use the Erase feature to erase its configuration settings and restore the router to the factory default settings.

To erase the configuration:

1. Under Maintenance on the main menu, select Backup Settings.
2. Click **Erase**.

The router reboots.

After an erase, the router password is **password**, the LAN IP address is **192.168.0.1**, and the router DHCP client is enabled.

Note: To restore the factory default settings when you do not know the login password or IP address, press the Restore Factory Settings button on the bottom of the router for 6 seconds.

Protecting Access to Your Router

For security reasons, the router has its own user name and password. Also, after a period of inactivity, the login automatically disconnects. The user name and password are not the same as a user name or password you might use to log in to your Internet connection.

NETGEAR recommends that you change this password to a more secure password. The ideal password should contain no dictionary words from any language, and should be a mixture of both uppercase and lowercase letters, numbers, and symbols. Your password can be up to 30 characters.

Changing the Built-In Password

1. To log in to the router, type **http://www.routerlogin.net** in the address field of your Internet browser. Enter **admin** for the user name and your password (or the default, **password**).

Note: If you changed the password and do not remember what it is, you can reset the router to its factory default settings. See ***Restoring the Default Configuration and Password*** on page 97.

2. From the main menu, under Maintenance, select Set Password.

The image shows a screenshot of a web-based configuration interface for a router. The title of the page is 'Set Password'. There are three text input fields: 'Old Password', 'New Password', and 'Repeat New Password'. Below these fields is a line of text: 'Administrator login times out after idle for minutes.' At the bottom of the page are two buttons: 'Apply' and 'Cancel'.

3. To change the password, first enter the old password, and then enter the new password twice.
4. Click **Apply** to save your changes.

Note: After changing the password, you must log in again to continue the configuration. If you have backed up the router settings previously, you should do a new backup so that the saved settings file includes the new password.

Changing the Administrator Login Time-Out

For security, the administrator login to the router configuration times out after a period of inactivity. To change the login time-out period:

1. In the Set Password screen, type a number in the **Administrator login times out** field. The suggested default value is 5 minutes.
2. Click **Apply** to save your changes, or click **Cancel** to keep the current period.

Running Diagnostic Utilities and Rebooting the Router

The router has a diagnostics feature. You can use the Diagnostics screen to perform the following functions from the router:

- Ping an IP address to test connectivity to see if you can reach a remote host. If Ping VPN is enabled, the ping packet always goes through the VPN if the VPN tunnel is enabled and working.
- Perform a DNS lookup to test if an Internet name resolves to an IP address to verify that the DNS server configuration is working.
- Display the routing table to identify what other routers the router is communicating with.
- Reboot the router to enable new network configurations to take effect or to clear problems with the router's network connection.

From the main menu, under Maintenance, select Diagnostics.

Diagnostics

Ping an IP address
IP Address: ...

Perform a DNS Lookup
Internet Name:
IP Address:
DNS Server: 209.183.54.151
209.183.54.151

Display the Routing Table

Reboot the Router

Save diagnostics information

Scan available command port

- **Ping.** Ping an IP address.
- **Lookup.** A Domain Name Server (DNS) converts the Internet name such as www.netgear.com to an IP address. If you need the IP address of a server on the Internet, you can do a DNS lookup to find the IP address.
- **Display.** View the internal routing table. Typically, this information is used only by Technical Support.
- **Reboot.** Shut down and restart the router.

Note: If you reboot the router you will lose your connection. To access the router you will need to log in again after it has finished rebooting.

- **Save.** Save diagnostic information.

Upgrading the Router Firmware

The router firmware is stored in flash memory, and can be upgraded as new firmware is released by NETGEAR. Upgrade files can be downloaded from the NETGEAR web site. If the upgrade file is compressed (a .zip file), you must first extract the binary (.bin or .img) file before uploading it to the router.

NETGEAR recommends that you back up your configuration before doing a firmware upgrade. After the upgrade is complete, you might need to restore your configuration settings.

1. Download and unzip the new firmware file from NETGEAR.

The Web browser used to upload new firmware into the router must support HTTP uploads. NETGEAR recommends using Microsoft Internet Explorer 5.0 or later, or Mozilla Firefox 2.0 or later.

2. Log in to the router. Type **http://www.routerlogin.net** in the address field of your Internet browser. Enter **admin** for the user name and your password (or the default, **password**).
3. From the main menu, under Maintenance, select Router Upgrade to display this screen.



4. Click **Browse** to locate the binary (.bin or .img) upgrade file.
5. Click **Upload**.



WARNING!

When uploading firmware to the router, do not interrupt the Web browser by closing the window, clicking a link, or loading a new page. If the browser is interrupted, it might corrupt the firmware, causing router to be unworkable and inaccessible. When the upload is complete, your router will automatically restart. The upgrade process typically takes about 1 minute. In some cases, you might need to clear the configuration and reconfigure the router after upgrading.

Advanced

5

This chapter describes how to configure the advanced features of your Mobile Broadband 11n Wireless Router.

SIM Settings

From the main menu, select SIM Settings to display the following screen:

SIM Settings

Enabling or Disabling the PIN Code

Disable Enable

Current PIN Code:

Apply

Changing the PIN Code

Current PIN Code:

New PIN Code:

Confirm new PIN Code:

Apply

SIM status:

Table 11. SIM Settings

Field	Description
Enabling or Disabling the PIN Code	Controls whether the PIN code on the SIM card will be used to connect to the network.
Changing the PIN Code	Changes the PIN code on the SIM card.
SIM status	Current SIM card access status.

Advanced Wireless Settings

From the main menu, select Advanced Wireless Settings to display the following screen:

Advanced Wireless Settings

Enable Wireless Router Radio

Fragmentation Length (256-2346): 2346

CTS/RTS Threshold (1-2347): 2347

Preamble Mode: Long Preamble

WPS Settings

Router's PIN: **93770958**

Disable Router's PIN

Keep Existing Wireless Settings

Wireless Card Access List [Set Up Access List](#)

[Apply](#) [Cancel](#)

Table 12. Advanced Wireless Settings

Field	Description
Enable Wireless Router Radio	Selected by default, this setting enables the wireless radio, which allows the router to work as a wireless access point. Turning off the wireless radio can be helpful for configuration, network tuning, or troubleshooting.
Fragmentation Length, CTS/RTS Threshold, and Preamble Mode	These should be left at their default settings.
Router PIN	The PIN number used for Push 'N' Connect.
Disable Router PIN	By default, this check box is cleared. This allows the WPS clients to discover the router's PIN.
Keep Wireless Settings	By default, this check box is cleared. This allows the router to automatically generate the SSID and WPA/WPA2 security settings when it implements WPS. After WPS is implemented, the router automatically selects the Keep Existing Wireless Settings check box so that your SSID and wireless security settings remain the same if other WPS-enabled devices are added later.
Turn Access Control On	Access control is disabled by default so that any computer configured with the correct SSID can connect. See Restricting Access by MAC Address on page 63.

Wireless Station Access Control

By default, any wireless PC that is configured with the correct SSID and wireless security settings is allowed access to your wireless network. You can use wireless access point settings in the Wireless Setting screen to further restrict wireless access to your network:

- **Turning off wireless connectivity completely.**
You can completely turn off the wireless portion of the router. For example, if you use your notebook computer to wirelessly connect to your router, and you take a business trip, you can turn off the wireless portion of the router while you are traveling. Other members of your household who use computers connected to the router via Ethernet cables can still use the router. To do this, clear the **Enable Wireless Router Radio** check box on the Wireless Settings screen, and then click **Apply**.
- **Hiding your wireless network name (SSID).**
By default, the router is set to broadcast its wireless network name (SSID). You can restrict wireless access to your network by not broadcasting the wireless network name (SSID). To do this, clear the **Enable SSID Broadcast** check box on the Wireless Settings screen, and then click **Apply**. Wireless devices will not “see” your router. You must configure your wireless devices to match the wireless network name (SSID) of the router.

Note: The SSID of any wireless access adapters must match the SSID you configure in the router. If they do not match, you will not get a wireless connection to the router.

Restricting Access by MAC Address

For increased security, you can restrict access to the wireless network to allow only specific PCs based on their MAC addresses. You can restrict access to only trusted PCs so that unknown PCs cannot wirelessly connect to the Mobile Broadband 11n Wireless Router. MAC address filtering adds an obstacle against unwanted access to your network, but the data broadcast over the wireless link is fully exposed.

Note: If you configure the router from a wireless computer, add your computer’s MAC address to the access list. Otherwise you will lose your wireless connection when you click **Apply**. You must then access the router from a wired computer, or from a wireless computer that is on the access control list, to make any further changes.

To restrict access based on MAC addresses:

1. From the main menu, under Advanced, select Wireless Settings. Click **Setup Access List** to display the Wireless Station Access List screen.



2. Adjust the list as needed for your network. You can add devices to the Trusted Wireless Stations list. Click **Add** to display the following screen:



3. You can add devices to the list using either of the following methods:
 - If the computer is in the Available Wireless Cards table, select its radio button to capture its MAC address.
 - Use the Wireless Card Entry fields to enter the MAC address of the device to be added. The MAC address can usually be found on the bottom of the wireless device.
 - If no device name appears when you enter the MAC address, you can type a descriptive name for the computer that you are adding.
4. Click **Apply** to save these settings. Now, only devices on this list will be allowed to wirelessly connect to the router.

Wireless Repeating Function

From the main menu, select Wireless Repeating Function to display the following screen:

Table 13. Wireless Repeating Function

Field	Description
Enable Wireless Repeating	<p>Enable this if you wish to use either Bridge mode or Repeater mode, and then select the mode you want for your environment.</p> <ul style="list-style-type: none"> Wireless Repeater. In this mode, the MBR1000 will communicate <i>only</i> with another Base Station-mode wireless station. You must enter the MAC address (physical address) of the other Base Station-mode wireless station in the field provided. WEP / WPA-PSK [TKIP] can (and should) be used to protect this communication. Wireless Base Station. Select this only if this MBR1000 is the "master" for a group of Repeater-mode wireless stations. The other Repeater-mode wireless stations must be set to Wireless Repeater-mode, using this MBR1000's MAC address. They then send all traffic to this master, rather than communicate directly with each other. WEP / WPA-PSK [TKIP] can (and should) be used to protect this traffic. If this option is selected, you must enter the MAC addresses of the other access points in the fields provided.

Port Forwarding and Port Triggering

Port forwarding and port triggering are advanced features that affect the behavior of the firewall in your router. In the Port Forwarding / Port Triggering screen, you can make local computers or servers available to the Internet for different services (for example, FTP or HTTP), to play Internet games (like Quake III), or to use Internet applications (like CU-SeeMe).

- Port forwarding is designed for FTP, Web server, or other server-based services. Once port forwarding is set up, requests from the Internet are forwarded to the correct server.
- Port triggering monitors outbound traffic. When the router detects traffic on the specified outbound port, it remembers the IP address of the computer that sent the data and triggers the incoming port. Incoming traffic on the triggered port is then forwarded to the triggering computer. Port triggering allows requests from the Internet only after a designated port is triggered. Port triggering applies to chat and Internet games.

Port Forwarding

To set up port forwarding:

1. From the main menu, under Advanced, select Port Forwarding/Port Triggering. The following screen displays:

By default, the **Port Forwarding** radio button is selected.

2. You can select a service or create a custom service.
 - Select a service from the **Service Name** drop-down list and specify the computer's IP address.
 - If you want to add a service that is not in the list, click the **Add Custom Service** button. Fill in the fields in the Add Custom Service screen.

The service appears in the list.

Port Triggering

To set up port triggering:

1. From the main menu, under Advanced, select Port Forwarding/Port Triggering.
2. Select the **Port Triggering** radio button to display the following screen:

Port Forwarding / Port Triggering

Please select the service type.

Port Forwarding
 Port Triggering

#	Service Name	Start Port	End Port	Server IP Address
1	Age-of-Empire	192	168	0

Add

Edit Service **Delete Service**

Add Custom Service

3. Click **Add Service** and fill in the fields in the Add Service screen.

The service appears in the list. For more detailed information, see the Port Forwarding/Port Triggering help.

WAN Setup

To change broadband Internet connection settings, use the Broadband Settings screen, as described in [Manually Configuring Your Internet Settings](#) on page 14.

To view or change the WAN setup:

1. From the main menu, select WAN Setup to display the WAN Setup screen.
2. Make the changes that you want, and then click **Apply** to save the settings.

The WAN Setup fields are described in the following table.

WAN Setup	
<input type="checkbox"/> Disable Port Scan and DoS Protection	
<input type="checkbox"/> Default DMZ Server	192 . 168 . 0 . 0
<input type="checkbox"/> Respond to Ping on Internet Port	
MTU Size (in bytes)	1500
NAT Filtering <input checked="" type="radio"/> Secured <input type="radio"/> Open	
<input type="checkbox"/> Disable SIP ALG	
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

Table 14. WAN Setup Settings

Setting	Description
Disable SPI Firewall	This check box is usually cleared so that the firewall protects your LAN against port scans and denial of service attacks. This check box should be selected only in special circumstances.
Default DMZ Server	This feature is sometimes helpful when you are using some online games and videoconferencing. Be careful when using this feature because it makes the firewall security less effective. See Setting Up a Default DMZ Server on page 69.
Respond to Ping on Internet	If you want the router to respond to a ping from the Internet, select this check box. This should be used only as a diagnostic tool, since it allows your router to be discovered. Do not select this check box unless you have a specific reason to do so.
MTU Size	Maximum Transmit Unit (MTU) value. For most Ethernet networks this is 1500 bytes, or 1492 bytes for PPPoE connections, or 1436 bytes for PPTP connections.
NAT Filtering	This is set to Secured to provide a secure firewall to protect computers on the LAN from attacks from the Internet. The Open setting is less secure.
Disable SIP ALG	Some VoIP applications do not work well with SIP ALG. Selecting this check box might help your VoIP devices create or accept a call through the router.

Setting Up a Default DMZ Server



WARNING!

For security reasons, you should avoid using the default DMZ server feature. When a computer is designated as the default DMZ server, it loses much of the protection of the firewall, and is exposed to many exploits from the Internet. If compromised, the computer can be used to attack your network.

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

Incoming traffic from the Internet is normally discarded by the router unless the traffic is a response to one of your local computers or a service that you have configured in the Ports screen. Instead of discarding this traffic, you can have it forwarded to one computer on your network. This computer is called the default DMZ server.

To assign a computer or server to be a default DMZ server:

1. Go to the WAN Setup screen as described in the previous section.
2. Select the **Default DMZ Server** check box.
3. Type the IP address for that server.
4. Click **Apply** to save your changes.

LAN Setup

The LAN Setup screen allows configuration of LAN IP services such as DHCP and RIP. These features can be found under Advanced in the router main menu.

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

- LAN IP address. 192.168.0.1
- Subnet mask. 255.255.255.0

These addresses are part of the Internet Engineering Task Force (IETF)—designated private address range for use in private networks, and should be suitable in most applications. If your network has a requirement to use a different IP addressing scheme, you can make those changes in this screen.

Tip: If you change the LAN IP address of the router while connected through the browser, you will be disconnected, and so will others connected to the router. To connect to the router, you must open a new connection to the new IP address and log in again. Others using the router must restart their computers to connect to the router again.

To view or change the LAN setup:

1. Select LAN IP to display the LAN Setup screen.
2. Change the settings. For more information, see **Table 15, DHCP Settings** on page 72 or **Reserved IP Addresses** on page 73.
3. Click **Apply** to save the changes.

The LAN TCP/IP Setup parameters are explained in the following table.

Table 15. LAN IP Setup

Settings		Description
Device Name		
LAN TCP/IP Setup	IP Address	The LAN IP address of the router.
	IP Subnet Mask	The LAN subnet mask of the router. Combined with the IP address, the IP subnet mask allows a device to know which other addresses are local to it, and which must be reached through a gateway or router.
DHCP Server For more information, see DHCP Settings on page 72.	Use Router as a DHCP Server	This check box is usually selected so that the router functions as a Dynamic Host Configuration Protocol (DHCP) server. See DHCP Settings on page 72.
	Starting IP Address	Specify the start of the range for the pool of IP addresses in the same subnet as the router.
	Ending IP Address	Specify the end of the range for the pool of IP addresses in the same subnet as the router.
Address Reservation For more information, see DHCP Settings on page 72.		When you specify a reserved IP address for a computer on the LAN, that computer receives the same IP address each time it access the router's DHCP server. Assign reserved IP addresses to servers that require permanent IP settings.

DHCP Settings

By default, the router functions as a Dynamic Host Configuration Protocol (DHCP) server, allowing it to assign IP, DNS server, and default gateway addresses to all computers connected to the router's LAN. The assigned default gateway address is the LAN address of the router. IP addresses is assigned to the attached PCs from a pool of addresses specified in this screen. Each pool address is tested before it is assigned to avoid duplicate addresses on the LAN.

For most applications, the default DHCP and TCP/IP settings of the router are satisfactory. Click the link to the online document *ITCP/IP Networking Basics* on page 102 for an explanation of DHCP and information about how to assign IP addresses for your network.

Use Router as DHCP Server

If another device on your network will be the DHCP server, or if you will manually configure the network settings of all of your computers, clear the **Use Router as DHCP Server** check box on the LAN IP Setup screen. Otherwise, leave it selected.

Specify the pool of IP addresses to be assigned by filling in the **Starting IP Address** and **Ending IP Address** fields. These addresses should be part of the same IP address subnet as the router's LAN IP address. Using the default addressing scheme, you should define a range between 192.168.0.2 and 192.168.0.254, although you might want to save part of the range for devices with fixed addresses.

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

- An IP address from the range you have defined.
- Subnet mask.
- Gateway IP address is the router's LAN IP address.
- Primary DNS server, if you entered a primary DNS address in the Basic Settings screen; otherwise, the router's LAN IP address.
- Secondary DNS server, if you entered a secondary DNS address in the Basic Settings screen.
- WINS server (Windows Internet Naming Service Server) determines the IP address associated with a particular Windows computer. A WINS server records and reports a list of names and IP address of Windows PCs on its local network. If you connect to a remote network that contains a WINS server, enter the server's IP address here. This allows your PCs to browse the network using the Network Neighborhood feature of Windows.

Reserved 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 access the router's DHCP server. Reserved IP addresses should be assigned to servers that require permanent IP settings.

To reserve an IP address:

1. Click the **Add** button.
2. In the **IP Address** field, type the IP address to assign to the computer or server. Choose an IP address from the router's LAN subnet, such as 192.168.0.x.
3. Type the MAC address of the computer or server.

Tip: If the computer is on your network, it is listed on the same screen for your convenience. Clicking the radio button for each entry in the attached device list fills in the fields automatically with the computer's MAC address and name.

4. Click **Apply** to enter the reserved address into the table.

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

To edit or delete a reserved address entry:

1. Click the button next to the reserved address you want to edit or delete.
2. Click **Edit** or **Delete**.

QoS Setup

QoS is an advanced feature that can be used to prioritize some Internet applications and online gaming, and to minimize the impact when the bandwidth is busy.

From the main menu, select QoS Setup to display the following screen:

Table 16. QoS Setup

Field	Description
Wi-Fi Multi-media (WMM) Settings	WMM (Wireless Multimedia) is a subset of the 802.11e standard. WMM allows wireless traffic to have a range of priorities depending on the kind of data. Time-dependent information, such as video or audio, has a higher priority than normal traffic. For WMM to function correctly, wireless clients must also support WMM.
Turn Internet Access QoS On	If you enable QoS, the QoS function works to prioritize Internet access traffic. For the applications that already exist in the drop-down list (e.g., On-line Gaming, Ethernet LAN Port, or a specified MAC address), you can modify the priority level by clicking the Edit button, or clicking the Delete button to erase the priority rule. Otherwise, you can also define the priority policy for online gaming, an application, a LAN port, or the computer's MAC address by clicking the Add Priority Rule button.
Bandwidth Control	To set up the total maximum uplink bandwidth, click the Check button to detect current uplink bandwidth that will help you to determinate the maximum bandwidth setting.

QoS Priority Rule List

From the QoS Setup screen, click **Setup QoS Rule** to display the following screen:

QoS Priority Rule List				
#	QoS Policy	Priority	Description	
1	MSN Messenger	High	MSN Messenger application	
2	Yahoo Messenger	High	Yahoo Messenger application	
3	IP Phone	Highest	IP Phone application	
4	Vonage IP Phone	Highest	Vonage IP Phone application	
5	NetMeeting	High	NetMeeting application	
6	AIM	High	AIM application	
7	Google Talk	Highest	Google Talk application	
8	Netgear EVA	Highest	Netgear EVA application	
9	SSH	High	SSH application	
10	Telnet	High	Telnet application	
11	VPN	High	VPN application	
12	FTP	Normal	FTP application	
13	SMTP	Normal	SMTP application	
14	WWW	Normal	WWW application	
15	DNS	Normal	DNS application	
16	ICMP	Normal	ICMP application	
17	eMule / eDonkey	Low	eMule / eDonkey application	
18	Kazaa	Low	Kazaa application	
19	Gnutella	Low	Gnutella application	
20	BT / Azureus	Low	BT / Azureus application	
21	Counter Strike	High	On-line gaming Counter Strike	
22	Ages of Empires	High	On-line gaming Age of Empires	
23	Everquest	High	On-line gaming Everquest	
24	Quake 2	High	On-line gaming Quake 2	
25	Quake 3	High	On-line gaming Quake 3	
26	Unreal Tournament	High	On-line gaming Unreal Tournament	
27	Warcraft	High	On-line gaming Warcraft	

QoS Priority Rules

From the QoS Priority Rule List, click **Add Priority Rule** to display the following screen:

QoS - Priority rules

Priority	QoS Policy for	<input type="text"/>
Priority Category	<input type="button" value="Applications"/>	<input type="button" value="Add a new Application"/>
Applications	<input type="button" value="Normal"/>	
Priority	<input type="button" value="Normal"/>	
Specified port range	Connection Type	
Starting Port	<input type="button" value="TCP/UDP"/>	
Ending Port	<input type="button" value="1-65535"/>	
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>		

For Applications or Online Gaming

To set up the priority for an application or online gaming:

1. Select **Applications** or **On-line Gaming** from the **Priority Category** lists.

2. Select the Internet application or game for which you want to set the priority from the relevant list.
3. Select the priority level: **Highest**, **High**, **Normal**, or **Low**.
4. You can also type the name in the **QoS Policy** field for this rule if you prefer.
5. Click **Apply**.

For Ethernet LAN Ports

To set up the priority for LAN port:

1. Select **Ethernet LAN Port** from the **Priority Category** list.

2. Select the LAN port number you plan to specify the priority level for those computers connecting on this LAN port.
3. Select the priority level: **Highest**, **High**, **Normal**, or **Low**.
4. You can also type the name in the **QoS Policy** field for this rule if you prefer.
5. Click **Apply**.

For MAC Addresses

To set up the priority for specified computer via its MAC address:

1. Select **MAC Address** from the **Priority Category** list.

2. Click the **Refresh** button to update the list of computers already connected to the router.
3. Select the entry's radio button.
4. Modify the information in the **MAC Address** and **Device Name** fields.
5. Select the priority level: **Highest**, **High**, **Normal**, or **Low**.
6. You can also type the name in the **QoS Policy** field for this rule if you prefer.
7. Click the **Edit** button.
8. Click **Apply**.

To add the priority for specified computer via its MAC address:

1. Choose **MAC Address** from the **Priority Category** list.
2. Enter the MAC address for the computer for which you are specifying the priority.
3. You can also type a name that is easy to remember in the **Device Name** fields.
4. Select the priority level: **Highest**, **High**, **Normal**, or **Low**.
5. You can also type a name in the **QoS Policy** field for this rule if you prefer.
6. Click the **Add** button.
7. Click **Apply**.

To delete a priority rule entry:

1. Select the entry's radio button of the table.
2. Click the **Delete** button.
3. Click **Apply**.

Dynamic DNS

If your network has a permanently assigned IP address, you can register a domain name and have that name linked with your IP address by public Domain Name Servers (DNS). However, if your Internet account uses a dynamically assigned IP address, you will not know in advance what your IP address will be, and the address can change frequently. In this case, you can use a commercial Dynamic DNS service to register your domain to their IP address, and forward traffic directed at your domain to your frequently changing IP address.

The router contains a client that can connect to a Dynamic DNS service provider. To use this feature, you must select a service provider and obtain an account with them. After you have configured your account information in the router, whenever your ISP-assigned IP address changes, your router will automatically contact your Dynamic DNS service provider, log in to your account, and register your new IP address.

Configuring Dynamic DNS



WARNING!

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

To configure Dynamic DNS:

1. From the main menu, select **Dynamic DNS** to display the Dynamic DNS screen:

The screenshot shows the 'Dynamic DNS' configuration screen. It includes the following fields and options:

- Use a Dynamic DNS Service** checkbox (unchecked).
- Service Provider** dropdown menu showing "www.DynDNS.org".
- Host Name** text input field.
- User Name** text input field.
- Password** text input field.
- Use Wildcards** checkbox (unchecked).
- Buttons at the bottom: **Apply**, **Cancel**, and **Show Status**.

2. Access the website of one of the Dynamic DNS service providers whose names appear in the **Service Provider** drop-down list, and register for an account.
For example, for dyndns.org, go to www.dyndns.org.
3. Select the **Use a Dynamic DNS Service** check box.
4. Select the name of your Dynamic DNS service provider.
5. Fill in the **Host Name**, **User Name**, and **Password** fields.

The Dynamic DNS service provider might call the host name a domain name. If your URL is myName.dyndns.org, then your host name is myName. The password can be a key for your Dynamic DNS account.

6. If your Dynamic DNS provider allows the use of wildcards in resolving your URL, you can select the **Use wildcards** check box to activate this feature.

For example, the wildcard feature will cause *.yourhost.dyndns.org to be aliased to the same IP address as yourhost.dyndns.org.

7. Click **Apply** to save your configuration.

Using Static Routes

Static routes provide additional routing information to your router. Under normal circumstances, the router has adequate routing information after it has been configured for Internet access, and you do not need to configure additional static routes. You must configure static routes only for unusual cases such as multiple routers or multiple IP subnets located on your network.

Static Route Example

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

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

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

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

In this example:

- The **Destination IP Address** and **IP Subnet Mask** fields specify that this static route applies to all 134.177.x.x addresses.
- The **Gateway IP Address** fields specify that all traffic for these addresses should be forwarded to the ISDN router at 192.168.0.100.
- In the **Metric** field, a value of 1 will work since the ISDN router is on the LAN. This represents the number of routers between your network and the destination. This is a direct connection, so it is set to 1.
- **Private** is selected only as a precautionary security measure in case RIP is activated.

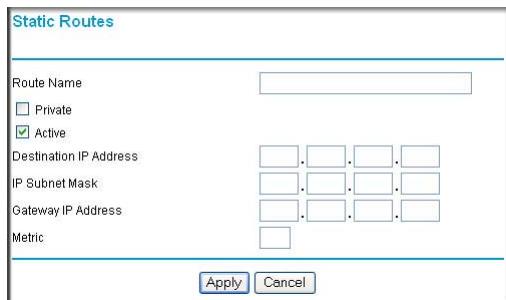
To configure static routes:

1. From the main menu, under Advanced, select Static Routes to view the Static Routes screen.

#	Active	Name	Destination	Gateway

Add **Edit** **Delete**

2. Select the radio button of the static route you want to configure.
3. Click **Add** or **Edit** to display the following screen:



Static Routes

Route Name:

Private Active

Destination IP Address: ...

IP Subnet Mask: ...

Gateway IP Address: ...

Metric:

Apply Cancel

4. Fill in or change the fields:
 - **Route Name.** The route name is for identification purposes only.
 - **Private.** Select this check box if you want to limit access to the LAN only. The static route will not be reported in RIP.
 - **Active.** Select this check box to make this route effective.
 - **Destination IP Address, and IP Subnet Mask.** If the destination is a single host, type a subnet value of **255.255.255.255**.
 - **Gateway IP Address.** This must be a router on the same LAN segment as the router.
 - **Metric.** Type a number between 2 and 15. This 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 2.
5. Click **Apply** to save your changes. If you added a static route, it is added to the Static Routes screen.

Enabling Remote Management

Using the Remote Management screen, you can allow a user or users on the Internet to configure, upgrade, and check the status of your router.

Tip: Be sure to change the router default password to a very secure password. The ideal password should contain no dictionary words from any language, and should be a mixture of letters (both upper-case and lower-case), numbers, and symbols. Your password can be up to 30 characters.

Configuring Remote Management

1. Log in to the router. Type <http://www.routerlogin.net> in the address field of your Internet browser. Enter **admin** for the user name and your password (or the default, **password**).
2. Under Advanced, select Remote Management:
3. Select the **Turn Remote Management On** check box.
4. Specify which external addresses will be allowed to access the router's remote management.

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

- To allow access from any IP address on the Internet, select **Everyone**.
- To allow access from a range of IP addresses on the Internet, select **IP Address Range**.

Address Range. Enter a beginning and ending IP address to define the allowed range.

- To allow access from a single IP address on the Internet, select **Only This Computer**. Enter the IP address that will be allowed access.
- 5. Specify the port number that will be used for accessing the router menu.

Access normally uses the standard HTTP service port 80. For greater security, you can enter a different port number. Choose a number between 1024 and 65535, but do not use the number of any common service port. The default is 8080, which is a common alternate for HTTP.

6. Click **Apply** to have your changes take effect.

When accessing your router from the Internet, type your router WAN IP address in your Internet browser 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

Note: In this case, you must include http:// in the address.

Universal Plug and Play

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

1. Select UPnP on the main menu to display the UPnP screen:

2. Fill in the settings on the UPnP screen:

- **Turn UPnP On.** UPnP can be enabled or disabled for automatic device configuration. The default setting for UPnP is enabled. If this feature is disabled, the router will not allow any device to automatically control the resources, such as port forwarding (mapping), of the router.
- **Advertisement Period.** The advertisement period is how often the router advertises (broadcasts) its UPnP information. This value can range from 1 to 1440 minutes. The default period is 30 minutes. Shorter durations ensure that control points have current device status at the expense of additional network traffic. Longer durations might compromise the freshness of the device status but can significantly reduce network traffic.
- **Advertisement Time To Live.** The time to live for the advertisement is measured in hops for each UPnP packet sent. A hop is the number of steps allowed to propagate for each UPnP advertisement before it disappears. 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, then it might be necessary to increase this value a little.
- **UPnP Portmap Table.** The UPnP Portmap Table displays the IP address of each UPnP device that is currently accessing the router and which ports (internal and external) that device has opened.

3. To save or cancel your changes or refresh the table:

- Click **Apply** to save the new settings to the router.
- Click **Cancel** to disregard any unsaved changes.
- Click **Refresh** to update the portmap table and to show the active ports that are currently opened by UPnP devices.

Traffic Meter

Traffic metering allows you to monitor the volume of Internet traffic passing through your router's Internet port. With the Traffic Meter utility, you can set limits for traffic volume, set a monthly limit, and get a live update of traffic usage. You enable separate traffic meters for the mobile broadband connection and the Ethernet connection.

To monitor traffic on your router:

- Under Advanced on the router menu, select Traffic Meter.
- Click the appropriate **Show Traffic Meter Application for ...** radio button for the type of Internet connection (e.g., mobile broadband or Ethernet) you are setting up.
- To enable the traffic meter, select the **Enable Traffic Meter** check box.
- If you would like to record and restrict the volume of Internet traffic, select the **Traffic volume control by** radio button. You can select one of the following options for controlling the traffic volume:
 - 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.
- You can limit the amount of data traffic allowed per month:
 - By specifying how many Mbytes per month are allowed.
 - By specifying how many hours of traffic are allowed.
- Set the Traffic Counter to begin at a specific time and date.
- Set up traffic control to issue a warning message before the monthly limit of Mbytes or hours is reached. You can select one of the following to occur when the limit is attained:
 - The Internet LED flashes green or amber.
 - The Internet connection is disconnected and disabled.
- Set up **Internet Traffic Statistics** to monitor the data traffic.

Traffic Meter

Traffic Meter Options

Show Traffic Meter options for Mobile Broadband Connection
 Show Traffic Meter options for Ethernet Connection
 Enable Traffic Meter for Mobile Broadband

Traffic volume control by
 Monthly limit (MBytes)
 Round up data volume for each connection by (MBytes)

Connection time control
 Monthly limit (hours)

Traffic Counter

Restart traffic counter at am on the day of each month

Traffic control

Pop up a warning message MBBytes/Minutes before the monthly limit is reached
 When the monthly limit is reached
 Turn the Internet LED amber solid/flashing
 Disable Internet connection when the limit has been reached

Internet Traffic Statistics

Start Date/Time: Tuesday, 01 Jun 2010 00:00
 Current Date/Time: Thursday, 17 Jun 2010 20:32
 Traffic Volume Left: No limit

Period	Connection Time (hh:mm)	Upload/Avg	Traffic Volume (MBytes) Download/Avg	Total/Avg
Today	00:00	0.00	0.00 /	0.00
Yesterday	00:00	0.00	0.00 /	0.00
This week	00:00	0.00 / 0.00	0.00 / 0.00	0.00 / 0.00
This month	00:00	0.00 / 0.00	0.00 / 0.00	0.00 / 0.00
Last month	00:00	0.00 / 0.00	0.00 / 0.00	0.00 / 0.00

9. Click the **Traffic Status** button if you want a live update on Internet traffic status on your router.
10. Click **Apply** to save your settings.

TR-069 Setup

The WAN Management Protocol (TR-069) allows an Auto-Configuration Server (ACS) to perform auto-configuration, provision, collection, and diagnostics for this device.

Note: Use the information provided by your ISP. Incorrect information prevents the ISP from remotely managing this router.

From the main menu, select TR069 to display the following screen:

TR-069 client - Configuration

Turn WAN Management Protocol On

Inform Interval: 86400

ACS URL: http://172.19.92.139:1234

ACS User Name: admin

ACS Password: *****

Connection Request User Name: plugfest

Connection Request Password: *****

Troubleshooting

6

This chapter gives information about troubleshooting your Mobile Broadband 11n Wireless Router. After each problem description, instructions are provided to help you diagnose and solve the problem. For the common problems listed, go to the section indicated.

- Is the router on?
- Have I connected the router correctly?

Go to ***Basic Functioning*** on page 89.

- I can't access the router's configuration with my browser.

Go to ***Troubleshooting Access to the Router Main Menu*** on page 91.

- I've configured the router but I can't access the Internet.

Go to ***Troubleshooting the ISP Connection*** on page 92.

- I want to clear the configuration and start over again.

Go to ***Restoring the Default Configuration and Password*** on page 97.

Basic Functioning

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

1. When power is first applied, verify that the Power  LED is on.
2. After approximately 10 seconds, verify that:
 - a. The Power LED is still solid green. A red light indicates the unit has failed its power-on self-test (POST).
 - b. The Internet LED is lit.
 - c. The Wi-Fi radio LED is lit. The Wi-Fi radio is on by default.
 - d. The Ethernet LAN port LED is lit when any local ports are connected.

If a LAN port's LED is lit, a link has been established to the connected device. If a LAN port is connected to a 100 Mbps device, verify that the port's LED is green. If the port is 10 Mbps, the LED is amber.

- e. The Ethernet WAN port LED is lit when the router is connected to a wired modem.
- f. The Signal LED is lit when the router has detected a mobile broadband signal.
 - A blue LED indicates excellent coverage.
 - A green LED indicates good coverage.
 - An amber LED indicates marginal coverage.

If any of these conditions does not occur, refer to the following table.

Table 17. Troubleshooting with the LEDs

LED	Action
	<p>Power LED is off.</p> <ul style="list-style-type: none"> • Make sure that the power cord is correctly connected to your router and that the power supply adapter is correctly connected to a functioning power outlet. • Check that you are using the power adapter supplied by NETGEAR for this product. • If the error persists, you have a hardware problem and should contact Technical Support.
	<p>Power LED is red.</p> <p>There is a fault within the router. Try to clear the fault as follows:</p> <ul style="list-style-type: none"> • Cycle the power to see if the router recovers. • Clear the router's configuration to factory defaults. This sets the router's IP address to 192.168.0.1. This procedure is explained in Restoring the Default Configuration and Password on page 97. <p>If the error persists, you might have a hardware problem and should contact Technical Support.</p>

Table 17. Troubleshooting with the LEDs (Continued)

LED	Action
	Internet LED is red. The router cannot connect to the Internet. Check the Internet connection option being used. <ul style="list-style-type: none"> For the mobile broadband connection option, check the Signal LED. For the Ethernet connection option, check the WAN LED.
	Internet LED is blinking red and green. The Traffic Meter feature is enabled, and the limit set has been reached.
	Wi-Fi LED is off. The Wi-Fi radio has been turned off. If you want a Wi-Fi connection with the router, push the Wi-Fi button to turn the Wi-Fi radio back on.
	Wi-Fi LED is not blinking. If this LED does not blink when you are attempting to send data over the Wi-Fi link, log in to the router menu using the Ethernet LAN connection and check your router's wireless (Wi-Fi) configuration.
	LAN LED is off. If this LED does not light when an Ethernet connection is made, check the following: <ul style="list-style-type: none"> Make sure that the Ethernet cable connections are secure at the router and at the hub or workstation. Make sure that power is turned on to the connected hub or workstation.
	WAN LED is off. If this LED does not light when an Ethernet connection is made using the Ethernet connection option, check the following: <ul style="list-style-type: none"> Make sure that the Ethernet cable connections are secure at the router and at the modem. Make sure that power is turned on to the modem.
	2G/3G LED is off. The router cannot tell if the mobile broadband connection uses 2G or 3G signals.
	Signal LED off. If this LED does not light when the Mobile Broadband connection option is used, check the following: <ul style="list-style-type: none"> Check with your ISP to ensure that there is good coverage in the area. Ensure that your mobile broadband account is active. Ensure that the SIM card is inserted correctly into the router. Locate the router near the window or other area of the building. Make sure that the Signal LED is lit, indicating that there is mobile broadband coverage with the router. Log in to the router menu and check your router's Internet configuration. Check that the user name, password, and APN with ISP are set correctly. If you use a PIN to connect to the Internet, make sure that it is entered correctly.

Troubleshooting Access to the Router Main Menu

If you are unable to access the router main menu from a computer on your local network, check the following:

- If you are using an Ethernet-connected computer, check the Ethernet connection between the computer and the router as described in the previous section.
- Make sure your computer's IP address is on the same subnet as the router. If you are using the recommended addressing scheme, your computer's address should be in the range of 192.168.0.2 to 192.168.0.254. See the online document you can access from *ITCP/IP Networking Basics* in Appendix B to find your computer's IP address.

Note: If your computer's IP address is shown as 169.254.x.x:

Recent versions of Windows and MacOS generate and assign an IP address if the computer cannot reach a DHCP server. These auto-generated addresses are in the range of 169.254.x.x. If your IP address is in this range, check the connection from the computer to the router, and reboot your computer.

- If your router's IP address was changed and you do not know the current IP address, clear the router's configuration to factory defaults. This will set the router's IP address to 192.168.0.1. This procedure is explained in ***Restoring the Default Configuration and Password*** on page 97.
- Make sure that your browser has Java, JavaScript, or ActiveX enabled. If you are using Internet Explorer, click **Refresh** to be sure that the Java applet is loaded.
- Try quitting the browser and launching it again.
- Make sure that you are using the correct login information. The factory default login name is **admin**, and the password is **password**. Make sure that Caps Lock is off when entering this information.

If the router does not save changes you have made in the Web Management Interface, check the following:

- When entering configuration settings, be sure to click the **Apply** button before moving to another screen or tab, or your changes are lost.
- Click the **Refresh** or **Reload** button in the Web browser. The changes might have occurred, but the Web browser might be caching the old configuration.

Troubleshooting the ISP Connection

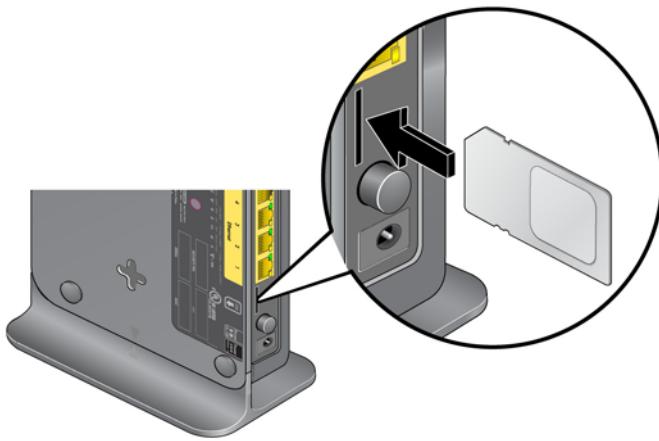
Check these possible sources of trouble if you are having difficulty connecting to or browsing the Internet.

Connecting to the Internet

If unable to connect to Internet, check the following:

1. The Internet account is active.

If your ISP has provided you with a SIM card and you haven't inserted it into the SIM card slot on the back of the router yet, do so now.



2. Wireless broadband coverage is available where the unit is located.

3. Access the router main menu to verify that the broadband settings are correct. Check with your ISP if you are unsure.

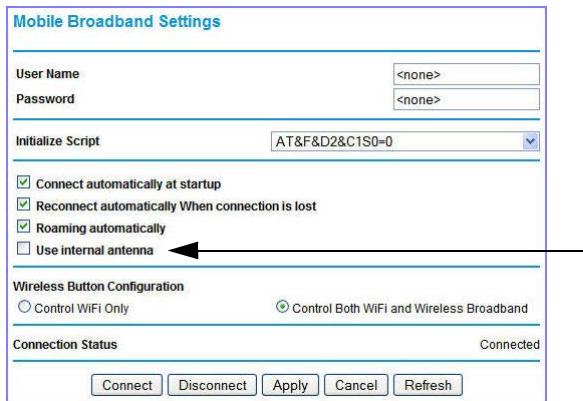
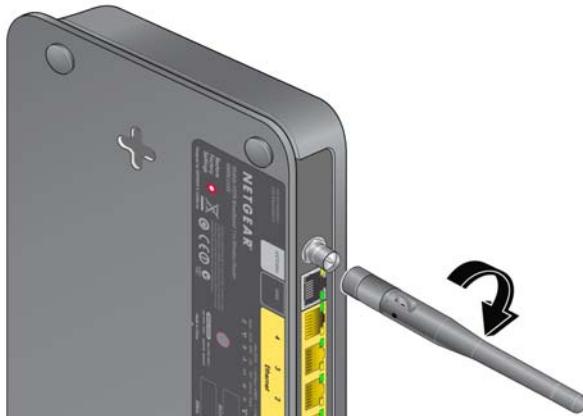
4. Check the location of the router.

a. Move the router closer to a window for better access to the Internet signal.

- A blue Signal LED indicates excellent coverage.
- A green Signal LED indicates good coverage.
- An amber Signal LED indicates marginal coverage.
- An unlighted Signal LED indicates no coverage.

b. Maintain recommended minimum distances between NETGEAR equipment and household appliances to reduce interference (see [Regulatory Compliance Information](#) on page 104).

5. Using an external antenna for improved signal strength:



a. Install an external antenna.
(The external antenna is an optional accessory that you can obtain.)

b. Clear the **Use Internal Antenna** check box on the Mobile Broadband Settings screen and then click **Apply**.

c. Click **Connect** to connect to the Internet.

Troubleshooting Internet Browsing

If your router can obtain an IP address but your computer is unable to load any Web pages from the Internet:

- The traffic meter is enabled, and the limit might have been reached.

By configuring the traffic meter not to block, you can resume Internet access. If you have an usage limit, your ISP might charge you for the overage.

- Your computer might not recognize any DNS server addresses.

A DNS server is a host on the Internet that translates Internet names (such as www addresses) to numeric IP addresses. Typically your ISP provides the addresses of one or two DNS servers for your use. If you entered a DNS address during the router's configuration, reboot your computer and verify the DNS address as described in the article you can access from *ITCP/IP Networking Basics* in Appendix B. Alternatively, you can configure your computer manually with DNS addresses, as explained in your operating system documentation.

- Your computer might not have the router configured as its TCP/IP router.

If your computer obtains its information from the router by DHCP, reboot the computer, and verify the router address as described in the online document you can access from *ITCP/IP Networking Basics* in Appendix B.

Troubleshooting a TCP/IP Network Using the Ping Utility

Most TCP/IP terminal 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 TCP/IP network by using the ping utility in your computer.

Testing the LAN Path to Your Router

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

To ping the router from a PC running Windows 95 or later:

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 192.168.0.1
3. Click **OK**.

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 working correctly, you could have one of the following problems:

- Wrong physical connections
 - Make sure that the LAN port LED is on. If the LED is off, follow the instructions in [Table 17](#) on page 89.
 - Check that the corresponding Link LEDs are on for your network interface card and for the hub ports (if any) that are connected to your workstation and router.
- Wrong network configuration
 - Verify that the Ethernet card driver software and TCP/IP software are both installed and configured on your PC or workstation.
 - Verify that the IP address for your router and your workstation are correct and that the addresses are on the same subnet.

Testing the Path from Your Computer to a Remote Device

After verifying that the LAN path works correctly, test the path from your PC 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's DNS server.

If the path is functioning correctly, replies as in the previous section are displayed. If you do not receive replies:

- Check that your PC has the IP address of your router listed as the default router. If the IP configuration of your PC is assigned by DHCP, this information is not visible in your PC's Network Control Panel. Verify that the IP address of the router is listed as the default router as described in the online document you can access from *Preparing Your Network* in Appendix B.
- Make sure that the network address of your PC (the portion of the IP address specified by the netmask) is different from the network address of the remote device.
- Check that your cable or DSL modem is connected and functioning.
- If your ISP assigned a host name to your PC, enter that host name as the account name in the Basic Settings screen.
- Your ISP could be rejecting the Ethernet MAC addresses of all but one of your PCs. Many broadband ISPs restrict access by allowing only traffic from the MAC address of your broadband modem, but some ISPs additionally restrict access to the MAC address of a single PC connected to that modem. If this is the case, you must configure your router to clone or spoof the MAC address from the authorized PC. See the *Mobile Broadband 11n Wireless Router MBR1000 Installation Guide*.

Restoring the Default Configuration and Password

This section explains how to restore the factory default configuration settings, changing the router's admin password to **password** and the IP address to **192.168.0.1**. You can erase the current configuration and restore factory defaults in two ways:

- Use the Erase feature (see [Erasing the Configuration](#) on page 53).
- Press the Restore Factory Settings button on the bottom of the router for 6 seconds. Use this method for cases when the administration password or IP address is not known.

The factory default settings are shown in *Factory Default Settings* in Appendix A.

Problems with Date and Time

The email screen displays the current date and time of day. The Mobile Broadband 11n Wireless Router uses the Network Time Protocol (NTP) to obtain the current time from one of several network time servers on the Internet. Each entry in the log is stamped with the date and time of day. Problems with the date and time function can include the following:

- Date shown is January 1, 2000.
Cause: The router has not yet successfully reached a network time server. Check that your Internet access settings are configured correctly. If you have just completed configuring the router, wait at least 5 minutes, and check the date and time again.
- Time is off by one hour.
Cause: The router does not automatically sense daylight savings time. On the E-mail screen, select or clear the **Adjust for Daylight Savings Time** check box.

Factory Default Settings and Technical Specifications

A

Factory Default Settings

You can use the Restore Factory Settings button located on the bottom of your router to reset all settings to their factory defaults. This is called a hard reset. To perform a hard reset, push and hold the Restore Factory Settings button for 6 seconds. Your router will return to the factory configuration settings that are shown in the following table.

Feature		Default Behavior
Router login	User login URL	http://www.routerlogin.net or http://www.routerlogin.com
	User name (case-sensitive)	admin
	Login password (case-sensitive)	password
Internet Connection	WAN MAC address	Use default address
	WAN MTU size	1500
	Port speed	AutoSense
Local network (LAN)	LAN IP	192.168.0.1
	Subnet mask	255.255.255.0
	RIP direction	None
	RIP version	Disabled
	RIP authentication	None
	DHCP server	Enabled
	DHCP starting IP address	192.168.0.2
	DHCP ending IP address	192.168.0.254
	DMZ	Disabled
	Time zone	PST for North America, GMT for other locations
	Daylight saving time adjustment	Disabled

Feature (Continued)		Default Behavior (Continued)
Firewall	Inbound communication from the Internet	Disabled (except traffic on port 80, the HTTP port)
	Outbound communication to the Internet)	Enabled (all)
	Source MAC filtering	Disabled
Wireless	Wireless communication	Enabled
	SSID name	NETGEAR-3G
	Security	Disabled
	Broadcast SSID	Enabled
	Transmission speed	Auto (maximum wireless signal rate derived from IEEE Standard 802.11 specifications. Actual throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate.)
	Country/Region	United States (in North America; otherwise, varies by region)
	RF channel	Auto
	Operating mode	Up to 145 Mbps
	Data rate	Best
	Output power	Full
	Access point	Enabled
	Authentication type	Open system
	Wireless Card Access List	All wireless stations allowed

Technical Specifications

Technical Specifications	
Network Protocol and Standards Compatibility	TCP/IP, DHCP
Power adapter	<ul style="list-style-type: none"> North America: 120V AC, 60 Hz, input United Kingdom, Australia: 240V AC, 50 Hz, input Europe: 230V AC, 50 Hz, input Japan: 100V AC, 50/60 Hz, input All regions (output): 12V DC @ 1.0A output
Physical specifications	<ul style="list-style-type: none"> Dimensions: 6.8 in. x 5.03 in. x 1.28 in. (173 mm x 128 mm x 33 mm) Weight: 0.65 lbs. without the stand (0.29 kg)
Environmental Specifications	<ul style="list-style-type: none"> Operating temperature: 0° to 40° C (32° to 104° F) Operating humidity: 90% maximum relative humidity, noncondensing
Electromagnetic Emissions	FCC Part 15 Class B; VCCI Class B; EN 55 022 (CISPR 22), Class B
Interface Specifications	<ul style="list-style-type: none"> LAN: 10BASE-T or 100BASE-Tx, RJ-45 WAN: USB

Related Documents

B

This appendix provides links to reference documents you can use to gain a more complete understanding of the technologies used in your NETGEAR product.

Document	Link
Using Microsoft Vista and Windows XP to Manage Wireless Network Connections	http://documentation.netgear.com/reference/enu/winzerocfg/index.htm
ITCP/IP Networking Basics	http://documentation.netgear.com/reference/enu/tcpip/index.htm
Wireless Networking Basics	http://documentation.netgear.com/reference/enu/wireless/index.htm
Preparing Your Network	http://documentation.netgear.com/reference/enu/wsdhcp/index.htm
Virtual Private Networking Basics	http://documentation.netgear.com/reference/enu/vpn/index.htm
Glossary	http://documentation.netgear.com/reference/enu/glossary/index.htm

Notification of Compliance

NETGEAR Wireless Routers, Gateways, APs

C

Regulatory Compliance Information

This section includes user requirements for operating this product in accordance with National laws for usage of radio spectrum and operation of radio devices. Failure of the end-user to comply with the applicable requirements may result in unlawful operation and adverse action against the end-user by the applicable National regulatory authority.

Note: This product's firmware limits operation to only the channels allowed in a particular Region or Country. Therefore, all options described in this user's guide may not be available in your version of the product.

Interference Reduction Table

Household Appliance	Recommended Minimum Distance between NETGEAR equipment and household appliance to reduce interference (in feet and meters)
Microwave ovens	30 feet / 9 meters
Baby Monitor - Analog	20 feet / 6 meters
Baby Monitor - Digital	40 feet / 12 meters
Cordless phone - Analog	20 feet / 6 meters
Cordless phone - Digital	30 feet / 9 meters
Bluetooth devices	20 feet / 6 meters
ZigBee	20 feet / 6 meters

Europe – EU Declaration of Conformity

Marking with the above symbol indicates compliance with the Essential Requirements of the R&TTE Directive of the European Union (1999/5/EC).

This equipment meets the following conformance standards:

- EN300 328 (2.4Ghz), EN301 489-17, EN301 893 (5Ghz), EN60950-1
- This device is a 2.4 GHz wideband transmission system (transceiver), intended for use in all EU member states and EFTA countries, except in France and Italy where restrictive use applies.
- In Italy, the end-user should apply for a license at the national spectrum authorities in order to obtain authorization to use the device for setting up outdoor radio links and/or for supplying public access to telecommunications and/or network services.
- This device may not be used for setting up outdoor radio links in France and in some areas the RF output power may be limited to 10 mW EIRP in the frequency range of 2454 – 2483.5 MHz. For detailed information the end-user should contact the national spectrum authority in France.
- For complete DoC, visit the NETGEAR EU Declarations of Conformity website at:
http://kb.netgear.com/app/answers/detail/a_id/11621/

EDOC in Languages of the European Community

Cesky [Czech]	<i>NETGEAR Inc.</i> tímto prohlašuje, že tento Radiolan je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
Dansk [Danish]	Undertegnede <i>NETGEAR Inc.</i> erklaerer herved, at følgende udstyr Radiolan overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EØF.
Deutsch [German]	Hiermit erklärt <i>NETGEAR Inc.</i> , dass sich das Gerät Radiolan in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
Eesti [Estonian]	Käesolevaga kinnitab <i>NETGEAR Inc.</i> seadme Radiolan vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
English	Hereby, <i>NETGEAR Inc.</i> , declares that this Radiolan is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Español [Spanish]	Por medio de la presente <i>NETGEAR Inc.</i> declara que el Radiolan cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ <i>NETGEAR Inc.</i> ΔΗΛΩΝΕΙ ΟΤΙ Radiolan ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/EK.
Français [French]	Par la présente <i>NETGEAR Inc.</i> déclare que l'appareil Radiolan est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
Italiano [Italian]	Con la presente <i>NETGEAR Inc.</i> dichiara che questo Radiolan è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.

Latviski [Latvian]	Ar šo <i>NETGEAR Inc.</i> deklarē, ka Radiolan atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]	Šiuo <i>NETGEAR Inc.</i> deklaruoją, kad šis Radiolan atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Nederlands [Dutch]	Hierbij verklaart <i>NETGEAR Inc.</i> dat het toestel Radiolan in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
Malti [Maltese]	Hawnhekk, <i>NETGEAR Inc.</i> , jiddikjara li dan Radiolan jikkonforma mal-htigijiet essenziali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
Magyar [Hungarian]	Alulírott, <i>NETGEAR Inc.</i> nyilatkozom, hogy a Radiolan megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.
Polski [Polish]	Niniejszym <i>NETGEAR Inc.</i> oświadcza, że Radiolan jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
Português [Portuguese]	<i>NETGEAR Inc.</i> declara que este Radiolan está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Slovensko [Slovenian]	NETGEAR Inc. izjavlja, da je ta Radiolan v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]	<i>NETGEAR Inc.</i> týmto vyhlasuje, že Radiolan spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Suomi [Finnish]	<i>NETGEAR Inc.</i> vakuuttaa täten että Radiolan tyypinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Svenska [Swedish]	Härmed intygar <i>NETGEAR Inc.</i> att denna Radiolan står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
Íslenska [Icelandic]	Hér með lýsir <i>NETGEAR Inc.</i> yfir því að Radiolan er í samræmi við grunnkröfur og aðrar kröfur, sem gerðar eru í tilskipun 1999/5/EC.
Norsk [Norwegian]	<i>NETGEAR Inc.</i> erklærer herved at utstyret Radiolan er i samsvar med de grunnleggende krav og øvrige relevante krav i direktiv 1999/5/EF.

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