NETGEAR®

EX6100 Universal Dual Band 11ac WiFi Range Extender

User Manual

NOTE: This document is for certification purposes. Images are for position only and may differ from the actual product.

Support

Thank you for selecting NETGEAR products.

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

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Trademarks

Compliance

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

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Getting Started

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The EX6100 Universal Dual Band 11ac WiFi Range Extender works as either a repeater or an access point. It is dual band concurrent for Wifi 11n 2x2 300 Mbps + 11ac 1x1 433 Mbps, and can be used easily when travelling.

This chapter covers the following topics:

- *Hardware Features*
- *How the Extender Works*
- *Find the Best Location*
- *Extender Performance*
- *Internet Connection Options (WiFi or RJ45)*
- *Ethernet Port Connection*
- *Restore Factory Settings*

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

Hardware Features

Figure 1. Extender

The LEDs on the front show how the Extender is working:

- **Arrows**.
- **Power**. This LED is lit when the Extender is powered on.
- **WiFi**. The side panel has the following features:
- **Internet WiFi/RJ45**. Select the preferred method to connect to the Internet.
- **Device On/Off button**. Turns the device on and off.
- **WPS button**. Press the WPS button to wirelessly connect the Extender to your router or wireless adapter.
- **Factory Reset button**. To use this button, stick a paper clip into the reset hole and hold it until the Status LED flashes.
- **Ethernet port**. You can use this for a wired connection to a computer or other device.

How the Extender Works

The Extender works like a bridge between a wireless router and a computer or wireless device outside the wireless router's range. To do this, the Extender has two main jobs:

1. The Extender connects to a wireless network that is up and running.

   When the Extender connects wirelessly to a network, it acts as a network client. This is similar to how a computer connects to a network.

2. The Extender acts as an access point for computers.

The Extender has its own wireless network called NETGEAR_EXT that wireless computers can join. In its role as an access point, the Extender performs tasks that wireless routers do, such as broadcasting its network name (SSID).

The Extender must do each of these jobs so that both ends of the bridge are in place.
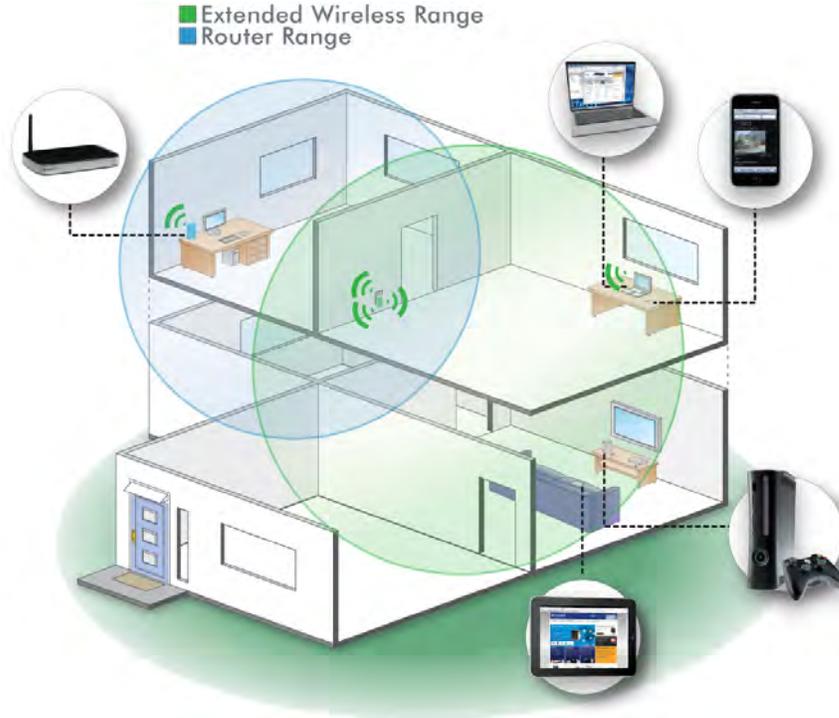
Figure 2. Range Extender in a home

Find the Best Location
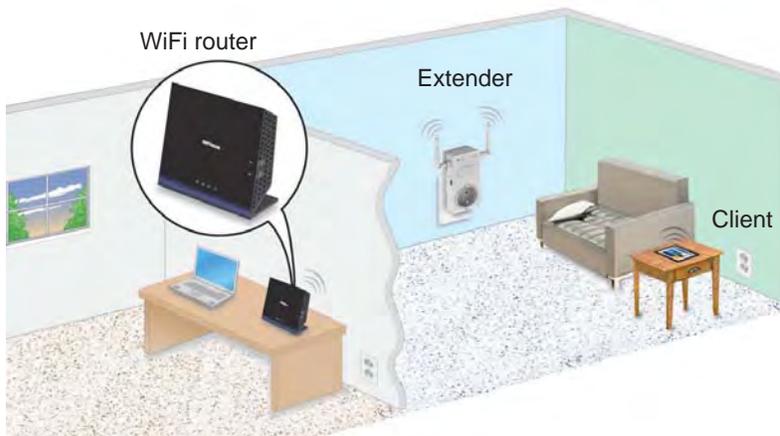
Figure 3. Extender in a home setting.

When you install the extender and join the extender network, the arrow LEDs guide you to the best location to plug in the extender. If no arrow is lit, the location is good.

Blinking left arrow. The extender is too far away from the router or gateway.

Blinking right arrow. The extender is too far away from your computer or wireless device.

Join the Extender WiFi Network

After you install the extender, you can join the extender WiFi network.

➢ **To join the extender network:**

1. Take your computer or wireless device to the location with poor WiFi coverage.
2. Find the new extender network name (MyNetworkName_EXT).
3. Select this network and enter the same WiFi password that you use for your home network.
4. Within 2 minutes, check the arrow LEDs on the extender.
   - If no arrow is lit, the location is good.
   - When the extender connects to a network and a client joins the extender network, an arrow LED blinks for 2 minutes if the WiFi signal strength is weak to or from the extender.

   Blinking left arrow. The extender is too far away from the router or gateway.

   Blinking right arrow. The extender is too far away from your computer or wireless device.

Note: If you are having trouble getting a good WiFi signal, try to create a better line of sight. For example, move the router up off the floor onto a table or desk, or move furniture that might be blocking the extender.

Extender Performance

The Router Link LED indicates performance between the router and the extender. If this LED is off, the Extender is not connected to a WiFi network.

The Client Link LED indicates the performance between the extender and the client. If this LED is off, no computer or wireless device is connected to the extender network.

These LEDs display the following colors:

- Green indicates the best performance.
- Amber indicates a workable performance.
- Red indicates a poor connection or no connection.

Internet Connection Options (WiFi or RJ45)

You can bring the extender with you when you travel. The extender supports both WiFi and RJ45 cable connections, for flexibility in hotels or WiFi hotspots such as coffee shops. The switch on the side of the extender specifies which connection you want to use.

Internet WiFi/RJ45

Figure 4. Internet connection switch

WiFi Internet Connection Away from Home

➢ **To use the extender WiFi Internet access when traveling:**

1. Get the password if the hotspot or hotel requires a password for Internet access.
2. Log in to the extender.
3. Select the WiFi network that you want the extender to join.
4. If prompted, enter the password for Internet access.
5. Leave the Extender WiFi network name the same (do not change it).

    Using the same WiFi network name saves time. Since your laptop and WiFi devices have connected to the extender WiFi network before, you do not have to change their settings.

6. With your laptop or wireless device, join the extender Wifi network.

RJ45 Internet Connection

➢ **To use the extender as an access point:**

1. Set the Internet switch on the side of the extender to RJ45.
2. Place the Extender and power it on.
3. Connect the Extender to your router or gateway using RJ45 cable.

    The Extender broadcasts its WiFi network name.

4. Join the Extender Wifi network.

Ethernet Port Connection

Do not use an Ethernet cable to connect the Extender to a router. If you do so, the Extender does not work.

You can use the Ethernet port to connect a computer to the extender during setup, or you can connect equipment such as a computer, TV, Blu-ray player, or gaming console to the Ethernet port.

Figure 5. Extender Ethernet port connection

Restore Factory Settings

You can use the extender Reset button to restore the factory settings.

➢ **To restore factory settings:**

1. Insert a paper clip into the **Reset** hole and hold it until the Power LED blinks amber.

2. Release the button.

All LEDs turn off for about 3 seconds.

The Power LED lights solid amber for about 30 seconds.

The Power LED lights solid green.

Extender Network Settings 2

This chapter covers the following topics:

Log In to the Extender

After installation, you can change the extender network settings if you want. For example, if you change your network name, you can log in to the extender and change its network name to match.

➢ **To log in to the extender to change its settings:**

1. Launch a web browser.
2. Enter **www.mywifiext.net**.
3. Enter **admin** for the user name and enter **password** for the password.

   The simplest way to change the settings is to use the setup wizard.

4. Select **Setup Wizard**.

   The wizard helps you through these steps:

   - Select the WiFi network that you want to extend.
   - Enter the WiFi password for this network.
   - Name the Extender network.
   - Connect your wireless computer or device to the Extender network.

Connect the Extender to Your WiFi Network

Do not cable the extender to the router. During setup the extender connects to your wireless network only with WiFi. You can use the extender's Wi-Fi Protected Setup (WPS), or the web browser method.

➢ **To connect using WPS:**

1. Press the **WPS** button on the side of the Extender.

   The Secure WiFi LED blinks.

2. Within 2 minutes, press the **WPS** button on your wireless router.

   The Router Link LED lights.

   The Secure WiFi LED lights green.

The extender network name changes. See *New Extender WiFi Network Name* on page 13.

➢ **To connect with the web browser method:**

1. On your computer or wireless device, find and join the *NETGEAR_EXT* WiFi network.

   The Client Link LED lights.

2. Open a web browser.
3. When prompted, select a language from the list.

NETGEAR genie displays.
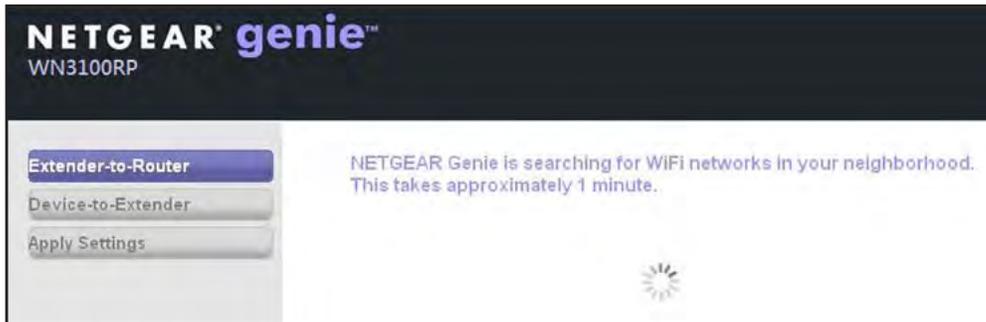
4. Follow the steps to connect the extender to the WiFi network.

When the extender connects, the Router Link LED lights.

If the network is secure, the Secure WiFi LED lights green.

New Extender WiFi Network Name

The first time the extender connects to a WiFi network, the Extender WiFi network name (SSID) changes to that network name, with **_EXT** at the end. For example:

WiFi network name: MyNetworkName

Extender network name: **MyNetworkName_EXT**

If the extender does not connect to the WiFi network, move the extender to a different location with a better WiFi signal. For example, you might need to move it closer to the router or gateway.

Wireless Settings

You can use the Wireless Settings screen to change the network name (SSID) for the Extender's network and to set up wireless security. If you do not change these settings, the network name is NETGEAR_EXT, and the network is open (no wireless security is set up).

Note: If you use a wireless computer to change the extender's wireless settings, you will be disconnected when you click **Apply**. To reconnect, you have to select the new network name that you created, and enter its passphrase or wireless security key.

➢ **To change the wireless settings for the extender's network:**

1. Select **Setup > Wireless Settings** to display the following screen:
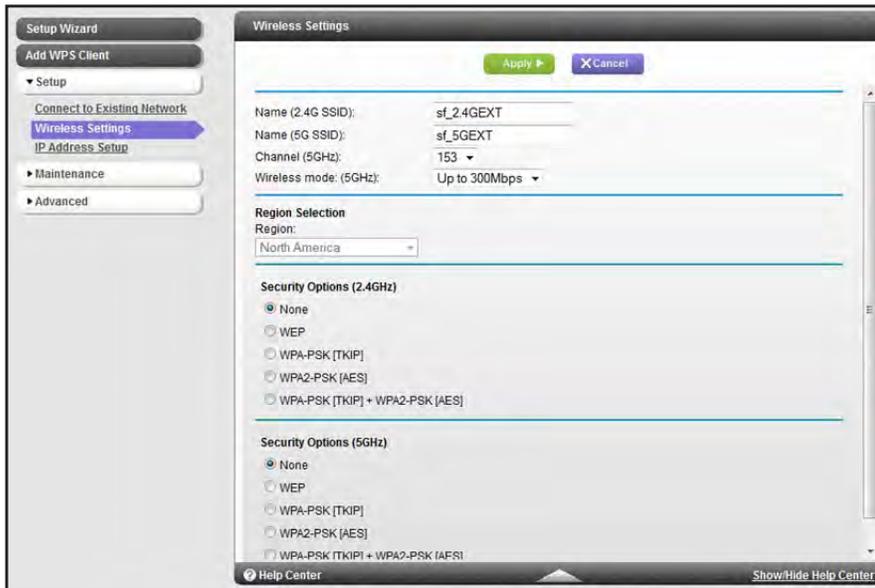
2. In the **Name (SSID)** field, you can type in a new name to customize your extender network. This will make it easier to identify your extender if more than one is operating in your neighborhood.

3. In the Security Options section of the screen, select the type of wireless security that you want to use on your network.

   • **None**. This is an open wireless network. Any wireless computer or device is allowed to join this network.

   • **WEP**. WEP is an older standard, and is less secure than WPA or WPA2. WEP uses encryption keys and data encryption for data security. You can select 64-bit or 128-bit encryption.

   • **WPA-PSK [TKIP]**. WPA is more secure than WEP. When using wireless computers or devices that support WPA, you can enter a passphrase to join the extender's wireless network.

   • **WPA2-PSK [AES]**. WPA2 is even more secure, but some older computers do not support this standard. When using wireless computers or devices that support WPA2, you can enter the passphrase to join the extender's wireless network.

   • **WPA-PSK [TKIP] + WPA2-PASK [AES]**. When using wireless computers or devices that support either WPA or WPA2, you can enter the passphrase to join the extender's wireless network.

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

5. Use your wireless computer to connect to the extender's network with its new settings. The Smart Wizard can guide you through this process.

Set Up WPA, WPA2, or WPA + WPA2

Both WPA and WPA2 provide strong data security. WPA with TKIP 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.

➢ **To configure WPA or WPA2 in the Extender:**

1. On the Wireless Setting screen, select the radio button for the WPA or WPA2 option of your choice.

2. The settings displayed on the screen depend on which security option you select.

3. For WPA-PSK or WPA2-PSK, enter the passphrase.

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

Set Up WEP

WEP is a legacy wireless security setting. NETGEAR recommends that you use a newer standard such as WPA2 or WPA unless you have older wireless equipment that supports only WEP.

➢ **To set up WEP:**

1. In the Wireless Settings screen, in the Security Options section, select the **WEP** radio button.

2. Select the authentication type: **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.

3. Select the encryption strength setting:

   - **WEP 64-bit encryption**. Enter 10 hexadecimal digits (any combination of 0–9, a–f, or A–F).

   - **WEP 128-bit encryption**. Enter 26 hexadecimal digits (any combination of 0–9, a–f, or A–F).

4. Enter the encryption keys. You can manually or automatically program the four data encryption keys. These values have to 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 computers have to use the passphrase or keys to access the Extender.

Note: Not all wireless computers support passphrase key generation. If your computer does not support the passphrase, then you will need to type the encryption key in order to join the wireless network.

- **Key 1**–**Key 4**. These values are *not* case-sensitive. You can manually enter the four data encryption keys. These values have to 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).

5. 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.

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

IP Address Setup

From the Extender menu at http://www.mywifiext.net, under the Maintenance heading, select **Setup > IP Address Settings**.

The IP Address Setup screen shows whether the Extender is set to get its IP address dynamically from the router (this is the most common setting), or is set up with a static IP address.

- **Get Dynamically IP Address From Router**. The wireless network router assigns an IP address when the Extender connects to its wireless network. Most networks are set up so that the router automatically does this.

- **Use Static IP Address.** Specify a static IP address. This is not usually necessary. If you set this up, you should be technically experienced or have a technically experienced person help you.
  - **IP Address**. The static IP address.
  - **IP Subnet Mask**. The subnet mask associated with the IP address.
  - **Gateway IP Address**. The IP address for the gateway.

- **Primary DNS**. The primary Domain Name Server (DNS).
- **Secondary DNS**. The secondary Domain Name Server (DNS).

Status Screen

When you connect to http://www.mywifiext.net, after the automatic firmware check, the Status screen displays. You can also select **Status** from the menu to display this screen:

This screen shows the current settings and the status of your Extender.

You can click **Show Statistics** to see device performance statistics such as the number of packets sent and number of packets received for each port. See *Show Statistics* on page 18.

The following fields are displayed in the Status screen:

- **Hardware Version**. The hardware version of the extender.
- **Firmware Version**. The current firmware version of the extender. If you upgrade the firmware, this field changes.
- **GUI Language Version**. The language version running on the extender. If you upgrade the firmware, this field changes.

Connection Status to Existing Network

- **Name (SSID)**. Your Extender is set up to connect to this SSID, also called the wireless name.
- **Connection Status**. The status of your wireless connection (connected or disconnected).
- **Link Rate**. The actual transmission (Tx) and receive (Rx) link rate in the current wireless connection.

Extender PC Info

- **MAC Address**. The physical address of the Extender, as seen from the local area network (LAN).

- **IP Address**. The IP address of the Extender. The default is 192.168.1.250.

- **DHCP Server**. Identifies the network DHCP server on the wireless network.

- **IP Subnet Mask**. The IP subnet mask associated with the LAN IP address of the Extender. The default is 255.255.255.0.

- **Gateway IP Address**. The IP address of the wireless network gateway.

- **Domain Name Server**. The IP address of the Domain Name Server (DNS) of the wireless network.

Extender Wireless Settings

- **Name (SSID)**. The name (SSID) of the wireless network.

- **Region**. The location where the Extender is operating.

- **Channel**. The channel of the wireless network.

- **Wireless AP**. On or Off.

- **Broadcast Name**. On or Off.

- **Wi-Fi Protected Setup**. Configured.

Show Statistics

Scroll to the bottom of the Status screen, and click **Show Statistics**. The following screen displays:

System Up Time 00:04:58

Port	Status	TxPkts	RxPkts	Collisions	Tx B/s	Rx B/s	Up Time
LAN	100M/Full	1143	1224	0	1506	657	00:04:31
WLAN	145M	0	0	0	0	0	00:04:53

Poll Interval :: [5] (secs)   [Set Interval]   [Stop]

The screen shows statistics for the LAN (local), and wireless LAN (WLAN) ports. For each port, the screen displays the following:

- **Status**. The status of the port.

- **TxPkts**. The number of packets transmitted on this port since reset or manual clear.

- **RxPkts**. The number of packets transmitted on this port since reset or manual clear.

- **Collisions**. The number of collisions on this port since reset or manual clear.
- **Tx B/s**. The current line utilization—percentage of current bandwidth used on this port.
- **Rx B/s**. The average line utilization for this port.
- **Up Time**. The time elapsed since the last power cycle or reset.
- **Poll Interval**. Specify the poll interval frequency. If you change this value, click **Set Interval** so that your change takes effect.

Attached Devices

Select **Maintenance > Attached Devices** to display the following screen:
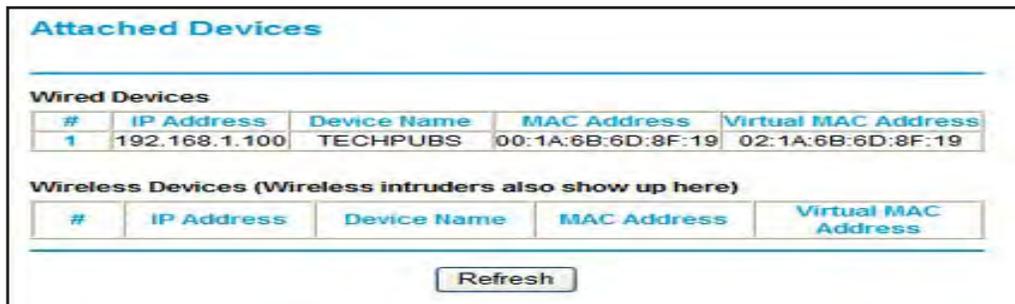
Back Up and Manage Extender Settings

Select **Maintenance > Backup Settings** to display this screen.
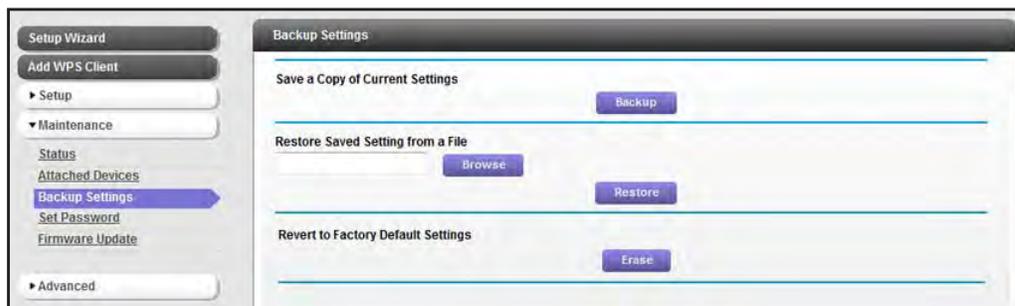
The Backup and Restore options in the Backup Settings screen let you save and retrieve a file containing your Extender's configuration settings. Once you have your Extender working correctly, you should back up the information to have it available if something goes wrong. When you back up the settings, they are saved as a file on your computer. You can restore the device's settings from this file.

➢ **To back up settings:**

1. Click **Backup**. Your browser extracts the configuration file from the Extender.
2. If you do not have your browser set up to save downloaded files automatically, locate where you want to save the file.
3. You can give the file a meaningful name at this time, such as internet_adapter.cfg.

➢ **To restore settings:**

1. On the Backup Settings screen, click **Browse**.

2. Locate and select the previously saved backup file.

3. Click **Restore**.

   A screen displays letting you know that the device has been successfully restored to the previous settings. The Extender restarts. This takes about 1 minute.

   ⚠ **CAUTION:**

   Do not try to go online, turn off the Extender, shut down the computer, or do anything else to the Extender until it finishes restarting!

4. Close the message window.

➢ **To erase settings:**

Under some circumstances (for example, if you have lost track of the changes that you made to the Extender settings), you might want to erase the configuration. After an erase, the Extender returns to its factory settings (see *Factory Settings* on page 25).

To erase the configuration, click the **Erase** button in the Backup Settings screen. The Extender automatically shuts down and reboots with its factory settings.

   ⚠ **CAUTION:**

   Do not try to go online, turn off the Extender, shut down the computer, or do anything else to the Extender until it finishes restarting!

Set the Password

The user name to access the Extender is admin, and its default password is password. NETGEAR strongly recommends that you set a more secure password.

➢ **To set the password:**

1. Select **Maintenance > Set Password**. The following screen displays:

2. Type the old password, type the new password twice, and then click **Apply**.

Upgrade the Firmware

Unless you changed the settings in the Firmware Upgrade screen previously, the Extender is set up to check for new firmware automatically at log in.

If you do not want to use the automatic firmware check, clear the **Check for New Version Upon Login** check box.

➢ **To check for firmware and upgrade if it is available:**

1. Select **Maintenance > Firmware Update**. The following screen displays:
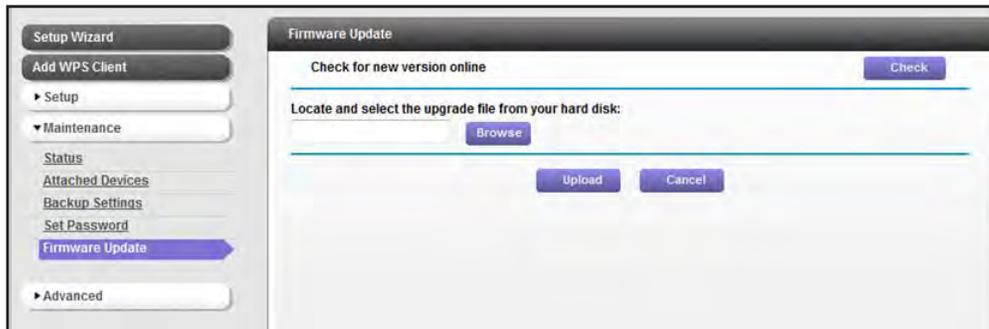
2. Click **Check** to see if new firmware is available. If it is, follow the onscreen prompts to download it onto your computer.

3. In the Browse field, enter the path for the new firmware, or click **Browse** to locate and select the file.

4. Click **Upload** to install the new firmware on your Extender.

⚠️ **CAUTION:**

Once you start the firmware upgrade, do not try to go online, turn off the Extender, shut down the computer, or do anything else to the Extender until it finishes restarting!

Advanced Wireless Settings

The Extender is already configured with the optimum settings. Do not alter these settings unless directed by NETGEAR support. Incorrect settings might disable the Extender unexpectedly.

➢ **To view or change the advanced wireless settings:**

From the Extender menu at http://www.mywifiext.net, select **Advanced > Wireless Settings**. The following screen displays:

You can view or configure the following settings:

- Wireless Mode
  - Internet Surfing
  - Performance
- Advanced Wireless Settings
  - **Enable Wireless Access Point (2.4 GHz)**. Enable the extender to work as a wireless access point. If this check box is cleared, then computers or wireless devices cannot connect wirelessly to the extender.
  - **Enable SSID Broadcast (2.4 GHz).** Enable the extender to broadcast its wireless network name (SSID). If this check box is cleared, then the wireless network is hidden. To join a hidden wireless network, you have to type the wireless name.
  - **Enable Wireless Access Point (5 GHz)**. Enable the extender to work as a wireless access point. If this check box is cleared, then computers or wireless devices cannot connect wirelessly to the extender.
  - **Enable SSID Broadcast (5 GHz).** Enable the extender to broadcast its wireless network name (SSID). If this check box is cleared, then the wireless network is hidden. To join a hidden wireless network, you have to type the wireless name.
- WPS Settings

- **Disable Device's PIN**. Selecting this check box disables the extender's PIN. The PIN can be used for a WPS wireless connection.

- **Keep Existing Wireless Settings**. When this check box is selected, the settings in the Wireless Settings screen stay the same when WPS is used for a wireless connection.

• **Wireless Card Access List**. Specify a list of computers or wireless devices that are allowed to connect to the network. If you use an access list, then computers that are not on the list are not allowed to join the wireless network.

➢ **To set up a wireless card access list:**

1. On the Advanced Wireless Settings screen, click **Setup Access List**.

   The following screen displays:

2. Select the **Turn Access Control On** check box.

3. Add the computers and wireless devices that you want to give access to the network.

   • Click the **Add** button for each device.

   • If you are not sure of the MAC address, check the product label.

   • Make sure to add the computer or wireless device that you are currently using to make changes.

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

Supplemental Information

A

This chapter covers the following topics:

- *Factory Settings*
- *Technical Specifications*

Factory Settings

You can press and hold the **Factory Settings** button on the side panel for 7 seconds. The Extender resets, and returns to its factory settings.

Table 1.

Factory Settings		
Smart Wizard		Enabled
Wireless	Wireless communication	Enabled
	Wireless Network Name (SSID)	NETGEAR_EXT
	Security	Disabled
	Transmission speed	Auto[1]
	Country/Region	United States (varies by region)
	Operating mode	802.11n, 802.11g, 802.11b, 802.11ac
	Data rate	Up to 433 Mbps

1. Maximum wireless signal rate (IEEE Standard 802.11). 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.

Technical Specifications

Table 2.

Technical Specifications	
Network protocol and standards compatibility	Data and Routing Protocols: TCP/IP, DHCP server and client
AC input	100-240V~, 0.3A (Max)
Physical specifications	• Dimensions: 112 x 74 x 45 mm (4.41 x 2.91 x 1.77 in) • Weight: 0.245 kg (0.54 lb)
Environmental	• Operating temperature: 32° to 140° F (0° to 40° C) • Operating humidity: 90% maximum relative humidity, noncondensing • Electromagnetic emissions: Meets requirements of: FCC Part 15 Class B.
Interface	• Local: 10BASE-T, 100BASE-Tx, RJ-45 • 802.11n/g/b/ac