

**NETGEAR®**

# User Manual

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## Insight Instant Mesh Multi-Mode Access Point

Model WAC564

September 2022  
202-11988-05

**NETGEAR, Inc.**  
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## Revision History

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## Insight Instant Mesh Multi-Mode Access Point Model WAC564 User Manual

(Continued)

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# 1

## Hardware Overview

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The NETGEAR Insight Instant Mesh Multi-Mode Access Point, Model WAC564, in this manual referred to as the access point, supports two radios with tri-band concurrent operation at 2.4 GHz, 5 GHz low band, and 5 GHz high band. The access point can provide a combined throughput of 3000 Mbps (400 Mbps at 2.4 GHz, 867 Mbps at 5 GHz low band, and 1733 Mbps at 5 GHz high band).

Although you *can* use the access point as a standalone access point, the access point is designed for use in a NETGEAR Insight Instant Mesh WiFi network as an extender access point or a root access point.

A root access point is set up with a wired connection to your network and functions as a gateway to an extender access point, which communicates with the root access point over a WiFi backhaul connection (see [What are a root access point and an extender access point?](#) on page 21). That is, the extender access point is not connected to your network over a wired connection but over a WiFi connection.

A mesh WiFi network consists of at least one mesh-capable root access point and one or more extender access points, all of which together provide WiFi coverage over a potentially large area (see [What is an Insight Instant Mesh WiFi network?](#) on page 21).

In addition to providing WiFi capability, the access point also functions as a switch with four Ethernet LAN ports so that you can attach wired devices such as computers, printers, other switches, and hubs. You can mount the access point on a wall or ceiling (see [Mount the Access Point on a Wall or Ceiling](#) on page 246).

This chapter contains the following sections:

- [About NETGEAR Insight](#)
- [Related documentation](#)
- [Unpack the access point](#)
- [Front and top panel with Ring LED](#)
- [Back panel with Power LED](#)
- [Access point label](#)
- [Safety instructions and warnings for an indoor access point](#)

**Note:** For more information about the topics that are covered in this manual, visit the support website at [netgear.com/support/](http://netgear.com/support/).

**Note:** Firmware updates with new features and bug fixes are made available from time to time at [netgear.com/support/download/](http://netgear.com/support/download/). You can check for and download new firmware manually. If the features or behavior of your product does not match what is described in this manual, you might need to update the firmware.

**Note:** In this user manual, *WiFi network* means the same as SSID (service set identifier or WiFi network name) or VAP (virtual access point). That is, in this user manual, when we refer to a WiFi network we mean an individual SSID or VAP.

# About NETGEAR Insight

The access point supports the NETGEAR Insight app, which lets you set up and manage the access point from your iOS or Android mobile device and connects to the Insight cloud-based management platform. For Insight Premium or Insight Pro subscribers, the access point also supports the Insight Cloud portal, which is the website that provides access to the Insight cloud-based management platform.

For NETGEAR Insight Premium and Insight Pro subscribers, the access point supports the NETGEAR Insight Cloud portal and Insight app:

- **Insight Cloud portal:** Lets you configure and manage the access point through the portal of the Insight cloud-based management platform.
- **Insight app:** Lets you configure and manage the access point from your iOS or Android mobile device and connects to the Insight cloud-based management platform.

This user manual describes the local browser-based management interface, in this manual referred to as the local browser interface. For more information about NETGEAR Insight, visit [insight.netgear.com](https://insight.netgear.com) and see the NETGEAR knowledge base at [netgear.com/support/product/insight.aspx](https://netgear.com/support/product/insight.aspx).

If you install the access point as a NETGEAR Insight managed device, the settings for features that you can manage through the Insight app and Insight Cloud portal are masked out in the local browser interface. However, using the local browser interface, you can still manage the settings for certain features that are not yet supported in Insight. For more information, visit the NETGEAR knowledge base at [netgear.com/support/product/insight.aspx](https://netgear.com/support/product/insight.aspx) and search for *What is Hybrid Management Mode*.

## Related documentation

The following related documentation is available at [netgear.com/support/download/](https://netgear.com/support/download/):

- Installation guide
- Data sheet

For information about the NETGEAR Insight app and the Insight Cloud portal, visit [insight.netgear.com](https://insight.netgear.com) and see the NETGEAR knowledge base at [netgear.com/support/product/insight.aspx](https://netgear.com/support/product/insight.aspx).

# Unpack the access point

The package includes the following items:

- Model WAC564 access point
- Power adapter (varies by region)
- Ethernet cable
- Rubber feet
- Installation guide
- Ceiling and wall-mount kit, including the following:
  - Mount base
  - Mount base screws (2)
  - Mount base cover
  - Wall bracket
  - Wall anchors (2) and screws (2)
  - Ceiling bracket
  - T-bracket with lock screw (1)
  - T-bracket screws (4)

## Front and top panel with Ring LED

The front and top panel of the access point do not include any components other than the Ring LED, which is sunk into the top of the enclosure.



Figure 1. Front panel and top panel with Ring LED

Table 1. Ring LED descriptions

Color	Description	Occurs
	<b>Solid amber.</b> The access point is booting. The boot process takes about 90 seconds.	Any time when booting
	<b>Pulsing cyan.</b> The access point is attempting to detect a root access point.	During initial installation only
	<b>Solid cyan.</b> The access point is connected to the root access point that provides the strongest WiFi signal but is not yet set up as a managed device in an Insight Instant Mesh WiFi network.	During initial installation only
	<b>Slow pulsing amber.</b> The access point is contacting the network router or DHCP server to receive an IP address.	During initial installation only
	<b>Pulsing magenta.</b> The access point is making its first connection with the Insight cloud and the Insight cloud starts to push the firmware that enables the access point to become a managed device.	During initial installation only
	<b>Pulsing red, green, and blue.</b> The access point is being configured either as a managed device in an Insight Instant Mesh WiFi network or as a standalone access point.	During initial installation only

Table 1. Ring LED descriptions (Continued)

Color	Description	Occurs
	<b>Pulsing blue, three seconds on, three minutes off.</b> The access point functions as an Insight managed device in an Insight Instant Mesh WiFi network and is connected to the Insight cloud.	When operating
	<b>Pulsing green, three seconds on, three minutes off.</b> The access point functions as a standalone access point, but you can set it up as an Insight managed device and let it connect to the Insight cloud. <b>Note:</b> If the access point does function as an Insight managed device in an Insight Instant Mesh WiFi network and the Ring LED lights solid green (three seconds on, three minutes off), the access point lost its connection with the Insight cloud.	When operating
	<b>Fast pulsing amber.</b> The access point is resetting to factory defaults.	Any time when reset

**Note:** For information about troubleshooting with the LEDs, see [Troubleshoot with the LEDs](#) on page 236.

## Back panel with Power LED

The back panel of the access point provides four Ethernet LAN ports, a **Power** button and Power LED, a DC power connector, and a **Reset** button.



Figure 2. Back panel

Viewed from left to right, the back panel contains the following components:

- **Four LAN ports (1, 2, 3, and 4).** Use the Gigabit Ethernet LAN ports to connect the access point to wired devices such as computers, printers, storage devices, hubs, and other switches. You can also use a wired computer connection for configuration of the access point.

**Note:** If you install the access point as a standalone access point or as a root access point, make sure that you use LAN port 1 on the access point for the Ethernet connection to your network. Do not use another port for this purpose. For example, connect LAN port 1 to a switch that is connected to your router or Internet gateway. By default, LAN port 1 functions in trunk mode as an uplink.

- **Power button and Power LED.** Press the **Power** button to turn the access point on or off. The small Power LED is located above the button. When you turn on the power to the access point, the Power LED lights solid amber for about two minutes and then turns solid green, indicating that the startup procedure is complete and the access point is ready. The behavior of the Power LED is as follows:

- **Solid amber.** The access point is booting.
- **Solid green.** The access point is ready.
- **Blinking amber.** The access point is being reset to factory default settings.

For information about troubleshooting with the LEDs, see [Troubleshoot with the LEDs](#) on page 236.

- **DC power connector.** The access point requires 12V, 2.5A input. Use the power adapter that is supplied with the access point.
- **Reset button.** Press the **Reset** button for about 2 seconds to reboot the access point or for more than 7 seconds to reset the access point to factory default settings. If you added the access point to a NETGEAR Insight network location, you must first use the Insight app or Insight Cloud portal to remove the access point from your Insight network location before the factory default settings function of the **Reset** button is available. For more information, see [Use the Reset button to reset the access point](#) on page 195.

## Access point label

The label on the bottom panel of the access point shows the serial number, MAC address, default WiFi network name (SSID), network key (password), and default login information of the access point.

## Safety instructions and warnings for an indoor access point

Use the following safety guidelines to ensure your own personal safety and to help protect your system from potential damage.

To reduce the risk of bodily injury, electrical shock, fire, and damage to the equipment, observe the following precautions:

- This product is designed for indoor use only in a temperature-controlled and humidity-controlled environment. Note the following:
  - For more information about the environment in which this product must operate, see the environmental specifications in the appendix or the data sheet.
  - If you want to connect the product over an Ethernet cable to a device located outdoors, the outdoor device must be properly grounded and surge protected, and you must install an Ethernet surge protector inline between the indoor product and the outdoor device. Failure to do so can damage the product.
  - Before connecting the product to outdoor cables or wired outdoor devices, see <https://kb.netgear.com/000057103> for additional safety and warranty information.

Failure to follow these guidelines can result in damage to your NETGEAR product, which might not be covered by NETGEAR's warranty, to the extent permissible by applicable law.

- Do not service the product except as explained in your product documentation. Some devices should never be opened.
- If any of the following conditions occur, unplug the product from its power source, and then replace the part or contact your trained service provider:
  - Depending on your product, the power adapter, power adapter cable, power adapter plug, or PoE Ethernet cable is damaged.
  - An object fell into the product.
  - The product was exposed to water.

- The product was dropped or damaged.
  - The product does not operate correctly when you follow the operating instructions.
  - Keep the product away from radiators and heat sources. Also, do not block cooling vents.
  - Do not spill food or liquids on your product components, and never operate the product in a wet environment. If the product gets wet, see the appropriate section in your troubleshooting guide, or contact your trained service provider.
  - Do not push any objects into the openings of your product. Doing so can cause fire or electric shock by shorting out interior components.
  - Use the product only with approved equipment.
  - If applicable to your product, allow the product to cool before removing covers or touching internal components.
  - Be sure that devices that are attached over Ethernet cables are electrically rated to operate with the power available in your location.
  - Depending on your product, use only the supplied power adapter or an Ethernet cable that provides PoE.  
If your product uses a power adapter:
    - If you were not provided with a power adapter, contact your local NETGEAR reseller.
    - The power adapter must be rated for the product and for the voltage and current marked on the product electrical ratings label.
  - To help prevent electric shock, plug any system and peripheral power cables into properly grounded power outlets.
  - If applicable to your product, the peripheral power cables are equipped with three-prong plugs to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable. If you must use an extension cable, use a three-wire cable with properly grounded plugs.
  - Observe extension cable and power strip ratings. Make sure that the total ampere rating of all products plugged into the extension cable or power strip does not exceed 80 percent of the ampere ratings limit for the extension cable or power strip.
  - To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).
  - Position system cables, power adapter cables, and PoE Ethernet cables carefully. Route cables so that they cannot be stepped on or tripped over. Be sure that nothing rests on any cables.
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- Do not modify power adapters, power adapter cables, or plugs. Consult a licensed electrician or your power company for site modifications.
- Always follow your local and national wiring rules.

# 2

## Install the Access Point in an Insight Instant Mesh WiFi Network

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In addition to functioning as a regular standalone access point, the access point can function in an Insight Instant Mesh WiFi network as either a root access point or an extender access point.

This chapter describes how you can use the NETGEAR Insight app to connect the access point to a root access point and let it function as an extender access point in an Insight Instant Mesh WiFi network.

**Note:** To set up the extender access point in a NETGEAR Insight Instant Mesh WiFi network with a connection to a root access point, you must use the NETGEAR Insight app. You cannot use the local browser UI to set up a mesh WiFi connection to a root access point.

For information about how you can manage and monitor the extender access point with the NETGEAR Insight app and Insight Cloud portal, visit [netgear.com/insight](http://netgear.com/insight) and [netgear.com/support/product/Insight.aspx](http://netgear.com/support/product/Insight.aspx). For knowledge base articles about NETGEAR Insight, visit [netgear.com/support](http://netgear.com/support).

The chapter contains the following sections:

- [What are a root access point and an extender access point?](#)
- [What is an Insight Instant Mesh WiFi network?](#)
- [Requirements for placing an extender access point in a mesh WiFi network](#)
- [Connect the access point as an extender to a root access point using the Cloud Portal](#)
- [Install the NETGEAR Insight app to manage an Insight Instant Mesh WiFi network](#)
- [Connect the access point as an extender to a root access point using the Insight app](#)

## What are a root access point and an extender access point?

The NETGEAR WAC564 access point can function in an Insight Instant Mesh WiFi network as a root access point or as an extender access point:

- **Root access point.** A mesh-capable access point that is set up with a wired connection to your network and functions as a gateway to another mesh-capable access point that functions as an extender. On the root access point, make sure that you use one Ethernet port for the connection to your network. (On the WAC564 access point, use the LAN 1 port.) A root access point can service multiple extender access points simultaneously.
- **Extender access point.** A mesh-capable access point that functions as an extender access point with a WiFi backhaul connection to a root access point that provides Internet connectivity. The extender access point is not connected to your network over a wired connection but over a WiFi connection.

## What is an Insight Instant Mesh WiFi network?

A mesh WiFi network consists of at least one mesh-capable root access point and one or more extender access points that connect to the root access point over WiFi (see [What are a root access point and an extender access point?](#) on page 21). The root access point is connected over Ethernet to a router or Internet gateway and provides Internet access to its extender access points. The root access point and extender access points work together to cover a potentially large area with WiFi network, which is the mesh network.

A mesh network can be a good solution if you want to bring WiFi to the following environments:

- Nearby rooms where cabling is not available (in line of sight and in range of the current WiFi reception)
- Neighboring office buildings (in line of sight and in range of the current WiFi reception)
- Any environment in which you cannot run cables

In the mesh WiFi network, the extender access point connects to the root access point over a WiFi connection and broadcasts (extends) the WiFi network to the WiFi clients:

- **Backhaul connection.** The WiFi connection between the root access point and the extender access point is referred to as the backhaul connection.
- **Fronthaul connection.** The WiFi connection between the extender access point and its WiFi clients is referred to as the fronthaul connection.

In a NETGEAR Insight Instant Mesh WiFi network, you must use the Insight Cloud Portal or Insight app to set up the mesh WiFi connection between the root access point and the extender access point. That is, you cannot do so through the local browser interface of either the root access point or the extender access point. In a network with multiple root access points, NETGEAR Insight automatically connects the extender access point to the root access point with the strongest WiFi signal.

Although the extender access point broadcasts the same WiFi network or networks as the root access point, you can also set up a WiFi network on the extender access point, which then can be broadcast by the root access point and other extender access points in the mesh network.

Both the root access point and the extender access point support tri-band radios that can broadcast on the 5 GHz high band (the preferred band for the backhaul connection), the 5 GHz low band, and the 2.4 GHz band. Depending on the WiFi capability of the WiFi client, any band can provide the fronthaul connection.

## Requirements for placing an extender access point in a mesh WiFi network

The following are the requirements for placing an extender access point in an Insight Instant Mesh WiFi network:

- The existing WiFi network must include at least one mesh-capable access point that runs the latest firmware version. On the root access point, use one Ethernet port for the connection to your network. (On the NETGEAR WAC564 access point, use the LAN 1 port.)
- The extender access point must be in factory default state. If you used the extender access point in your network before, reset the access point to factory default settings.
- The extender access point must be within range of the WiFi signal of a root access point so that it can sync with the root access point. For a reliable WiFi connection, place the extender access point less than 25 feet (7.5 m), in a line of sight with minimal obstacles from the closest root access point.

- You must use the NETGEAR Insight Cloud Portal or Insight app to install the extender access point in the existing WiFi network.

The following NETGEAR access point models can function either as a root access point or as an extender access point:

- WAC540
- WAC564
- WAX610
- WAX610Y (Although this model can function as an extender access point, you can power it through PoE only.)
- WAX615
- WAX620
- WAX625
- WAX630
- WAX630E

**Note:** In a mesh WiFi network with WAX610, WAX610Y, WAX615, WAX620, WAX625, WAX630, or WAX630E models and WAC540 or WAC564 models, the WAC540 and WAC564 models must run firmware version 9.5 or a later version.

In the near future, more NETGEAR models might be added to the previous list.

## Connect the access point as an extender to a root access point using the Cloud Portal

The NETGEAR Insight Cloud portal is available for Insight Premium and Insight Pro subscribers.

You can use the Insight Cloud Portal to connect the access point as an extender to a root access point. The root access point must be set up with a wired connection to a router or Internet gateway so that the root access point can provide Internet connectivity to the extender access point.

For more information about the Insight Cloud portal and the configuration and management options that are available through the Insight Cloud portal, visit [netgear.com/insight](https://netgear.com/insight) and [netgear.com/support/product/Insight.aspx](https://netgear.com/support/product/Insight.aspx). For knowledge base articles about NETGEAR Insight, visit [netgear.com/support](https://netgear.com/support).

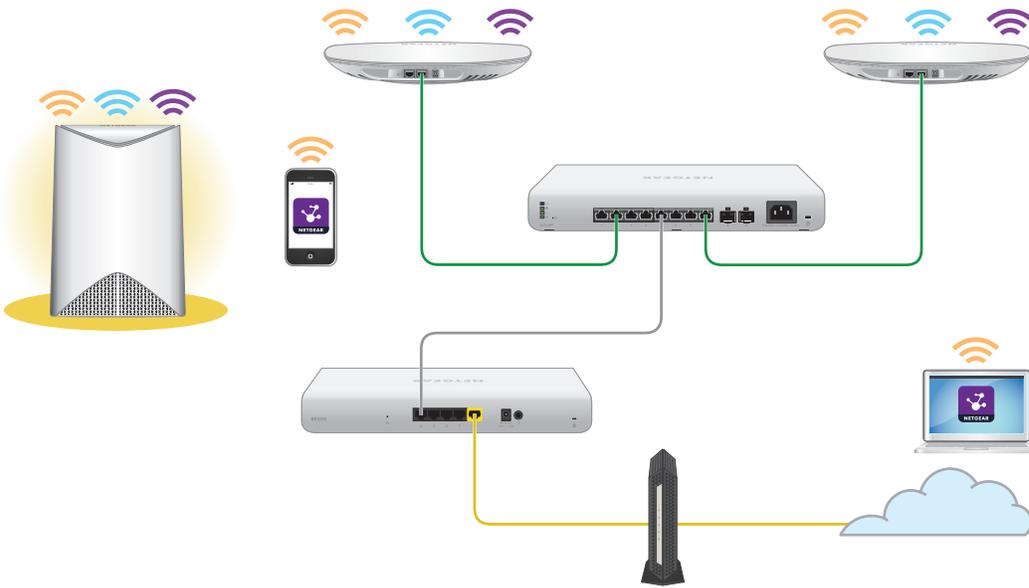


Figure 3. Connect the extender access point to a root access point

The WiFi wave colors in the figure indicate the following sample connections:

- **Orange.** 5 GHz high band.
- **Blue.** 5 GHz low band.
- **Purple.** 2.4 GHz.

The extender access point can use any band to establish the backhaul connection to the root access point and the fronthaul connection to WiFi clients. However, after the backhaul connection is established, the extender access point automatically switches to the 5 GHz high band as the preferred band for its backhaul connection. Using the Insight Cloud Portal, you can change the backhaul settings.

### **To use the Insight Cloud Portal to connect the extender access point to a root access point in an existing WiFi network:**

1. Make sure that the mesh mode for the Insight network location is set to Auto.  
For more information, visit [kb.netgear.com/000064932](http://kb.netgear.com/000064932).
2. Make sure that the mesh mode for the root access point is set to Auto.  
For more information, visit [kb.netgear.com/000064929](http://kb.netgear.com/000064929).
3. Make sure that extender access point is in factory default state.  
If you used the extender access point in your network before, reset the access point to factory default settings.
4. For a reliable WiFi connection, place the extender access point less than 25 feet (line of sight, with minimal obstacles) from the closest root access point.

5. Connect the extender access point to a power source.  
The Power LED on the back of the extender access point lights amber and then lights green.  
If the Power LED does not light, press the **Power On/Off** button.
6. Access the Insight Cloud Portal by visiting [insight.netgear.com](https://insight.netgear.com), enter your NETGEAR email address and password, and click the **NETGEAR Sign In** button.
7. Only if you are an Insight Pro user, select the organization to which you want to add the extender access point.
8. Select the location to which you want to add the extender access point.
9. Click the **+ (Add Device)** button.
10. In the Add New Device pop-up page, enter the extender access point's serial number and MAC address, and then click **Go**.  
Insight detects the extender access point automatically. This process might take a few minutes.

The extender access point attempts to detect and connect to the root access point that provides the strongest WiFi signal in the Insight Instant Mesh WiFi network.

**Note:** The initial connection and configuration process might take up to 10 minutes. The extender access point might restart during the configuration process.

11. Wait for the extender access point to go through the initial connection and configuration process and for the Ring LED to stop pulsing red, green, and blue and to start pulsing blue.

The Ring LED lights as follows during the initial connection and configuration process:

- **Pulsing cyan.** The Ring LED pulses cyan while the extender access point is attempting to detect a root access point.
- **Solid cyan.** The Ring LED lights solid cyan while the extender access point is making its first connection with the root access point that provides the strongest WiFi signal.
- **Pulsing amber.** The Ring LED pulses amber slowly while the extender access point is contacting the network router or DHCP server to receive an IP address. If the Ring LED does not stop pulsing amber, see [The Ring LED does not stop pulsing amber](#) on page 237.
- **Pulsing magenta.** The Ring LED pulses magenta while the extender access point is making its first connection with the Insight cloud and the Insight cloud starts to push the firmware that enables the extender access point to become a managed device.

- **Pulsing red, green, and blue.** The Ring LED pulses red, green, and blue while the extender access point is being configured as a managed device in the Insight Instant Mesh WiFi network.  
If the Ring LED does not stop pulsing red, green, and blue, see [The Ring LED does not stop pulsing red, green, and blue](#) on page 238.

When the configuration is complete, the Ring LED lights as follows:

- **Pulsing blue.** The Ring LED pulses blue when the configuration is complete and the extender access point is ready for operation.
- **Pulsing blue, three seconds on, three minutes off.** The Ring LED pulses blue for three seconds and then goes off for three minutes while the extender access point functions in the Insight Instant Mesh WiFi network and is connected to the Insight cloud.

The extender access point is automatically configured to broadcast (extend) the root access point's WiFi network.

If you are experiencing difficulty connecting the extender access point with a root access point, see [The extender access point and root access point cannot connect](#) on page 239.

For information about accessing, managing, and monitoring the extender access point with the NETGEAR Insight app and Insight Cloud portal, visit [netgear.com/insight](http://netgear.com/insight) and [netgear.com/support/product/Insight.aspx](http://netgear.com/support/product/Insight.aspx). For knowledge base articles about NETGEAR Insight, visit [netgear.com/support](http://netgear.com/support).

## Install the NETGEAR Insight app to manage an Insight Instant Mesh WiFi network

The NETGEAR Insight app is available for Insight Premium and Insight Pro subscribers.

Before you can add the access point to an Insight Instant Mesh WiFi network using the NETGEAR Insight app, you must install the app on an iOS or Android mobile device.

For more information about the Insight app, visit [netgear.com/business/services/insight/subscription](http://netgear.com/business/services/insight/subscription) and [netgear.com/support/product/Insight.aspx](http://netgear.com/support/product/Insight.aspx).

**To install the Insight app:**

1. On your iOS or Android mobile device, go to the app store, search for NETGEAR Insight, and download the Insight app.



2. Open the Insight app.
3. If you do not already have a NETGEAR account, create one.
4. Enter the email address and password for your NETGEAR account and tap **Log in**.

You can now set up the extender access point mesh WiFi connection (see [Connect the access point as an extender to a root access point using the Insight app](#) on page 27).

## Connect the access point as an extender to a root access point using the Insight app

Use the NETGEAR Insight app to connect the access point as an extender to a root access point. The root access point must be set up with a wired connection to a router or Internet gateway so that the root access point can provide Internet connectivity to the extender access point.

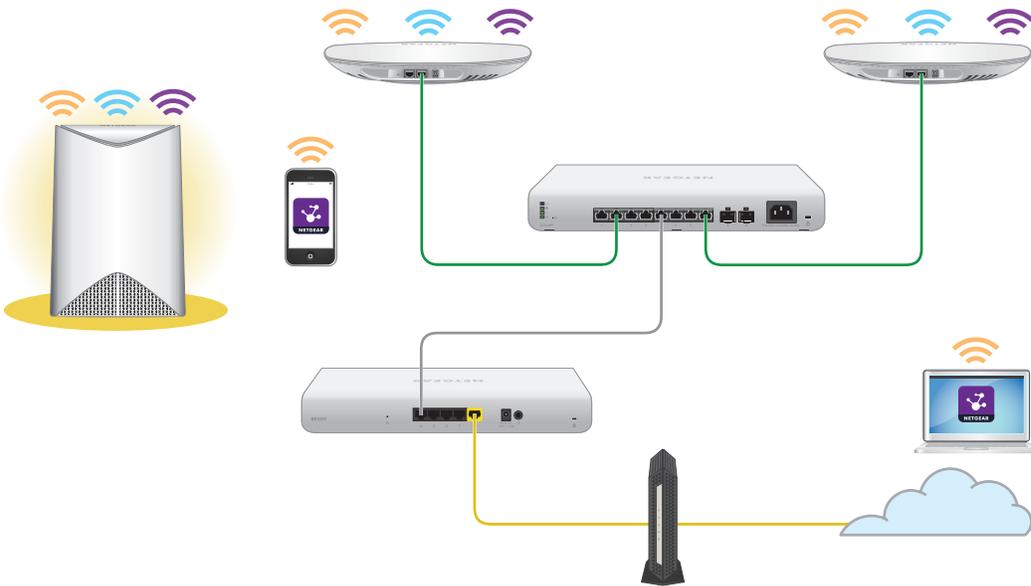


Figure 4. Connect the extender access point to a root access point

The WiFi wave colors in the figure indicate the following sample connections:

- **Orange.** 5 GHz high band.
- **Blue.** 5 GHz low band.
- **Purple.** 2.4 GHz.

The extender access point can use any band to establish the backhaul connection to the root access point and the fronthaul connection to WiFi clients. However, after the backhaul connection is established, the extender access point automatically switches to the 5 GHz high band as the preferred band for its backhaul connection. Using the Insight Cloud Portal, you can change the backhaul settings.

### **To use the NETGEAR Insight app to connect the extender access point to a root access point in an existing WiFi network:**

1. Make sure that the mesh mode for the Insight network location is set to Auto.  
For more information, visit [kb.netgear.com/000064932](http://kb.netgear.com/000064932).

You cannot use the Insight app to change the mesh mode for the Insight network location. You must use the Cloud Portal. For all other steps in this procedure, you *can* use the Insight app.

2. Make sure that the mesh mode for the root access point is set to Auto.  
For more information, visit [kb.netgear.com/000064929](http://kb.netgear.com/000064929).
3. Make sure that extender access point is in factory default state.

If you used the extender access point in your network before, reset the access point to factory default settings.

4. For a reliable WiFi connection, place the extender access point less than 25 feet (line of sight, with minimal obstacles) from the closest root access point.
5. Connect the extender access point to a power source.  
The Power LED on the back of the extender access point lights amber and then lights green.  
If the Power LED does not light, press the **Power On/Off** button.
6. Connect your mobile device to the existing WiFi network that includes one or more root access points.
7. Launch the Insight app and sign in to your account.
8. Select the Insight network location with the root access point.  
In most situations, the Insight app detects the extender access point automatically. This process might take a few minutes.
9. Do one of the following to add the extender access point to the Insight network location:
  - **Automatically detected:** If the extender access point is automatically detected and listed in the Insight Manageable Devices section, tap the icon for the extender access point, and then tap the **ADD DEVICE** button.
  - **Not automatically detected:** If the extender access point is not automatically detected, do the following:
    - a. Tap the **+** icon in the top bar.
    - b. Do one of the following:
      - Tap the **SCAN BARCODE OR QR CODE** button, and then scan the extender access point's code.
      - Tap the **Enter Serial Number and MAC address** link, and then manually enter the extender access point's serial number and MAC address.
    - c. If prompted, name the extender access point and tap the **Next** button.

The extender access point attempts to detect and connect to the root access point that provides the strongest WiFi signal in the Insight Instant Mesh WiFi network.

**Note:** The initial connection and configuration process might take up to 10 minutes. The extender access point might restart during the configuration process.

10. Wait for the extender access point to go through the initial connection and configuration process and for the Ring LED to stop pulsing red, green, and blue and to start pulsing blue.

The Ring LED lights as follows during the initial connection and configuration process:

- **Pulsing cyan.** The Ring LED pulses cyan while the extender access point is attempting to detect a root access point.
- **Solid cyan.** The Ring LED lights solid cyan while the extender access point is making its first connection with the root access point that provides the strongest WiFi signal.
- **Pulsing amber.** The Ring LED pulses amber slowly while the extender access point is contacting the network router or DHCP server to receive an IP address. If the Ring LED does not stop pulsing amber, see [The Ring LED does not stop pulsing amber](#) on page 237.
- **Pulsing magenta.** The Ring LED pulses magenta while the extender access point is making its first connection with the Insight cloud and the Insight cloud starts to push the firmware that enables the extender access point to become a managed device.
- **Pulsing red, green, and blue.** The Ring LED pulses red, green, and blue while the extender access point is being configured as a managed device in the Insight Instant Mesh WiFi network. If the Ring LED does not stop pulsing red, green, and blue, see [The Ring LED does not stop pulsing red, green, and blue](#) on page 238.

When the configuration is complete, the Ring LED lights as follows:

- **Pulsing blue.** The Ring LED pulses blue when the configuration is complete and the extender access point is ready for operation.
- **Pulsing blue, three seconds on, three minutes off.** The Ring LED pulses blue for three seconds and then goes off for three minutes while the extender access point functions in the Insight Instant Mesh WiFi network and is connected to the Insight cloud.

The extender access point is automatically configured to broadcast (extend) the root access point's WiFi network.

If you are experiencing difficulty connecting the extender access point with a root access point, see [The extender access point and root access point cannot connect](#) on page 239.

For information about accessing, managing, and monitoring the extender access point with the NETGEAR Insight app and Insight Cloud portal, visit [netgear.com/insight](http://netgear.com/insight) and [netgear.com/support/product/Insight.aspx](http://netgear.com/support/product/Insight.aspx). For knowledge base articles about NETGEAR Insight, visit [netgear.com/support](http://netgear.com/support).

# 3

## Install the Access Point as a Regular Access Point in Your Network

---

This chapter describes how you can use the local browser interface to install and access the access point as a *regular access point* (that is, a standalone access point) in your network.

The chapter contains the following sections:

- [Position your access point](#)
- [Set up the access point as a regular access point](#)
- [Connect to the access point for initial configuration](#)
- [Log in to the access point after initial setup](#)
- [Dismiss a browser security warning](#)

# Position your access point

Before you install your access point as described in the mounting installation guide, consider how you will position the access point.

The access point lets you access your network anywhere within the operating range of your WiFi network. However, the operating distance or range of your WiFi connection can vary significantly depending on the physical placement of your access point. For example, the thickness and number of walls the WiFi signal passes through can limit the range.

Additionally, other WiFi devices in and around your home might affect your access point's signal. WiFi devices can be other access point, routers, repeaters, WiFi range extenders, and any other devices that emit WiFi signals for network access.

Position your access point according to the following guidelines:

- Place your access point near the center of the area where your computers and other devices operate and within line of sight to your WiFi devices.
- Place the access point in an elevated location, minimizing the number walls and ceilings between the access point and your other devices.
- Place the access point away from electrical devices such as these:
  - Ceiling fans
  - Home security systems
  - Microwaves
  - Computers
  - Base of a cordless phone
  - 2.4 GHz and 5.8 GHz cordless phones
- Place the access point away from large metal surfaces, large glass surfaces, insulated walls, and items such as these:
  - Solid metal door
  - Aluminum studs
  - Fish tanks
  - Mirrors
  - Brick
  - Concrete

If you are using adjacent access points and access points, use different radio frequency channels to reduce interference.

## Set up the access point as a regular access point

You can connect the access point to a switch in your network. The switch must be connected to a network router that is connected to the Internet.

In this configuration, WiFi clients can connect to the access point and access your network and the Internet, but the access point cannot function as a component in a NETGEAR Insight Instant Mesh WiFi network. That is, the access point functions as a regular standalone access point.

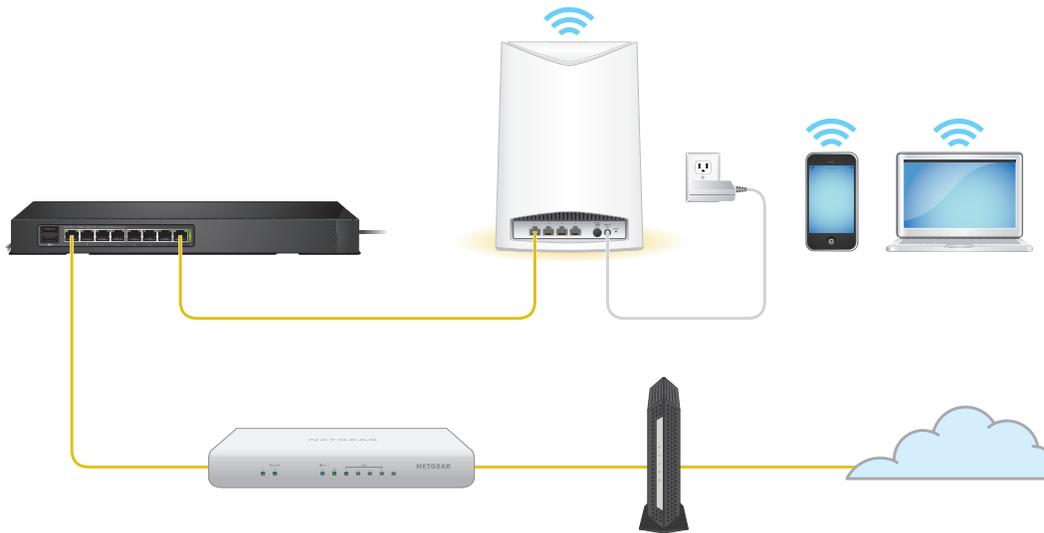


Figure 5. Set up the access point with a connection to your network

### To set up the access point with a connection to your network:

1. Connect an Ethernet cable to LAN port 1 on the access point.  
Use LAN port 1 for the Ethernet connection to your network. Do not use another port for this purpose. By default, LAN port 1 functions in trunk mode as an uplink.
2. Connect the other end of the Ethernet cable to a switch or router that is connected to your network and to the Internet.
3. Connect the power adapter to the access point and plug it into an electrical outlet.  
The Power LED on the back of the access point lights amber and then lights green. If the Power LED does not light, press the **Power On/Off** button.

The Ring LED is pulsing amber slowly while the access point is contacting the network router to receive an IP address. After a few minutes, the Ring LED is pulsing red, green, and blue and the access point is ready for you to perform the initial configuration (see [Connect to the access point for initial configuration](#) on page 34).

## Connect to the access point for initial configuration

After you set up the access point, you can use several methods to connect to it for initial configuration.

You can connect to the access point by using the NETGEAR Insight app on an iOS or Android mobile device, by accessing the Insight Cloud portal, or by using the local browser interface. You cannot use Insight access with the local browser interface. These types of access are mutually exclusive.

The Insight app and the Insight Cloud portal provide ease of access and let you configure most features that are available on the access point. The local browser interface lets you configure all features that are available on the access point.

If you use the Insight app or the Insight Cloud portal to connect to the access point, see one of the following sections:

- [Connect over WiFi using the NETGEAR Insight App](#) on page 35
- [Connect over the Internet using the NETGEAR Insight Cloud portal](#) on page 36

If you use the local browser interface to connect to the access point, follow the procedure in *one* of these sections:

- [Connect over WiFi using a WiFi-enabled computer or mobile device](#) on page 37
- [Connect over Ethernet using a computer connected to the same network](#) on page 41
- [Connect over Ethernet using a directly connected computer](#) on page 47

**Note:** If your network does not include a DHCP server (or a router that functions as a DHCP server) and you do not perform the initial configuration of the access point as described in one of these sections, you can connect only two clients to the access point and the access point can provide an IP address to only two clients. To prevent this situation, make sure that you perform the initial configuration of the access point.

## Connect over WiFi using the NETGEAR Insight App

You can install the NETGEAR Insight app on an iOS or Android mobile device and set up the access point (and perform many other tasks as well).

**IMPORTANT:** If you add the access point to a NETGEAR Insight network location and manage the access point through the Insight app or Insight Cloud portal, the admin password for the access point changes. That is, the Insight network password for that location replaces the admin password. To access the local browser interface, you must then enter the Insight network password and not the admin password. If you later decide to remove the access point from the Insight network location or change the management mode to Web-browser mode (see [Change the management mode to NETGEAR Insight or Web-browser](#) on page 175), you must continue to use the Insight network password to access the local browser interface until you manually change the admin password on the access point.

For more information about the Insight app, visit [insight.netgear.com](http://insight.netgear.com) and see the NETGEAR knowledge base at [netgear.com/support/product/insight.aspx](http://netgear.com/support/product/insight.aspx).

### To connect to the access point over WiFi using an iOS or Android mobile device:

1. On your iOS or Android mobile device, go to the app store, search for NETGEAR Insight, and download the Insight app.



2. Connect your mobile device to the WiFi network of access point.  
The default SSID is on the access point label on the bottom of the access point and is shown in the format NETGEARxxxxxx-SETUP, where xxxxxx is the last six hexadecimal digits of the access point's MAC address. The default password is **sharedsecret**.
3. Open the Insight app.
4. If you did not set up a NETGEAR account, tap **Create NETGEAR Account** and follow the onscreen instructions.
5. Enter the email address and password for your account and tap **LOG IN**.  
After you log in to your account, the IP address of the access point displays in the device list.
6. Write down the access point IP address and save it for later use.

7. To use the Insight app to configure and manage the access point, tap the access point and follow the prompts to register the access point and add it to an Insight network location.

## Connect over the Internet using the NETGEAR Insight Cloud portal

The Insight Cloud portal is available for Insight Premium or Insight Pro subscribers. To use the NETGEAR Insight Cloud portal to configure and manage the access point, the access point must already be connected to the Internet.

**IMPORTANT:** If you add the access point to a NETGEAR Insight network location and manage the access point through the Insight app or Insight Cloud portal, the admin password for the access point changes. That is, after you add the access point to an Insight network location, the Insight network password for that location replaces the admin password. To access the local browser interface, you must then enter the Insight network password and not the admin password. If you later decide to remove the access point from the Insight network location or change the management mode to Web-browser mode (see [Change the management mode to NETGEAR Insight or Web-browser](#) on page 175), you must continue to use the Insight network password to access the local browser interface until you manually change the admin password on the access point.

For more information about the Insight Cloud portal and the configuration and management options that are available through the Insight Cloud portal, visit [insight.netgear.com](http://insight.netgear.com) and see the NETGEAR knowledge base at [netgear.com/support/product/insight.aspx](http://netgear.com/support/product/insight.aspx).

### To connect to the access point over the Internet through the Insight Cloud portal:

1. Visit [insight.netgear.com](http://insight.netgear.com).  
The NETGEAR Account Login page displays.
2. Enter your Insight email address and password.  
If you do not own an Insight account, you can create one.
3. Click the **Login** button.  
You can now add the access point to an Insight network location so that you configure and manage the access point.

## Connect over WiFi using a WiFi-enabled computer or mobile device

This section describes how to connect to the access point for the first time over WiFi using a WiFi-enabled computer or mobile device (without using the NETGEAR Insight app).

### To connect to the access point over WiFi using a WiFi-enabled computer or mobile device:

1. From your computer or mobile device, connect over WiFi to the access point's default WiFi network.

The default SSID is on the access point label on the bottom of the access point and is shown in the format NETGEARxxxxxx-SETUP, where xxxxxx is the last six hexadecimal digits of the access point's MAC address. The default password is **sharedsecret**.

2. On the computer or mobile device, open a web browser and, in the address bar, enter **www.routerlogin.net** (or **www.aplogin.net**).

**Note:** You can use [www.routerlogin.net](http://www.routerlogin.net) (and [www.aplogin.net](http://www.aplogin.net)) only during initial setup of the access point.

In the address bar, [www.routerlogin.net](http://www.routerlogin.net) (or [www.aplogin.net](http://www.aplogin.net)) is replaced by the IP address that is assigned to the access point by the DHCP server in your network.

The login page displays.

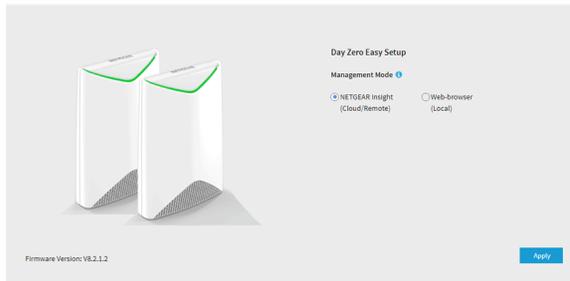
3. If your browser does not display the login page but a security warning, dismiss the warning by doing one of the following:
  - **Google Chrome:** Click the **ADVANCED** link. Then, click the **Proceed to x.x.x.x (unsafe)** link, in which x.x.x.x represents the domain name or IP address of the device.
  - **Apple Safari:** Click the **Show Details** button. Then, click the **visit this website** link. If a warning pop-up window displays, click the **Visit Website** button. If another pop-up window displays to let you confirm changes to your certificate trust settings, enter your Mac user name and password and click the **Update Setting** button.
  - **Mozilla Firefox:** Click the **ADVANCED** button. Then, click the **Add Exception** button. In the pop-up window that displays, click the **Confirm Security Exception** button.

- **Microsoft Edge:** Select **Details > Go on to the webpage**.
- **Microsoft Internet Explorer:** Click the **Continue to this website (not recommended)** link.

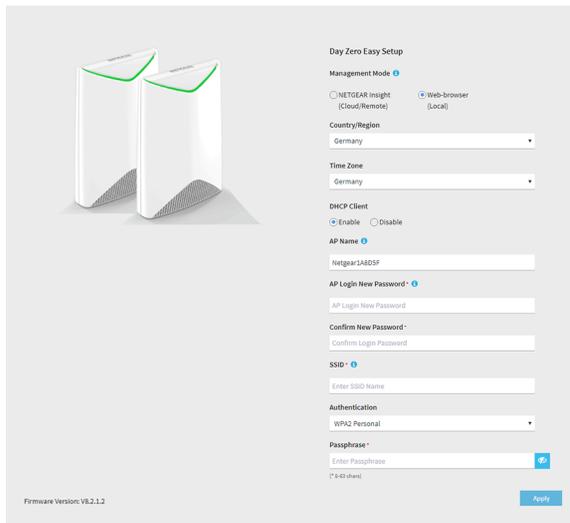
4. Write down the IP address of the access point.

5. Enter the access point user name and default password.

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



6. Select the **Web-browser** radio button.



**Note:** After you save the basic settings that are shown on the page, the Day Zero Easy Setup page no longer displays when you log in. Instead, a login window opens. After you log in, the Dashboard page displays.

7. To let the access point check for the latest firmware, click the **Check for Upgrade** button (the button is not shown in the previous figure).

If new firmware is available for the access point, we recommend that you upgrade the firmware. After the firmware upgrade completes, the access point restarts. When the access point is ready, go back to [Step 1](#) of this procedure.

8. Enter the settings that are described in the following table.

Setting	Description
Country/Region	<p>From the menu, select the country and region in which the access point is operating.</p> <p><b>Note:</b> Make sure that the country is set to the location where the device is operating. You are responsible for complying with the local, regional, and national regulations that are set for channels, power levels, and frequency ranges.</p> <p><b>Note:</b> It might not be legal to operate the access point in a region other than the regions listed in the menu. If your country or region is not listed, check with your local government agency.</p>
Time Zone	<p>From the menu, select the time zone for the country and region in which the access point is operating.</p>
DHCP Client	<p>By default, the DHCP client of the access point allows the access point to receive an IP address from a DHCP server (or router that functions as a DHCP server) in your network. To set up the access point with a static (fixed) IP address, do the following:</p> <ol style="list-style-type: none"> <li>a. Select the <b>Disable</b> radio button. Additional fields display.</li> <li>b. Specify the IP address, IP subnet mask, IP address of the default gateway, and IP address of the DNS server.</li> </ol>
AP Name	<p>As an option, enter a new system name for the access point. The name must contain alphanumeric characters, must contain at least one alphabetical character, cannot be longer than 15 characters, and can contain hyphens but cannot start or end with a hyphen. By default, the system name is Netgearxxxxxx, in which xxxxxx represents the last six hexadecimal digits of the access point's MAC address.</p>
AP Login New Password	<p>Enter a new admin password. This is the password that you must use to log in to the access point's local browser interface. (It is <i>not</i> the password that you use for WiFi access.) The password must be 8 to 63 characters in length and must contain at least one uppercase letter, one lowercase letter, and one number. The following special characters are allowed: ! @ # \$ % ^ &amp; * ( )</p> <p>Write down and save the password for future use.</p>

(Continued)

Setting	Description
Confirm New Password	Enter exactly the same password that you entered in the <b>AP Login New Password</b> field.
SSID	You cannot use the default SSID for regular operation (the default SSID is for setup only). Enter a new name with a maximum of 32 characters. You can use a combination of alphanumeric and special characters, except for quotation marks (") and a backslash (\).

9. From the **Authentication** menu, select one of the following authentication types for the WiFi network, and, if applicable, set a new passphrase (network key or WiFi password) for the WiFi network:
  - **Open:** Clients are not authenticated, traffic is not encrypted, and 802.11w (PMF) is automatically disabled. This setting does not provide any security and is not appropriate for most situations.  
If you select **Open** from the menu, the **Enhanced Open** check box displays and the **Allow Devices to Connect with Open** check box can display:
    - **Enhanced Open:** If you select the **Enhanced Open** check box, the WiFi enhanced open feature is enabled. This feature is based on opportunistic wireless encryption (OWE). The encryption is set to CCM mode protocol (CCMP) and 802.11w (PMF) is automatically set to mandatory.
    - **Allow Clients to Authenticate using Legacy Open (OWE Transition Mode):** If you select the **Enhanced Open** check box, the **Allow Clients to Authenticate using Legacy Open (OWE Transition Mode)** check box displays. If you select this check box, the WiFi network can accept both clients that support the WiFi enhanced open feature and clients that do not. For clients that do not support the WiFi open enhanced feature, traffic is not encrypted. If you do not select this check box, the WiFi network can only accept clients that support the WiFi enhanced open feature.
  - **WPA2 Personal:** This option allows only WiFi clients that support WPA2 to connect to the SSID. Select this option if all WiFi clients are capable of supporting WPA2. This option uses AES encryption. In the **Passphrase** field, enter a new passphrase for the WiFi network.
  - **WPA2/WPA Personal:** This option allows both WPA and WPA2 WiFi clients to connect to the SSID. This option uses TKIP and AES encryption. Broadcast packets use TKIP. For unicast (that is, point-to-point) transmissions, WPA clients use TKIP and WPA2 clients use AES. In the **Passphrase** field, enter a new passphrase for the WiFi network.

- **WPA3 Personal:** This option allows only WiFi clients that support WPA3 to connect to the SSID. Select this option if all WiFi clients are capable of supporting WPA3. This option uses SAE encryption. In the **Passphrase** field, enter a new passphrase for the WiFi network.
- **WPA3/WPA2 Personal:** This option allows both WPA2 and WPA3 WiFi clients to connect to the SSID. This option uses AES and SAE encryption. WPA2 clients use AES and WPA3 clients use SAE. In the **Passphrase** field, enter a new passphrase for the WiFi network.

**Note:** After you complete the setup process, you can set up WPA2 Enterprise or WPA3 Enterprise security with RADIUS servers. For more information, see [Set up an open or secure WiFi network](#) on page 56.

10. Click the **Apply** button.

Your settings are saved and you are disconnected from the access point.

If you changed the default country, the access point restarts.

11. Reconnect over WiFi to the access point's WiFi network using the new SSID and passphrase that you just defined on the Day Zero Easy Setup page.

12. In the web browser, enter the access point IP address that you wrote down in [Step 4](#).

If you assigned a static IP address to the access point, enter that IP address.

A login window opens.

13. If your browser does not open the login window but displays a security message and does not let you proceed, see the information in [Step 3](#).

14. Enter the access point user name and password.

The user name is **admin**. The password is the one that you just defined on the Day Zero Easy Setup page. The user name and password are case-sensitive.

The Dashboard page displays. You can now customize the access point settings for your network environment.

## Connect over Ethernet using a computer connected to the same network

The following procedure assumes that your network includes a DHCP server (or router that functions as a DHCP server) and that the access point and the computer are on the same network. By default, the access point functions as a DHCP client. If you want to set up the access point with a static (fixed) IP address, see [Connect over Ethernet using a directly connected computer](#) on page 47.

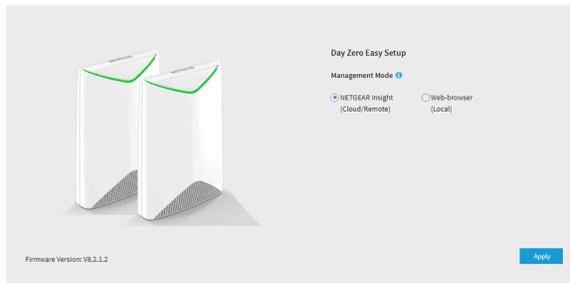
**To connect to the access point using a computer that is connected to the same network as the access point:**

1. To determine the IP address that the DHCP server assigned to the access point, access the DHCP server or use an IP network scanner.

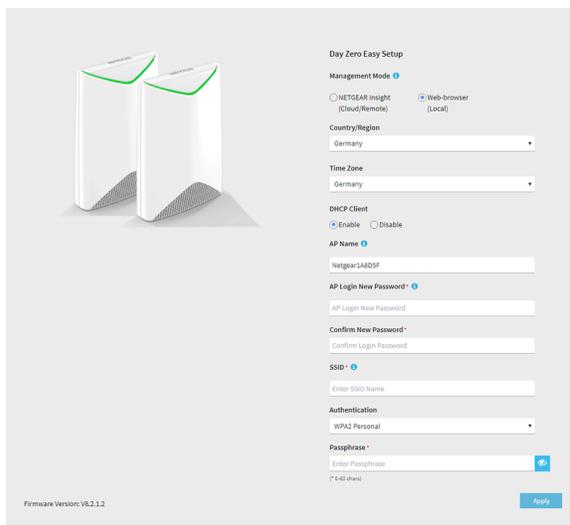
**Note:** You can also use the NETGEAR Insight app to discover the IP address that is assigned to the access point. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35.

2. On the computer or mobile device, open a web browser and, in the address bar, enter the IP address that is assigned to the access point.  
In the address bar, [www.routerlogin.net](http://www.routerlogin.net) (or [www.aplogin.net](http://www.aplogin.net)) is replaced by the IP address that is assigned to the access point by the DHCP server in your network.  
The login page displays.
3. If your browser does not display the login page but a security warning, dismiss the warning by doing one of the following:
  - **Google Chrome:** Click the **ADVANCED** link. Then, click the **Proceed to x.x.x.x (unsafe)** link, in which x.x.x.x represents the domain name or IP address of the device.
  - **Apple Safari:** Click the **Show Details** button. Then, click the **visit this website** link. If a warning pop-up window displays, click the **Visit Website** button. If another pop-up window displays to let you confirm changes to your certificate trust settings, enter your Mac user name and password and click the **Update Setting** button.
  - **Mozilla Firefox:** Click the **ADVANCED** button. Then, click the **Add Exception** button. In the pop-up window that displays, click the **Confirm Security Exception** button.
  - **Microsoft Edge:** Select **Details > Go on to the webpage**.
  - **Microsoft Internet Explorer:** Click the **Continue to this website (not recommended)** link.
4. Enter the access point user name and default password.

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



5. Select the **Web-browser** radio button.



**Note:** After you save the basic settings that are shown on the page, the Day Zero Easy Setup page no longer displays when you log in. Instead, a login window opens. After you log in, the Dashboard page displays.

6. To let the access point check for the latest firmware, click the **Check for Upgrade** button (the button is not shown in the previous figure).  
If new firmware is available for the access point, we recommend that you upgrade the firmware. After the firmware upgrade completes, the access point restarts. When the access point is ready, depending on your situation, go back to [Step 2](#), [Step 3](#), or [Step 4](#) of this procedure.
7. Enter the settings that are described in the following table.

Setting	Description
Country/Region	<p>From the menu, select the country and region in which the access point is operating.</p> <p><b>Note:</b> Make sure that the country is set to the location where the device is operating. You are responsible for complying with the local, regional, and national regulations that are set for channels, power levels, and frequency ranges.</p> <p><b>Note:</b> It might not be legal to operate the access point in a region other than the regions listed in the menu. If your country or region is not listed, check with your local government agency.</p>
Time Zone	<p>From the menu, select the time zone for the country and region in which the access point is operating.</p>
DHCP Client	<p>By default, the DHCP client of the access point allows the access point to receive an IP address from a DHCP server (or router that functions as a DHCP server) in your network. To set up the access point with a static (fixed) IP address, do the following:</p> <ol style="list-style-type: none"> <li>a. Select the <b>Disable</b> radio button. Additional fields display.</li> <li>b. Specify the IP address, IP subnet mask, IP address of the default gateway, and IP address of the DNS server.</li> </ol>
AP Name	<p>As an option, enter a new system name for the access point. The name must contain alphanumeric characters, must contain at least one alphabetical character, cannot be longer than 15 characters, and can contain hyphens but cannot start or end with a hyphen. By default, the system name is Netgearxxxxxx, in which xxxxxx represents the last six hexadecimal digits of the access point's MAC address.</p>
AP Login New Password	<p>Enter a new admin password. This is the password that you must use to log in to the access point's local browser interface. (It is <i>not</i> the password that you use for WiFi access.) The password must be 8 to 63 characters in length and must contain at least one uppercase letter, one lowercase letter, and one number. The following special characters are allowed: ! @ # \$ % ^ &amp; * ( )</p> <p>Save the password for future use.</p>

(Continued)

Setting	Description
Confirm New Password	Enter exactly the same password that you entered in the <b>AP Login New Password</b> field.
SSID	You cannot use the default SSID for regular operation (the default SSID is for setup only). Enter a new name with a maximum of 32 characters. You can use a combination of alphanumeric and special characters, except for quotation marks (") and a backslash (\).

8. From the **Authentication** menu, select one of the following authentication types for the WiFi network, and, if applicable, set a new passphrase (network key or WiFi password) for the WiFi network:

- **Open:** Clients are not authenticated, traffic is not encrypted, and 802.11w (PMF) is automatically disabled. This setting does not provide any security and is not appropriate for most situations.  
If you select **Open** from the menu, the **Enhanced Open** check box displays and the **Allow Devices to Connect with Open** check box can display:
  - **Enhanced Open:** If you select the **Enhanced Open** check box, the WiFi enhanced open feature is enabled. This feature is based on opportunistic wireless encryption (OWE). The encryption is set to CCM mode protocol (CCMP) and 802.11w (PMF) is automatically set to mandatory.
  - **Allow Clients to Authenticate using Legacy Open (OWE Transition Mode):** If you select the **Enhanced Open** check box, the **Allow Clients to Authenticate using Legacy Open (OWE Transition Mode)** check box displays. If you select this check box, the WiFi network can accept both clients that support the WiFi enhanced open feature and clients that do not. For clients that do not support the WiFi open enhanced feature, traffic is not encrypted. If you do not select this check box, the WiFi network can only accept clients that support the WiFi enhanced open feature.
- **WPA2 Personal:** This option allows only WiFi clients that support WPA2 to connect to the SSID. Select this option if all WiFi clients are capable of supporting WPA2. This option uses AES encryption. In the **Passphrase** field, enter a new passphrase for the WiFi network.
- **WPA2/WPA Personal:** This option allows both WPA and WPA2 WiFi clients to connect to the SSID. This option uses TKIP and AES encryption. Broadcast packets use TKIP. For unicast (that is, point-to-point) transmissions, WPA clients use TKIP and WPA2 clients use AES. In the **Passphrase** field, enter a new passphrase for the WiFi network.

- **WPA3 Personal:** This option allows only WiFi clients that support WPA3 to connect to the SSID. Select this option if all WiFi clients are capable of supporting WPA3. This option uses SAE encryption. In the **Passphrase** field, enter a new passphrase for the WiFi network.
- **WPA3/WPA2 Personal:** This option allows both WPA2 and WPA3 WiFi clients to connect to the SSID. This option uses AES and SAE encryption. WPA2 clients use AES and WPA3 clients use SAE. In the **Passphrase** field, enter a new passphrase for the WiFi network.

**Note:** After you complete the setup process, you can set up WPA2 Enterprise or WPA3 Enterprise security with RADIUS servers. For more information, see [Set up an open or secure WiFi network](#) on page 56.

9. Click the **Apply** button.

Your settings are saved.

If you changed the default country, the access point restarts.

**Note:** Do not close the page!

After a short period, the Dashboard page displays automatically. If the Dashboard page does not display, for example, because you assigned a static IP address, see the next step.

You can now customize the access point settings for your network environment.

10. If the Dashboard does not display automatically, do the following:

a. Take one of the following actions:

- If you assigned a static IP address to the access point, enter that IP address in the address bar of the web browser.
- If you did not assign a static IP address, reenter the IP address that is displayed in the address bar of the web browser. If that does not work, write down the IP address, close the web browser, reopen the web browser, and then reenter the IP address in the address bar of the web browser.
- If you did not assign a static IP address and you closed the page so that you cannot see the IP address of the access point, use an IP scanner tool, use a network discovery tool, or access the DHCP server to discover the IP address of the access point in your network. Then, open a browser and enter the IP address in the address bar of the web browser.

A login window opens.

b. If your browser does not open the login window but displays a security message and does not let you proceed, see the information in [Step 4](#).

c. Enter the access point user name and password.

The user name is **admin**. The password is the one that you just defined on the Day Zero Easy Setup page. The user name and password are case-sensitive.

The Dashboard page displays. You can now customize the access point settings for your network environment.

## Connect over Ethernet using a directly connected computer

If your network does not include a DHCP server (or router that functions as a DHCP server), you can use a computer that is connected through an Ethernet cable to the LAN port of the access point.

### **To connect to the access point using a computer that is connected to a LAN port of the access point:**

1. Record the IP address and subnet mask of your computer so that you can reinstate these IP address settings later.
2. Temporarily change the IP address on your computer to 192.168.0.210 with 255.255.255.0 as the subnet mask.

(You can actually use any IP address in the 192.168.0.2–192.168.0.254 range, with the exception of IP address 192.168.0.100, which is the default IP address of the access point.)

For more information about changing the IP address on your computer, see the help or documentation for your computer.

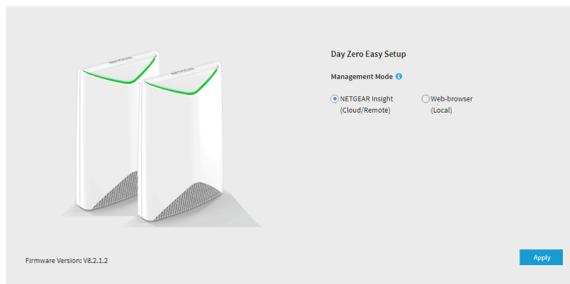
- Use an Ethernet cable to connect your computer to LAN port 1 on the access point.
- On the computer, open a web browser and enter **192.168.0.100** in the address bar.

The login page displays.

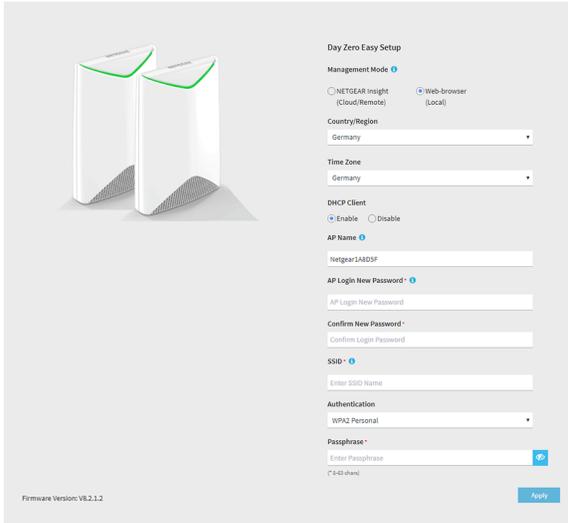
- If your browser does not display the login page but a security warning, dismiss the warning by doing one of the following:
  - Google Chrome:** Click the **ADVANCED** link. Then, click the **Proceed to x.x.x.x (unsafe)** link, in which x.x.x.x represents the domain name or IP address of the device.
  - Apple Safari:** Click the **Show Details** button. Then, click the **visit this website** link. If a warning pop-up window displays, click the **Visit Website** button. If another pop-up window displays to let you confirm changes to your certificate trust settings, enter your Mac user name and password and click the **Update Setting** button.
  - Mozilla Firefox:** Click the **ADVANCED** button. Then, click the **Add Exception** button. In the pop-up window that displays, click the **Confirm Security Exception** button.
  - Microsoft Edge:** Select **Details > Go on to the webpage**.
  - Microsoft Internet Explorer:** Click the **Continue to this website (not recommended)** link.

- Enter the access point user name and default password.

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



7. Select the **Web-browser** radio button.



**Note:** After you save the basic settings that are shown on the page, the Day Zero Easy Setup page no longer displays when you log in. Instead, a login window opens. After you log in, the Dashboard page displays.

8. To let the access point check for the latest firmware, click the **Check for Upgrade** button (the button is not shown in the previous figure).

If new firmware is available for the access point, we recommend that you upgrade the firmware. After the firmware upgrade completes, the access point restarts. When the access point is ready, depending on your situation, go back to [Step 4](#), [Step 5](#), or [Step 6](#) of this procedure.

9. Enter the settings that are described in the following table.

Setting	Description
Country/Region	From the menu, select the country and region in which the access point is operating. <b>Note:</b> Make sure that the country is set to the location where the device is operating. You are responsible for complying with the local, regional, and national regulations that are set for channels, power levels, and frequency ranges. <b>Note:</b> It might not be legal to operate the access point in a region other than the regions listed in the menu. If your country or region is not listed, check with your local government agency.
Time Zone	From the menu, select the time zone for the country and region in which the access point is operating.

(Continued)

Setting	Description
DHCP Client	<p>By default, the DHCP client of the access point allows the access point to receive an IP address from a DHCP server (or router that functions as a DHCP server) in your network. To set up the access point with a static (fixed) IP address, do the following:</p> <ol style="list-style-type: none"> <li>a. Select the <b>Disable</b> radio button. Additional fields display.</li> <li>b. Specify the IP address, IP subnet mask, IP address of the default gateway, and IP address of the DNS server.</li> </ol>
AP Name	<p>As an option, enter a new system name for the access point. The name must contain alphanumeric characters, must contain at least one alphabetical character, cannot be longer than 15 characters, and can contain hyphens but cannot start or end with a hyphen. By default, the system name is Netgearxxxxxx, in which xxxxxx represents the last six hexadecimal digits of the access point's MAC address.</p>
AP Login New Password	<p>Enter a new admin password. This is the password that you must use to log in to the access point's local browser interface. (It is <i>not</i> the password that you use for WiFi access.) The password must be 8 to 63 characters in length and must contain at least one uppercase letter, one lowercase letter, and one number. The following special characters are allowed: ! @ # \$ % ^ &amp; * ( )</p> <p>Write down and save the password for future use.</p>
Confirm New Password	<p>Enter exactly the same password that you entered in the <b>AP Login New Password</b> field.</p>
SSID	<p>You cannot use the default SSID for regular operation (the default SSID is for setup only). Enter a new name with a maximum of 32 characters. You can use a combination of alphanumeric and special characters, except for quotation marks (") and a backslash (\).</p>

10. From the **Authentication** menu, select one of the following authentication types for the WiFi network, and, if applicable, set a new passphrase (network key or WiFi password) for the WiFi network:

- **Open:** Clients are not authenticated, traffic is not encrypted, and 802.11w (PMF) is automatically disabled. This setting does not provide any security and is not appropriate for most situations.  
If you select **Open** from the menu, the **Enhanced Open** check box displays and the **Allow Devices to Connect with Open** check box *can* display:
  - **Enhanced Open:** If you select the **Enhanced Open** check box, the WiFi enhanced open feature is enabled. This feature is based on opportunistic

wireless encryption (OWE). The encryption is set to CCM mode protocol (CCMP) and 802.11w (PMF) is automatically set to mandatory.

- **Allow Clients to Authenticate using Legacy Open (OWE Transition Mode):**  
If you select the **Enhanced Open** check box, the **Allow Clients to Authenticate using Legacy Open (OWE Transition Mode)** check box displays. If you select this check box, the WiFi network can accept both clients that support the WiFi enhanced open feature and clients that do not. For clients that do not support the WiFi open enhanced feature, traffic is not encrypted. If you do not select this check box, the WiFi network can only accept clients that support the WiFi enhanced open feature.
- **WPA2 Personal:** This option allows only WiFi clients that support WPA2 to connect to the SSID. Select this option if all WiFi clients are capable of supporting WPA2. This option uses AES encryption. In the **Passphrase** field, enter a new passphrase for the WiFi network.
- **WPA2/WPA Personal:** This option allows both WPA and WPA2 WiFi clients to connect to the SSID. This option uses TKIP and AES encryption. Broadcast packets use TKIP. For unicast (that is, point-to-point) transmissions, WPA clients use TKIP and WPA2 clients use AES. In the **Passphrase** field, enter a new passphrase for the WiFi network.
- **WPA3 Personal:** This option allows only WiFi clients that support WPA3 to connect to the SSID. Select this option if all WiFi clients are capable of supporting WPA3. This option uses SAE encryption. In the **Passphrase** field, enter a new passphrase for the WiFi network.
- **WPA3/WPA2 Personal:** This option allows both WPA2 and WPA3 WiFi clients to connect to the SSID. This option uses AES and SAE encryption. WPA2 clients use AES and WPA3 clients use SAE. In the **Passphrase** field, enter a new passphrase for the WiFi network.

**Note:** After you complete the setup process, you can set up WPA2 Enterprise or WPA3 Enterprise security with RADIUS servers. For more information, see [Set up an open or secure WiFi network](#) on page 56.

11. Click the **Apply** button.

Your settings are saved and you are disconnected from the access point.

If you changed the default country, the access point restarts.

12. After a few minutes, if the login window does not open automatically, enter **192.168.0.100** in the address bar of your browser.

If you changed the IP address (that is, you specified a static IP address), enter the new IP address.

A login window opens.

13. If your browser does not open the login window but displays a security message and does not let you proceed, see the information in [Step 5](#).
14. Enter the access point user name and password.  
The user name is **admin**. The password is the one that you just defined on the Day Zero Easy Setup page. The user name and password are case-sensitive.  
The Dashboard page displays. You can now customize the access point settings for your network environment.
15. After you complete the setup process, or both the setup and customization process, you can change the computer back to its original IP address settings.

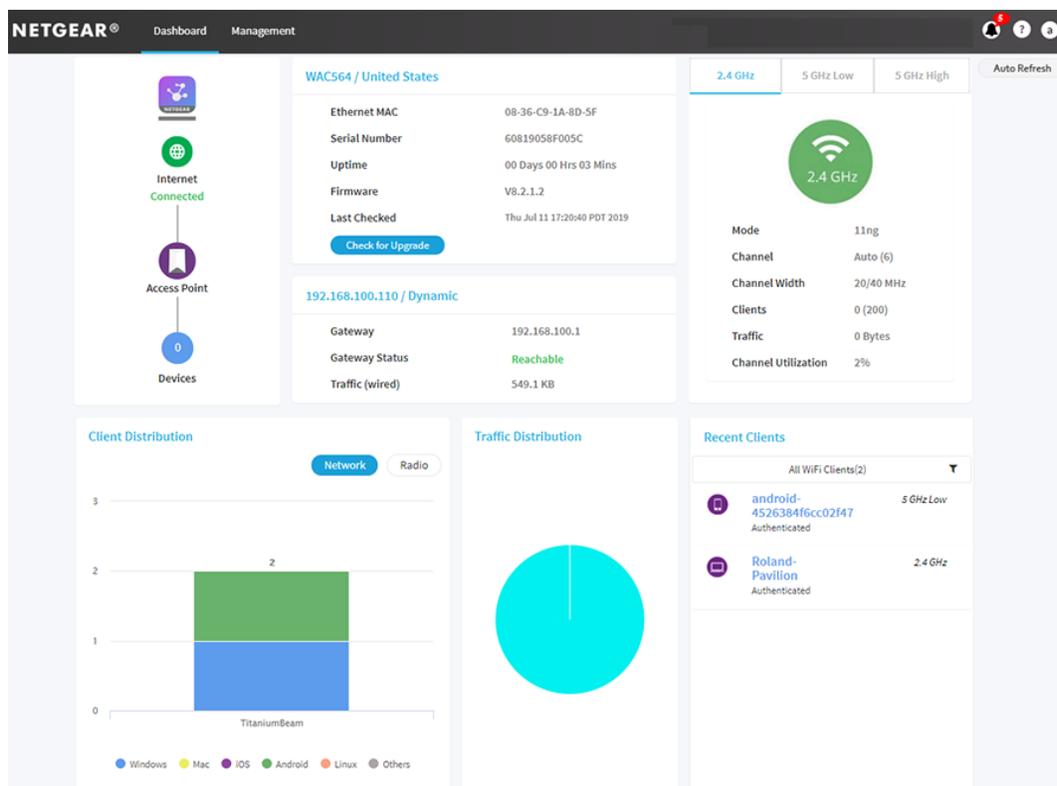
## Log in to the access point after initial setup

After initial setup, the access point is ready for use and you can change the settings and monitor the traffic.

### To log in to the access point's local browser interface:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
3. Enter the access point user name and password.  
The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.  
If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).  
The Dashboard page displays.

The following figure shows part of the Dashboard page.



The Dashboard page displays various panes that let you see the status of your access point at a glance. For more information about the Dashboard page and its various panes, see [Monitor the Access Point](#) and the [Network](#) on page 202.

## Dismiss a browser security warning

When you enter the IP address that is assigned to the access point in the address field of your browser, a security warning can display. This is normal. You can just dismiss the security warning by doing one of the following:

- **Google Chrome:** Click the **ADVANCED** link. Then, click the **Proceed to x.x.x.x (unsafe)** link, in which x.x.x.x represents the domain name or IP address of the device.
- **Apple Safari:** Click the **Show Details** button. Then, click the **visit this website** link. If a warning pop-up window displays, click the **Visit Website** button. If another pop-up window displays to let you confirm changes to your certificate trust settings, enter your Mac user name and password and click the **Update Setting** button.
- **Mozilla Firefox:** Click the **ADVANCED** button. Then, click the **Add Exception** button. In the pop-up window that displays, click the **Confirm Security Exception** button.

- **Microsoft Edge:** Select **Details > Go on to the webpage.**
- **Microsoft Internet Explorer:** Click the **Continue to this website (not recommended)** link.

# 4

## Manage the Basic WiFi and Radio Features

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This chapter describes how you can manage the basic WiFi and radio settings of the access point. For information about the advanced WiFi and radio settings, see [Manage the Advanced WiFi and Radio Features](#) on page 105.

**Tip:** If you want to change the settings of the access point's WiFi network, use a wired connection to avoid being disconnected when the new WiFi settings take effect.

The chapter includes the following sections:

- [Set up and manage WiFi networks](#)
- [Set up and manage captive portals for WiFi networks](#)
- [Manage the basic radio features](#)

# Set up and manage WiFi networks

The access point supports eight WiFi networks (four in the 2.4 GHz radio band and four in the 5 GHz radio band), each with its own unique WiFi settings. The following sections describe how you can set up and manage WiFi networks on the access point:

- [Set up an open or secure WiFi network](#)
- [View or change the settings of a WiFi network](#)
- [Disable or enable a WiFi network or set up a WiFi activity schedule](#)
- [Remove a WiFi network](#)
- [Enable or disable client isolation for a WiFi network](#)
- [Hide or broadcast the SSID for a WiFi network](#)
- [Enable or disable band steering with 802.11k RRM and 802.11v WiFi network management](#)
- [Change the VLAN ID for a WiFi network](#)
- [Enable or disable PMF for a WiFi network](#)
- [Enable or disable URL tracking for a WiFi network](#)
- [Change the format of the DHCP offer messages in a WiFi network](#)
- [Select a MAC ACL for a WiFi network](#)
- [Set bandwidth rate limits for a WiFi network](#)

## Set up an open or secure WiFi network

The access point provides one default SSID that is enabled by default and that broadcasts on the 2.4 GHz radio band and on both 5 GHz radio bands. This is the SSID that you were required to rename when you logged in to the access point for the first time. You can add more SSIDs: The access point can support a total of eight SSIDs. Each SSID can broadcast on the 2.4 GHz band, on the combined 5 GHz low and 5 GHz high bands, or on all bands simultaneously.

SSID stands for service set identifier, which is the WiFi network name. When you create a new SSID, you are defining the settings for a new virtual access point (VAP). That means that the access point supports up to eight VAPs.

The access point can simultaneously support the 2.4 GHz band for 802.11b/g/n WiFi devices and the combined 5 GHz low and 5 GHz high bands for 802.11a/n/ac WiFi devices.

If you plan to use WPA2 Enterprise security for your WiFi network, first set up RADIUS servers (see [Set up RADIUS servers](#) on page 152).

**To set up a WiFi network:**

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic**.

The page that displays lets you select and add an SSID.

5. Click the **+** button to the left of Add SSID.

The screenshot shows a configuration form for a wireless network. It includes the following sections and options:

- Wireless Network Name (SSID):** A text field containing "NETGEAR2".
- Broadcast SSID:** Radio buttons for "Yes" (selected) and "No".
- VLAN ID:** A text field containing "1".
- Authentication:** A dropdown menu set to "WPA2 Personal".
- Passphrase:** A text field with masked characters and a blue key icon.
- 802.11w (PMF):** Radio buttons for "Mandatory", "Optional", and "Disable" (selected).
- Schedule:** Radio buttons for "Always ON" (selected), "Always OFF", and "Custom".
- Band:** Radio buttons for "2.4 GHz", "5 GHz", and "Both" (selected).
- Band Steering / 802.11 k/v:** Radio buttons for "Enable" and "Disable" (selected).
- > Advanced:** A link to expand advanced settings.
- Buttons:** "Cancel" and "Apply" buttons at the bottom.

6. Specify the WiFi network name (SSID), select whether the SSID is broadcast, and specify the VLAN ID as described in the following table.

Setting	Description
Wireless Network Name (SSID)	The SSID is the WiFi network name of the VAP. Enter a name for the SSID with a maximum of 32 characters. You can use a combination of alphanumeric and special characters, except for quotation marks (") and a backslash (\). For a WiFi device to be able to connect to the VAP, the SSID on the WiFi device must match the SSID of the VAP.
Broadcast SSID	By default, the VAP broadcasts its SSID so that WiFi clients can detect the SSID in their scanned network lists. To turn off the SSID broadcast, select the <b>No</b> radio button. Turning off the SSID broadcast provides additional WiFi security, but users must know the SSID to be able to join the VAP.
VLAN ID	You can enter the VLAN ID that must be associated with the VAP. By default, the VLAN ID is 1. This VLAN ID is not the same as the 802.1Q VLAN ID that is used for the wired network (see <a href="#">Set the 802.1Q VLAN and management VLAN</a> on page 159).

7. Specify the WiFi security by selecting an option from the **Authentication** menu and, if applicable, by specifying a passphrase in the **Passphrase** field or selecting an option from the **Encryption** menu:

- **Open:** A legacy open WiFi network does not provide any security. Any WiFi device can join the network. We recommend that you do *not* use a legacy open WiFi network but configure WiFi security. However, a legacy open network might be appropriate for a WiFi hotspot.  
If you select **Open** from the **Authentication** menu, the **Enhanced Open** check box displays.
  - **Enhanced Open check box cleared:** The WiFi network is a legacy open network without any security. This is the default option for an open network. Clients are not authenticated, traffic is not encrypted, and 802.11w (PMF) is automatically disabled (see [Step 9](#)).
  - **Enhanced Open check box selected:** The WiFi enhanced open feature is enabled. This feature is based on opportunistic wireless encryption (OWE). The encryption is set to CCM mode protocol (CCMP) and 802.11w (PMF) is automatically set to mandatory (see [Step 9](#)). If you select the **Enhanced Open** check box, the **Allow Devices to Connect with Open** check box displays. If you select the **Allow Devices to Connect with Open** check box, the WiFi network can accept both clients that support the WiFi enhanced open feature and clients that do not. For clients that do not support the WiFi open enhanced feature, traffic is not encrypted.  
If you clear the **Allow Devices to Connect with Open** check box, the WiFi network can only accept clients that support the WiFi enhanced open feature.

- **WPA2 Personal:** This option, which is the same as WPA2-PSK, is the default setting and uses AES encryption. This type of security enables only WiFi devices that support WPA2 to join the VAP.  
WPA2 provides a secure connection but some legacy WiFi devices do not detect WPA2 and support only WPA. If your network includes such older devices, select **WPA2/WPA Personal** authentication.  
In the **Passphrase** field, enter a phrase of 8 to 63 characters. To join the VAP, a user must enter this passphrase. To view the passphrase in clear text, click the eye icon.
- **WPA2/WPA Personal:** This option, which is the same as WPA2-PSK/WPA-PSK, enables WiFi devices that support either WPA2 or WPA to join the VAP. This option uses AES and TKIP encryption.  
WPA-PSK (which uses TKIP) is less secure than WPA2-PSK (which uses AES) and limits the speed of WiFi devices to 54 Mbps.  
In the **Passphrase** field, enter a phrase of 8 to 63 characters. To join the VAP, a user must enter this passphrase. To view the passphrase in clear text, click the eye icon.
- **WPA2 Enterprise:** This enterprise-level security uses RADIUS for centralized Authentication, Authorization, and Accounting (AAA) management. For WPA2 Enterprise security to function, you must set up RADIUS servers (see [Set up RADIUS servers](#) on page 152).  
From the **Encryption** menu, select the data encryption mode:
  - **TKIP + AES.** This type of data encryption enables WiFi devices that support either WPA or WPA2 to join the access point's WiFi network. This is the default mode.
  - **AES.** This type of data encryption provides a secure connection but some older WiFi devices do not detect WPA2 and support only WPA. Therefore, if your network includes such older devices, select **TKIP + AES** encryption.When you select **WPA2 Enterprise** authentication, the **Dynamic VLAN** radio buttons display:
  - **Enable:** The RADIUS server can assign a VLAN ID to clients. If the RADIUS server does not do so, the clients are automatically assigned the VLAN ID that you configured for the SSID.
  - **Disable:** The clients are assigned the VLAN ID that you configured for the SSID. This is the default setting.
- **WPA3 Personal:** This option is the most secure personal authentication option. WPA3 uses SAE encryption and enables only WiFi devices that support WPA3 to join the VAP. If you select this option, 802.11w (PMF) is automatically set to mandatory (see [Step 9](#)).

WPA3 provides a secure connection but some legacy WiFi devices do not detect WPA3 and support only WPA2. If your network also includes WPA2 devices, select **WPA3/WPA2 Personal** authentication.

In the **Passphrase** field, enter a phrase of 8 to 63 characters. To join the VAP, a user must enter this passphrase. To view the passphrase in clear text, click the eye icon.

- **WPA3/WPA2 Personal:** This option, which is the same as WPA3/WPA2-PSK, enables WiFi devices that support either WPA3 or WPA2 to join the VAP. This option uses SAE and AES encryption.  
WPA2-PSK (which uses AES) is less secure than WPA3 (which uses SAE).  
In the **Passphrase** field, enter a phrase of 8 to 63 characters. To join the VAP, a user must enter this passphrase. To view the passphrase in clear text, click the eye icon.
- **WPA3 Enterprise:** This enterprise-level security uses RADIUS for centralized Authentication, Authorization, and Accounting (AAA) management. For WPA3 Enterprise security to function, you must set up RADIUS servers (see [Set up RADIUS servers](#) on page 152). If you select this option, 802.11w (PMF) is automatically set to mandatory (see [Step 9](#)).  
When you select WPA3 Enterprise security, the encryption is automatically set to GCMP256, which is a 256-bit encryption protocol.  
When you select **WPA3 Enterprise** authentication, the **Dynamic VLAN** radio buttons display:
  - **Enable:** The RADIUS server can assign a VLAN ID to clients. If the RADIUS server does not do so, the clients are automatically assigned the VLAN ID that you configured for the SSID.
  - **Disable:** The clients are assigned the VLAN ID that you configured for the SSID. This is the default setting.

8. Optionally, disable the WiFi broadcast or set up a WiFi activity schedule by selecting one of the following radio buttons:
  - **Always ON.** When you set up an SSID, you are creating a new virtual access point (VAP). By default, the new VAP is enabled and the **Always ON** radio button is selected.
  - **Always OFF.** Select this radio button to set up the SSID but temporarily disable the VAP.
  - **Custom.** Select this radio button to set up a broadcast schedule. An icon displays to the right of the radio button. Do the following:
    - a. Click the icon next to the radio button.  
A pop-up window opens.
    - b. Either select a predefined time from the **Preset** menu or select custom time blocks by clicking the time blocks.  
A blue color for a time block indicates that the VAP will be enabled (on). A gray color for a time block indicates that the VAP will be disabled (off).
    - c. Click the **Done** button.  
The pop-up window closes.

For each SSID and each day (from 12:00 a.m. to 11:59 p.m.), you can create three schedules to disable the VAP.

9. Optionally, enable 802.11w Protected Management Frames (PMF).

Protected Management Frames (PMF), according to the 802.11w standard, is a security feature that protects unicast and multicast management frames from being intercepted and changed for malicious purposes. The type of authentication that you select determines if this feature is mandatory, optional, or disabled. You can also set it manually.

  - **Mandatory:** This option requires devices to use PMF. Devices that do not support PMF cannot connect to the WiFi network. If you select Enhanced Open authentication, WPA3 Personal authentication, or WPA3 Enterprise authentication, the radio button for PMF is set to **Mandatory**, and you cannot change it.
  - **Optional:** This option lets the access point automatically activate PMF based on whether devices can support PMF. If you select WPA3/WPA2 Personal authentication, the radio button for PMF is set to **Optional**, but you can change it.
  - **Disable:** This option disables PMF. If you select Open, WPA2 Personal, WPA2/WPA Personal, or WPA2 Enterprise authentication, the radio button for PMF is set to **Disabled**, but you can change it (except for Open authentication).

10. Optionally, select a single radio band only.

Select a radio button for a single band (**2.4 GHz** or **5 GHz**) or keep the default selection. By default, the **Both** radio button is selected, which lets the access point broadcast the SSID on the 2.4 GHz band and both 5 GHz bands.

- Optionally, enable band steering with 802.11k radio resource management (RRM) and 802.11v WiFi network management.

By default, band steering with 802.11k RRM and 802.11v WiFi network management is disabled for the VAP.

To enable band steering with 802.11k RRM and 802.11v WiFi network management, select the **Enable** radio button. Doing so allows the access point, under certain channel conditions, to steer WiFi devices that are dual-band capable to the 2.4 GHz band or 5 GHz bands of the VAP. Compared to the 2.4 GHz band, generally more channels and bandwidth are available in the 5 GHz bands, causing less interference and allowing for a better user experience.

802.11k RRM and 802.11v WiFi network management affect the network in the following ways:

- **802.11k RRM:** This feature lets the access point and 802.11k-aware clients dynamically measure the available radio resources. In an 802.11k-enabled network, access points and clients can send neighbor reports, beacon reports, and link measurement reports to each other, allowing 802.11k-aware clients to automatically select the best access point for initial connection or for roaming.
- **802.11v WiFi network management:** This feature lets the access point steer its WiFi clients to the 2.4 GHz band or 5 GHz bands, based on the access point's channel load.

The access point sets the received signal strength indicator (RSSI) threshold automatically. (That is, you cannot configure the RSSI threshold manually.)

- Optionally, to configure client isolation, URL tracking, or both for the WiFi network, click the **> Advanced** tab.

The screenshot shows the 'Advanced' configuration tab with the following settings:

- Client Isolation:** Radio buttons for 'Enable' and 'Disable'. 'Disable' is selected.
- URL Tracking:** Radio buttons for 'Enable' and 'Disable'. 'Disable' is selected.
- Captive Portal:** A checkbox that is unchecked.
- MAC ACL:** A checkbox that is unchecked.
- Rate Limit:** A checkbox that is unchecked.

At the bottom of the form are 'Cancel' and 'Apply' buttons.

- Optionally, configure WiFi client isolation.

By default, client isolation is disabled for the VAP, and the **Disable** radio button is selected. To block communication between WiFi clients that are associated with the same SSID or different SSIDs on the access point, select the **Enable** radio button.

When you select the **Enable** radio button, the following check boxes display:

- **Allow Access to AP UI:** If the management VLAN and WiFi network VLAN are identical (by default, both are VLAN 1) and you enable client isolation, the **Allow Access to AP UI** check box displays. By default, this check box is selected, allowing an admin user to access the local browser UI over the WiFi network. If you clear the **Allow Access to AP UI** check box, an admin user cannot access the local browser UI over the WiFi network.  
If the management VLAN and WiFi network VLAN are identical (which they are by default), an admin user can always access the local browser UI over a wired network connection.
- **Allow access to devices listed below:** You can specify static IP addresses or domains (that resolve to static IP addresses) of network devices that are exempt from isolation so that clients are allowed to reach them. For more information, see [Enable or disable client isolation for a WiFi network](#) on page 67.

14. Optionally, enable URL tracking.

By default, URL tracking is disabled, and the **Disable** radio button is selected. To enable URL tracking for all URLs that are requested by WiFi clients that are connected to the SSID, select the **Enable** radio button.

For information about how to view the tracked URLs per SSID or per WiFi client, see [View or download tracked URLs](#) on page 217.

15. Optionally, change the DHCP Offer message settings.

When a device tries to associate with the WiFi network and negotiates an IP address, the access point converts the broadcast DHCP offer message that it receives from the DHCP server to a unicast message, and forwards it to the device. This is the default option (that is, the **Enable** radio button is selected). To disable this option so that the access point does *not* convert the broadcast DHCP offer messages to unicast messages, select the **Disable** radio button.

16. To configure advance rate selection, see [Configure advanced rate selection for a WiFi network](#) on page 106.

17. Click the **Apply** button.

Your settings are saved.

18. Make sure that you can connect to the new WiFi network.

If you cannot connect to the new WiFi network, check the following:

- If your WiFi-enabled computer or mobile device is already connected to another WiFi network in your area, disconnect it from that WiFi network and connect it to the WiFi network that the access point provides. Some WiFi devices automatically connect to the first open network without WiFi security that they discover.
- If your WiFi-enabled computer or mobile device is trying to connect to your network with its old settings (before you changed the settings), update the WiFi network selection in your WiFi-enabled computer or mobile device to match the current settings for your network.
- Does your WiFi device display as a connected client? (See [View client distribution, connected clients, and client trends](#) on page 211.) If it does, it is connected to the network.
- Are you using the correct WiFi network name (SSID) and password?

## View or change the settings of a WiFi network

You can view or change the settings of the default WiFi network (SSID or VAP) or any custom WiFi network.

### To view or change the settings of a WiFi network:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic**.

The page that displays lets you select an SSID.

5. Click the ► button to the left of the SSID.

The settings for the selected SSID display.

6. Change the settings of the WiFi network as needed.

For detailed descriptions of the settings, see [Set up an open or secure WiFi network](#) on page 56.

7. If you made changes, click the **Apply** button.

Your settings are saved.

8. If you made changes, make sure that you can reconnect over WiFi to the network with its new settings.

If you cannot connect over WiFi, check the following:

- If your WiFi-enabled computer or mobile device is already connected to another WiFi network in your area, disconnect it from that WiFi network and connect it to the WiFi network that the access point provides. Some WiFi devices automatically connect to the first open network without WiFi security that they discover.
- If your WiFi-enabled computer or mobile device is trying to connect to your network with its old settings (before you changed the settings), update the WiFi network selection in your WiFi-enabled computer or mobile device to match the current settings for your network.
- Does your WiFi device display as a connected client? (See [View client distribution, connected clients, and client trends](#) on page 211.) If it does, it is connected to the network.
- Are you using the correct WiFi network name (SSID) and password?

## Disable or enable a WiFi network or set up a WiFi activity schedule

You can temporarily disable a WiFi network (SSID or VAP), you can reenable the WiFi network, or you can set up a schedule that specifies when the WiFi network is active.

Scheduling a WiFi network to be turned off is a green feature that allows you to turn off the WiFi network during scheduled vacations, office shutdowns, on evenings, or on weekends.

For each WiFi network and each day (from 12:00 a.m. to 11:59 p.m.), you can create three schedules.

### **To disable or enable a WiFi network or set up a WiFi activity schedule:**

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic**.

The page that displays lets you select an SSID.

5. Click the ► button to the left of the SSID.

The settings for the selected SSID display.

6. Under Schedule, select one of the following radio buttons:

- **Always ON**. The WiFi network is enabled.
- **Always OFF**. The WiFi network is disabled.
- **Custom**. The WiFi network is enabled or disabled according to a schedule that you must set up.  
An icon displays to the right of the radio button.

7. If you select **Custom** in the previous step, do the following:

- a. Click the icon next to the radio button.

A pop-up window opens.

- b. Either select a predefined time from the **Preset** menu or select custom time blocks by clicking the time blocks.

A blue color for a time block indicates that the WiFi network will be enabled (on).

A gray color for a time block indicates that the WiFi network will be disabled (off).

- c. Click the **Done** button.

The pop-up window closes.

8. Click the **Apply** button.

Your settings are saved.

## Remove a WiFi network

You can remove a custom WiFi network (SSID or VAP) that you no longer need. You cannot remove the default WiFi network.

### To remove a WiFi network:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
3. Enter the access point user name and password.  
The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.  
If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).  
The Dashboard page displays.
4. Select **Management > Configuration > Wireless > Basic**.  
The page that displays lets you select an SSID.
5. Click the trash can icon to the right of the SSID.  
A pop-up warning window opens.
6. Click the **Delete** button.  
The pop-window closes and the WiFi network is removed.

## Enable or disable client isolation for a WiFi network

By default, client isolation is disabled for a WiFi network (SSID or VAP), allowing communication between WiFi clients that are associated with the same or different WiFi networks on the access point. For additional security, you can enable client isolation so that clients that are associated with the same or different WiFi networks *cannot* communicate with each other, except for communication over the Internet, which remains possible.

### To enable or disable client isolation for a WiFi network:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic**.

The page that displays lets you select an SSID.

5. Click the ► button to the left of the SSID.

The settings for the selected SSID display.

6. Click the ► **Advanced** tab.

The page expands.

7. Under Wireless Client Isolation, select one of the following radio buttons:

- **Disable**: Client isolation is disabled for the WiFi network. This is the default setting.
- **Enable**: Client isolation is enabled for the WiFi network. The following check boxes display:

If you select the **Enable** radio button, two check boxes display (see the following steps).

8. If the **Allow Access to AP UI** check box displays: To prevent an admin user from accessing the local browser UI over the WiFi network, clear the **Allow Access to AP UI** check box.

By default, this check box is selected, allowing an admin user to access the local browser UI over the WiFi network.

**Note:** If the management VLAN and WiFi network VLAN are identical (which they are by default), an admin user can always access the local browser UI over a wired network connection, even if you disable access over the WiFi network.

9. If the **Allow access to devices listed below** check box displays: To add network devices that are exempt from isolation so that clients are allowed to reach them, do the following:
  - a. Select the **Allow access to devices listed below** check box.  
By default, the check box is cleared.  
The Allowlist displays.
  - b. In the field to the right, enter up to five static IP addresses and domain names of devices that clients are allowed to reach over the WiFi network.  
For example, you could enter the static IP address or domain name of a network printer that you want to make available to WiFi clients. A domain name on the Allowlist must resolve to a static IP address.
  - c. Click the **Move** button.  
The addresses and domain names are added to the Allowlist.
  - d. To remove one, several, or all addresses and domain names, select individual check boxes or the **Select All** check box, and click the **Remove** button.
10. Click the **Apply** button.  
Your settings are saved.

## Hide or broadcast the SSID for a WiFi network

By default, a WiFi network (SSID or VAP) broadcasts its network name (also referred to as the SSID) so that WiFi clients can detect the SSID in their scanned network lists. For additional security, you can turn off the SSID broadcast and hide the SSID so that users must know the SSID to be able to join the WiFi network.

**Note:** If you set up a wireless distribution system (WDS; see [Set up a WiFi bridge between access points](#) on page 128), you must keep the SSID broadcast enabled.

### To hide or broadcast the network name for a WiFi network:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic**.

The page that displays lets you select an SSID.

5. Click the ► button to the left of the SSID.

The settings for the selected SSID display.

6. Under Broadcast SSID, select one of the following radio buttons:

- **No**. The SSID is hidden for the WiFi network.
- **Yes**. The SSID is broadcast for the WiFi network.

7. Click the **Apply** button.

Your settings are saved.

## Enable or disable band steering with 802.11k RRM and 802.11v WiFi network management

Band steering lets the access point identify the WiFi devices that are dual-band capable and steer those devices to the 2.4 GHz or 5 GHz band of a WiFi network (SSID or VAP). Compared to the 2.4 GHz band, generally more channels and bandwidth are available in the 5 GHz band, causing less interference and allowing for a better user experience. Band steering includes 802.11k radio resource management (RRM) and 802.11v WiFi network management. By default, band steering is disabled.

802.11k RRM and 802.11v WiFi network management affect the network in the following ways:

- **802.11k RRM**. This feature lets the access point and 802.11k-aware clients dynamically measure the available radio resources. In an 802.11k-enabled network,

access points and clients can send neighbor reports, beacon reports, and link measurement reports to each other, allowing 802.11k-aware clients to automatically select the best access point for initial connection or for roaming.

- **802.11v WiFi network management.** This feature lets the access point steer its WiFi clients to the 2.4 GHz or 5 GHz band, based on the access point's channel load. In an environment with multiple access points, 802.11v WiFi network management helps WiFi clients that are roaming to select the best access point.

The access point sets the received signal strength indicator (RSSI) threshold automatically. (That is, you cannot configure the RSSI threshold manually.)

### **To enable or disable band steering with 802.11k RRM and 802.11v WiFi network management for a WiFi network:**

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.  
A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic**.

The page that displays lets you select an SSID.

5. Click the ► button to the left of the SSID.

The settings for the selected SSID display.

6. Under Band Steering / 802.11 k/v, select one of the following radio buttons:

- **Disable.** Band steering is disabled for the VAP. This is the default setting.
- **Enabled.** Under certain channel conditions, the access point steers WiFi devices that are dual-band capable to the 2.4 GHz or 5 GHz band of the VAP.

7. Click the **Apply** button.  
Your settings are saved.

## Change the VLAN ID for a WiFi network

This VLAN ID is not the same as the 802.1Q VLAN ID that is used for the wired network (see [Set the 802.1Q VLAN and management VLAN](#) on page 159).

**CAUTION:** Before you change the VLAN ID, be sure that the VLAN is configured on the network switch and the DHCP server and that the access point and its clients can get IP addresses over the new VLAN.

### To change the VLAN ID for a WiFi network:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.  
  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
3. Enter the access point user name and password.  
The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.  
  
If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).  
The Dashboard page displays.
4. Select **Management > Configuration > Wireless > Basic**.  
The page that displays lets you select an SSID.
5. Click the **>** button to the left of the SSID.  
The settings for the selected SSID display.
6. In the **VLAN ID** field, enter a ID (that is, a number).  
By default, the VLAN ID for a WiFi network is 1.

7. Click the **Apply** button.  
Your settings are saved.

## Enable or disable PMF for a WiFi network

Protected Management Frames (PMF), according to the 802.11w standard, is a security feature that protects unicast and multicast management frames from being intercepted and changed for malicious purposes. This feature is disabled by default, but you can enable it as either optional or mandatory.

### To enable or disable PMF for a WiFi network:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
3. Enter the access point user name and password.  
The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.  
If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).  
The Dashboard page displays.
4. Select **Management > Configuration > Wireless > Basic**.  
The page that displays lets you select an SSID.
5. Click the ► button to the left of the SSID.  
The settings for the selected SSID display.
6. Under 802.11w (PMF), select one of the following radio buttons:
  - **Mandatory**. Requires devices to use PMF. Devices that do not support PMF cannot connect to the WiFi network. If you select WPA3 Personal authentication or WiFi enhanced open authentication, PMF becomes mandatory automatically.
  - **Optional**. Lets the access point automatically activate PMF based on whether devices can support PMF.

- **Disable.** PMF is disabled for the WiFi network.

7. Click the **Apply** button.  
Your settings are saved.

## Enable or disable URL tracking for a WiFi network

You can enable the access point to track all URLs that are requested by WiFi clients that are connected to a WiFi network (SSID or VAP). This feature is disabled by default, but you can enable it.

For information about how to view the tracked URLs per SSID or per WiFi client, see [View or download tracked URLs](#) on page 217.

### To enable or disable URL tracking for a WiFi network:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic**.

The page that displays lets you select an SSID.

5. Click the **>** button to the left of the SSID.

The settings for the selected SSID display.

6. Click the **> Advanced** tab.

The page expands.

7. Under URL Tracking, select one of the following radio buttons:
  - **Enable.** URL Tracking is enabled for the WiFi network.
  - **Disable.** URL Tracking is disabled for the WiFi network.
8. Click the **Apply** button.  
Your settings are saved.

## Change the format of the DHCP offer messages in a WiFi network

When a device tries to associate with the WiFi network and negotiates an IP address, the access point converts the broadcast DHCP offer message that it receives from the DHCP server to a unicast message, and forwards it to the device. This is the default configuration. For the DHCP message exchange, unicast packets are more reliable and minimize the traffic in the network. However, if your situation requires that DHCP offer messages must be distributed as broadcast packets, you can change the format so that in a specific WiFi network, the access point does *not* convert the broadcast DHCP offer messages to unicast messages.

### To change the format of the DHCP offer messages in a WiFi network:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.  
  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
3. Enter the access point user name and password.  
The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.  
  
If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).  
  
The Dashboard page displays.
4. Select **Management > Configuration > Wireless > Basic**.  
The page that displays lets you select an SSID.

5. Click the ► button to the left of the SSID.  
The settings for the selected SSID display.
6. Click the ► **Advanced** tab.  
The page expands.
7. Under DHCP Offer Broadcast to Unicast, select one of the following radio buttons:
  - **Enable**. The access point forwards DHCP offer messages as unicast packets in the WiFi network. This is the default selection.
  - **Disable**. The access point forwards DHCP offer messages as broadcast packets in the WiFi network.
8. Click the **Apply** button.  
Your settings are saved

## Select a MAC ACL for a WiFi network

After you set up one or more local MAC access control lists (ACLs, also referred to as access lists; see [Manage local MAC access control lists](#) on page 136), you can select an ACL for use with an SSID.

You can also set up a RADIUS server (see [Set up RADIUS servers](#) on page 152) and select the RADIUS MAC ACL. You must define the ACL on the RADIUS server, using the following format for client MAC addresses in the RADIUS server: If the client MAC address is 00:0a:95:9d:68:16, specify it as 000a959d6816 in the RADIUS server.

**Note:** A RADIUS MAC ACL cannot function if the WiFi security is WPA2 Enterprise. If you want to use a RADIUS MAC ACL, select a different type of WiFi security for the WiFi network (see [Set up an open or secure WiFi network](#) on page 56).

When selected, the MAC ACL blocks WiFi access to the SSID for WiFi devices that are not in the selected access list. The blockage applies only to the SSID for which you enable the MAC ACL. Only WiFi devices that are in the selected access list can connect to the SSID.

### To select a MAC ACL for a WiFi network:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic**.

The page that displays lets you select an SSID.

5. Click the **>** button to the left of the SSID.

The settings for the selected SSID display.

6. Click the **> Advanced** tab.

The page expands.

7. Select the **MAC ACL** check box.

8. Do one of the following:

- Select the **Local MAC ACL** radio button, and from the **Select Group** menu, select the MAC ACL that you defined earlier.  
To change the MAC ACL policy, MAC addresses in the ACL, or both, click the link next to the group. For more information, see [Manage local MAC access control lists](#) on page 136.
- Select the **Radius MAC ACL** radio button.  
This option functions only if you set up a RADIUS server (see [Set up RADIUS servers](#) on page 152).

9. Click the **Apply** button.

Your settings are saved. Only WiFi devices for which the MAC address is on the MAC ACL can connect to the access point through this SSID. (These devices might be able to connect to the access point through another SSID if you did not set up MAC ACL security for that SSID.)

## Set bandwidth rate limits for a WiFi network

You can set rate limits for the upload and download bandwidths for devices that are connected to a WiFi network. The minimum bandwidth rate is 64 Kbps, the maximum bandwidth rate is 1024 Mbps. You can set one rate for the upload bandwidth and another rate for the download bandwidth.

**Note:** Before you set bandwidth rate limits, check the Internet speed of the access point (see [Check the Internet speed](#) on page 234).

### To set bandwidth rate limits for devices that are connected to a WiFi network:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic**.

The page that displays lets you select an SSID.

5. Click the ► button to the left of the SSID.

The settings for the selected SSID display.

6. Click the ► **Advanced** tab.

The page expands.

7. Select the **Rate Limit** check box.

8. Specify the values:
  - **Upload.** For the upload bandwidth limitation, enter a value from 64 to 1024 and select **Kbps** or **Mbps** from the menu.
  - **Download.** For the download bandwidth limitation, enter a value from 64 to 1024 and select **Kbps** or **Mbps** from the menu.
9. Click the **Apply** button.  
Your settings are saved.

## Set up and manage captive portals for WiFi networks

A captive portal is a web site that users see when they attempt to connect to a WiFi network. A captive portal includes a splash page and usually requires some form of authentication for the user. The access point supports three types of captive portals:

- **Click-through captive portal.** A basic portal for which the splash page is stored on the access point. For each WiFi network, you can set up a unique click-through captive portal.
- **External captive portal.** A portal that is hosted by an external captive portal vendor. You can apply an external captive portal to multiple WiFi networks or you can apply a unique external captive portal to each WiFi network.
- **Facebook Wi-Fi captive portal.** A Facebook business page that serves as a portal. You can configure a single Facebook Wi-Fi captive portal on the access point but you can apply it to multiple WiFi networks.

The following sections describe how you can set up and manage the captive portals:

- [Set up a click-through captive portal for a WiFi network](#)
- [Set up an external captive portal for a WiFi network](#)
- [Register and configure Facebook Wi-Fi for the access point](#)
- [Set up a Facebook Wi-Fi captive portal for a WiFi network](#)
- [Unregister the access point from Facebook Wi-Fi](#)

### Set up a click-through captive portal for a WiFi network

A click-through captive portal is a basic portal for which the splash page is stored on the access point, that is, it is not an external captive portal. Use a click-through captive portal to welcome or instruct WiFi users and limit their sessions. You can require users to agree to an end user license agreement (EULA) and redirect them a specific website.

A click-through captive portal is specific to the WiFi network (SSID) on which you set it up.

**To set up a click-through captive portal for a WiFi network:**

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic**.

The page that displays lets you select an SSID.

5. Click the ► button to the left of the SSID.

The settings for the selected SSID display.

6. Click the ► **Advanced** tab.

The page expands.

7. Select the **Captive Portal** check box.

The page adjusts. By default, the Click Through radio button is selected.

# Insight Instant Mesh Multi-Mode Access Point Model WAC564 User Manual

Captive Portal

Click Through ⓘ     Facebook Wi-Fi ⓘ     External Captive Portal ⓘ

Session Timeout (in min)

Redirect URL

**Title**

**Message**

**JPEG/JPG Image (Max 500KB)**

No file

**EULA (Max 1KB)**

This usage agreement governs your use of the Internet services provided. The use of this hotspot is voluntarily given and may be rescinded without advanced notice. The user is not entitled to any compensation for damages, real or imagined, incurred while using the hotspot. The user agrees not to:

- 1) Transmit or participate in the transmission of materials in violation of local or national laws and regulations.
- 2) Send large quantities of unsolicited email (spam).
- 3) Restrict or hinder the free usage of this hotspot by other users.
- 4) Attack another user, website or service provider with a denial of service attack or otherwise.

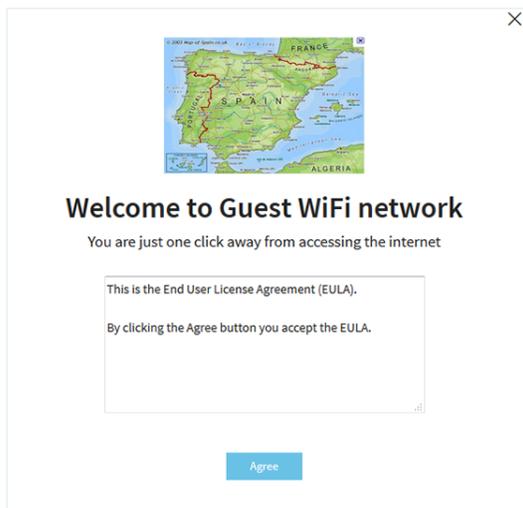
8. Specify the click-through settings as described in the following table.

Setting	Description
Session Timeout (in min)	Enter the time after which a WiFi session is terminated and a user must log in again. The period is in the range from 1 to 1440 minutes. The default is 60 minutes.
Redirect URL	To redirect a user to a specific website after login, select the <b>Redirect URL</b> check box and enter the URL to which the user must be directed. If the <b>Redirect URL</b> check box is cleared, a user is directed to a default web page.
Title	Enter the title that is displayed on the captive portal login page. If you do not customize the title, the default title displays on the captive portal login page.
Message	Enter a message to the user. This message is displayed on the captive portal login page. If you do not customize the message, the default message displays on the captive portal login page.

(Continued)

Setting	Description
JPEG/JPG Image (Max 500KB)	To customize the image that is displayed on the captive portal login page, click the <b>Browse</b> button and navigate to and select an image. If you do not customize the image, the default image displays on the captive portal login page.
EULA (Max 1KB)	The field includes a default end user license agreement (EULA). You can enter or copy custom text into the field. To show the EULA on the captive portal login page, select the <b>EULA</b> check box.

- To preview the captive portal login page, click the **Preview** button.  
The following figure shows an example (that is, the figure does not show the default captive portal but a customized one).



- Click the **Apply** button.  
Your settings are saved. WiFi clients attempting to connect to the SSID are presented with the captive portal login page.

**Note:** An HTTPS session is blocked until after the captive portal authentication occurs.

## Set up an external captive portal for a WiFi network

An external captive portal is a portal that is hosted by an external captive portal vendor. That is, this type of portal is not stored on the access point. For an external captive portal, you generally must register your devices with and purchase licenses from the vendor.

You can apply an external captive portal to multiple WiFi networks or you can apply a unique external captive portal to each WiFi network

### To set up an external captive portal for a WiFi network:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic**.

The page that displays lets you select an SSID.

5. Click the ► button to the left of the SSID.

The settings for the selected SSID display.

6. Click the ► **Advanced** tab.

The page expands.

7. Select the **Captive Portal** check box.

The page adjusts. By default, the Click-Through radio button is selected.

8. Click the **External Captive Portal** radio button.

Captive Portal

Click Through ⓘ     Facebook Wi-Fi ⓘ     External Captive Portal ⓘ

Splash Page URL ⓘ   

Captive Portal Authentication Type

Web/HTTP ⓘ     Radius ⓘ

Web Authentication URL ⓘ   

Key     ⓘ

Secret     ⓘ

FailSafe ⓘ     Enable     Disable

Allow HTTPS ⓘ     Enable     Disable

Walled Garden ⓘ

Select-all

« Move

Example:  
\*.splashpage.com  
\*.externalCP.com

9. Specify the external captive portal settings as described in the following table.

Setting	Description
Splash Page URL	<p>Enter the URL that is provided by the vendor.</p> <p>This URL redirects a user to the splash page on the website that hosts the captive portal.</p>
Captive Portal Authentication Type	<p>The access point supports two types of external captive portal authentication. These types are mutually exclusive.</p> <hr/> <p><b>Web/HTTP.</b> Authentication for access to the splash page occurs on the access point using the HTTPS protocol. Specify the following settings:</p> <ul style="list-style-type: none"> <li>• <b>Web Authentication URL.</b> Enter the web authentication URL that is provided by the vendor.</li> <li>• <b>Key.</b> Enter the key credential that is provided by the vendor. This field is optional and depends on the authentication requirements of the vendor.</li> <li>• <b>Secret.</b> Enter the secret credential that is provided by the vendor. This field is optional and depends on the authentication requirements of the vendor.</li> </ul> <hr/> <p><b>Radius.</b> Authentication for access to the splash page occurs on an external RADIUS authentication server. The vendor might also require an accounting RADIUS server. Specify the following settings for <i>each</i> RADIUS server, as directed by the vendor:</p> <ul style="list-style-type: none"> <li>• <b>IPv4 Address.</b> Enter the IP address of the server. The IP address is provided by the vendor.</li> <li>• <b>Port.</b> Enter the port number that is used by the server. The IP port number is provided by the vendor. By default, an authentication server uses port number 1812; an accounting server uses port number 1813.</li> <li>• <b>Password.</b> Enter the password (shared secret) for interaction with the server. The password is provided by the vendor.</li> </ul>
FailSafe	<p>Select one of the following radio buttons:</p> <ul style="list-style-type: none"> <li>• <b>Enable.</b> If authentication is not possible—for example, because captive portal servers do not respond—users are still allowed to access the Internet access for a period of 30 minutes.</li> <li>• <b>Disable.</b> This is the default setting. If authentication is not possible, users cannot reach the splash page and cannot access the Internet. Instead, they get a message <i>Oops. Something went wrong. Please try after some time.</i></li> </ul>

(Continued)

Setting	Description
Allow HTTPS	<p>Select one of the following radio buttons:</p> <ul style="list-style-type: none"> <li>• <b>Enable.</b> Before authentication occurs, secure HTTP (HTTPS) traffic is allowed to pass through.</li> <li>• <b>Disable.</b> This is the default setting. HTTPS traffic is allowed only after authentication occurs.</li> </ul>
Walled Garden	<p>The walled garden specifies the external applications and sites that a user can access from the captive portal. Generally, the vendor provides information about the applications and sites. The vendor splash page, domain name, and authentication servers must also be included in the walled garden. Follow the directions of the vendor.</p> <p>You can do the following to configure the walled garden:</p> <ul style="list-style-type: none"> <li>• <b>Add a single URL.</b> In the right field, type the URL, press Enter, and click the <b>Move</b> button.</li> <li>• <b>Add multiple URLs.</b> In the right field, paste a list of URLs, and click the <b>Move</b> button.</li> <li>• <b>Remove one or more URLs.</b> Select the check boxes for URLs, and click the <b>Remove</b> button.</li> <li>• <b>Remove all URLs.</b> Select the <b>Select All</b> check box, and click the <b>Remove</b> button.</li> </ul>

10. Click the **Apply** button.

Your settings are saved. WiFi clients attempting to connect to the SSID are presented with the captive portal login page.

## Register and configure Facebook Wi-Fi for the access point

Before you can set up Facebook Wi-Fi on the access point so that you can provide customers WiFi access by letting them check in to an existing Facebook business page (see [Set up a Facebook Wi-Fi captive portal for a WiFi network](#) on page 89), you must register the access point with Facebook and configure the Facebook settings. By default, the capability to register is disabled.

**To register and configure Facebook Wi-Fi for the access point:**

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic > Facebook Wi-Fi**.

The Facebook Wi-Fi page displays.

5. Select the Register with Facebook Wi-Fi **Yes** radio button.

The capability to register is enabled. By default, this capability is disabled.

6. Click the **Apply** button.

Your settings are saved and the **Add Page** button displays.

7. Click the **Add Page** button.

A new browser page opens and displays the Facebook Login page.

8. Log in to the Facebook account with which the Facebook business page is associated.

**Facebook Wi-Fi Configuration**

---

**Facebook Page**  
To use Facebook Wi-Fi you need to be the admin of a local business Page that has a valid location associated with it.

Select a Page ▾

**Bypass Mode**  
Your customers always have the option to skip checking in. They can do this by clicking on a link that lets them skip check-in, or by entering a Wi-Fi code that you provide to them.

Skip check-in link [?]  
 Require Wi-Fi code [?]

**Session Length**  
Select the length of time your customers will have Wi-Fi for after they check in.

Five hours ▾

**Terms of Service**  
 Optional: Add your own Terms of Service [?]

Visit Help Center Save Settings

9. From the **Select a Page** menu, select the Facebook business page.
10. Select one of the following bypass mode options:
  - To allow customers to skip check-in, select the **Skip check-in link** radio button. If you enable this option, users can either check in to the selected Facebook business page or skip the check-in.
  - To require users to enter a WiFi code before they can gain WiFi access, select the **Require Wi-Fi code** radio button and type a WiFi code in the field that displays. If you enable this option, users can either check in to the selected Facebook business page or skip the check-in by using the WiFi code.
11. From the **Session Length** menu, select the period after which users are automatically logged out.
12. To add terms of service to the Facebook check-in page, select the **Terms of Service** check box and type or copy the terms of service.
13. Click the **Save Settings** button.

The Facebook Wi-Fi settings are saved.

The name of the selected Facebook business page displays on the Facebook Wi-Fi configuration page, along with the **Change Page** button, which lets you replace the selected Facebook business page with another one.
14. To allow clients that are connected to the Facebook captive portal to establish a secure HTTP (HTTPS) session *before* the captive portal authentication occurs, select the Allow HTTPS **Enable** radio button.

By default, the Allow HTTPS **Disable** radio button is selected and clients that are connected to the Facebook captive portal cannot establish an HTTPS session until after the captive portal authentication occurs.

15. Click the **Apply** button.

Your settings are saved.

## Set up a Facebook Wi-Fi captive portal for a WiFi network

You can provide customers WiFi access by letting them check in to a Facebook business page. Before you can do so, you must register the access point with Facebook Wi-Fi (see [Register and configure Facebook Wi-Fi for the access point](#) on page 86).

### To set up a Facebook Wi-Fi captive portal for a WiFi network:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic**.

The page that displays lets you select an SSID.

5. Click the **>** button to the left of the SSID.

The settings for the selected SSID display.

6. Click the **> Advanced** tab.

The page expands.

7. Select the **Captive Portal** check box.

The page adjusts. By default, the Click Through radio button is selected.

8. Select the **Facebook Wi-Fi** radio button.

The page adjusts again because you do not need to specify any further settings on the page.

Customers receive WiFi access by checking in to a Facebook business page. To use this option, first register the access point with Facebook Wi-Fi (see [Register and configure Facebook Wi-Fi for the access point](#) on page 86).

9. Click the **Apply** button.

Your settings are saved. WiFi clients attempting to connect to the SSID are presented with the Facebook business page..

**Note:** When you set up a captive portal with Facebook Wi-Fi, you can configure the option to allow clients that are connected to the Facebook captive portal to establish a secure HTTP (HTTPS) session *before* the captive portal authentication occurs (see [Register and configure Facebook Wi-Fi for the access point](#) on page 86).

## Unregister the access point from Facebook Wi-Fi

If the access point is registered with Facebook Wi-Fi but you no longer want to use that option for a captive portal or you want to use another Facebook account, you can unregister the access point from Facebook Wi-Fi and remove the access point's entry.

### **To unregister the access point from Facebook Wi-Fi and remove the access point's entry:**

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the

Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic > Facebook Wi-Fi**.

The Facebook Wi-Fi page displays.

5. Select the **No** radio button.

The capability to register is disabled. However, the access point's entry on the Facebook business page is not yet removed.

6. Click the **Apply** button.

Your settings are saved.

7. Go to the Facebook business page and log in to your account.

8. Select the check box for the access point's entry.

9. Click the **Delete** button.

The access point's entry is removed.

## Manage the basic radio features

You can manage the basic radio features that are described in the following sections:

- [Manage the basic settings for the radios](#)
- [Turn a radio on or off](#)
- [Change the WiFi mode for a radio](#)
- [Change the channel width for a radio](#)
- [Change the guard interval for a radio](#)
- [Change the output power for a radio](#)
- [Change the channel for a radio](#)
- [Manage Quality of Service for a WiFi radio](#)

For information about the advanced radio features, see [Manage the advanced radio features](#) on page 110.

## Manage the basic settings for the radios

The basic WiFi settings for the radios apply to all WiFi networks (VAPs or SSIDs). You can specify the radio settings individually for the 2.4 GHz radio, 5 GHz low band radio (referred to as 5 GHz Low), and 5 GHz high band radio (referred to as 5GHz High). For

information about the advanced radio settings, see [Manage the advanced WiFi settings for the radios](#) on page 110.

**To manage the basic WiFi settings for the radios:**

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

- Select **Management > Configuration > Wireless > Basic > Wireless Settings**.

The screenshot shows the 'Wireless Settings' configuration page. It is organized into three distinct frequency bands, each with its own set of controls:

- 2.4 GHz:** Turn Radio ON is checked. Wireless Mode has radio buttons for 11b, 11bg, and 11ng, with 11ng selected. Output Power is set to 100%(Max). Channel Width is set to Dynamic 20 / 40 MHz. Channel is set to Auto. Guard Interval is set to Auto.
- 5 GHz Low:** Turn Radio ON is checked. Wireless Mode has radio buttons for 11a, 11na, and 11ac, with 11ac selected. Output Power is set to 100%(Max). Channel Width is set to Dynamic 20 / 40 / 80 MHz. Channel is set to Auto. Guard Interval is set to Auto.
- 5 GHz High:** Turn Radio ON is checked. Wireless Mode has radio buttons for 11a, 11na, and 11ac, with 11ac selected. Output Power is set to 100%(Max). Channel Width is set to Dynamic 20 / 40 / 80 MHz. Channel is set to Auto. Guard Interval is set to Auto.

At the bottom of the configuration area, there are two buttons: 'Cancel' and 'Apply'.

- Configure the settings as described in the following table. The descriptions in the table apply to all radios, but you can specify the radio settings for the 2.4 GHz, 5 GHz Low, and 5 GHz High radios individually.

Setting	Description
Turn Radio On	<p>By default, the <b>Turn Radio On</b> check box is selected and the radio broadcasts. Turning off a radio disables WiFi access for the band, which can be helpful during configuration, network tuning, or troubleshooting.</p>
Wireless Mode	<p>Select one of the following WiFi modes for the 2.4 GHz radio:</p> <ul style="list-style-type: none"><li>• <b>11b.</b> 802.11n, 802.11g, and 802.11b WiFi clients can connect to the access point. However, the speed of 802.11n and 802.11g clients is limited to the maximum speed that is supported by 802.11b (about 11 Mbps).</li><li>• <b>11bg.</b> 802.11n, 802.11g, and 802.11b WiFi clients can connect to the access point. However, the speed of 802.11n clients is limited to the maximum speed that is supported by 802.11g (about 54 Mbps).</li><li>• <b>11ng.</b> 802.11n, 802.11g, and 802.11b WiFi clients can connect to the access point. This is the default setting.</li></ul> <p>Select one of the following WiFi modes for a 5 GHz radio (you can select a different mode each 5 GHz radio):</p> <ul style="list-style-type: none"><li>• <b>11a.</b> 802.11ac, 802.11na, and 802.11a WiFi clients can connect to the access point. However, the speed of 802.11ac and 802.11na clients is limited to the maximum speed that is supported by 802.11a (about 54 Mbps).</li><li>• <b>11na.</b> 802.11ac, 802.11na, and 802.11a WiFi clients can connect to the access point. However, the speed of 802.11ac clients is limited to the maximum speed that is supported by 802.11n (generally, ranging from about 300 Mbps to about 450 Mbps).</li><li>• <b>11ac.</b> 802.11ac, 802.11na, and 802.11a WiFi clients can connect to the access point. This is the default setting.</li></ul>
Channel Width	<p>From the menu, select the channel width for the radio. Use the following guidelines:</p> <ul style="list-style-type: none"><li>• A wider channel improves the performance.</li><li>• The 802.11n specification allows a 40 MHz-wide channel in addition to the legacy 20 MHz channel that is available with other modes.</li><li>• The 802.11ac specification allows an 80 MHz-wide channel in addition to the 20 MHz and 40 MHz channels that are available with other modes.</li><li>• The 40 MHz and 80 MHz channels enable higher data rates but leaves fewer channels available for use.</li></ul>

(Continued)

Setting	Description
Guard Interval	<p>From the menu, select the value that protects radio transmissions from interference. An Auto guard interval (which is the default) improves performance, but some legacy devices can operate only with a long -800ns guard interval.</p> <p>The guard interval and channel width determine the available MCS index and data transmit rates.</p>
Output Power	<p>From the menu, select the transmission power of the radio. You can select <b>100%(Max), 50%, 25%, 12.5%, or 4%(Min)</b>. The default is 100%(Max).</p> <p><b>Note:</b> If two or more access points are operating in the same area and on the same channel, interference can occur. In such a situation, you might want to decrease the output power for the access point. Make sure that you comply with the regulatory requirements for total radio frequency (RF) output power in your country.</p>
Channel	<p>From the menu, select the WiFi channel for the radio. The available WiFi channels and frequencies depend on the country and the radio. (The channels in the 5 GHz band are divided between the low band and high band radios.) The default is Auto, which enables the radio to automatically select the most suitable channel.</p> <p><b>Note:</b> You do not need to change the WiFi channel unless you experience interference (which is indicated by lost connections).</p> <p><b>Note:</b> If you use multiple access points, reduce interference by selecting different channels for adjacent access points. We recommend a channel spacing of four channels between adjacent access points (for example, use Channels 1 and 5, or 6 and 10).</p>

6. Click the **Apply** button.

A pop-up warning window opens.

7. Click the **OK** button.

The pop-up window closes and your settings are saved. The radio or radios restart and WiFi clients might need to reconnect.

## Turn a radio on or off

By default, the 2.4 GHz radio and both 5 GHz radios broadcast. Turning off a radio disables WiFi access for the associated band, which affects all VAPs (or SSIDs) in that band. Turning off a radio can be helpful during configuration, network tuning, or troubleshooting.

### To turn a radio on or off:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic > Wireless Settings**.

The Wireless Settings page displays.

5. Take one of the following actions:

- **Turn a radio on.** Select the **Turn Radio ON** check box for the radio.
- **Turn a radio off.** Clear the **Turn Radio ON** check box for the radio.

6. Click the **Apply** button.

A pop-up warning window opens.

7. Click the **OK** button.

The pop-up window closes and your settings are saved. The radio or radios restart and WiFi clients might need to reconnect.

## Change the WiFi mode for a radio

By default, all types of WiFi clients can access a WiFi network on the access point, that is, the WiFi modes on the access point support 802.11n, 802.11g, 802.11b, 802.11ac, 802.11na, and 802.11a clients. You can change the modes to limit access to certain types of clients.

### To change the WiFi mode for a radio:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic > Wireless Settings**.

The Wireless Settings page displays.

5. Select the WiFi mode for the radio:

- **2.4 GHz radio.** Select one of the following WiFi modes for the 2.4 GHz radio:
  - **11b.** 802.11n, 802.11g, and 802.11b WiFi clients can connect to the access point. However, the speed of 802.11n and 802.11g clients is limited to the maximum speed that is supported by 802.11b (about 11 Mbps).
  - **11bg.** 802.11n, 802.11g, and 802.11b WiFi clients can connect to the access point. However, the speed of 802.11n clients is limited. However, the speed of 802.11n clients is limited to the maximum speed that is supported by 802.11g (about 54 Mbps).
  - **11ng.** 802.11n, 802.11g, and 802.11b WiFi clients can connect to the access point. This is the default setting.

- **5 GHz radio.** Select one of the following WiFi modes for a 5 GHz radio (you can select a different mode each 5 GHz radio):
  - **11a.** 802.11ac, 802.11na, and 802.11a WiFi clients can connect to the access point. However, the speed of 802.11ac and 802.11na clients is limited to the maximum speed that is supported by 802.11a (about 54 Mbps).
  - **11na.** 802.11ac, 802.11na, and 802.11a WiFi clients can connect to the access point. However, the speed of 802.11ac clients is limited to the maximum speed that is supported by 802.11n (generally, ranging from about 300 Mbps to about 450 Mbps).
  - **11ac.** 802.11ac, 802.11na, and 802.11a WiFi clients can connect to the access point. This is the default setting.

6. Click the **Apply** button.

A pop-up warning window opens.

7. Click the **OK** button.

The pop-up window closes and your settings are saved. The radio or radios restart and WiFi clients might need to reconnect.

## Change the channel width for a radio

Use the following guidelines when you determine the channel width for a radio:

- A wider channel improves the performance.
- The 802.11n specification allows a 40 MHz-wide channel in addition to the legacy 20 MHz channel that is available with other modes.
- The 802.11ac specification allows an 80 MHz-wide channel in addition to the 20 MHz and 40 MHz channels that are available with other modes.
- The 40 MHz and 80 MHz channels enable higher data rates but leave fewer channels available for use.

### To change the channel width for a radio:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic > Wireless Settings**.

The Wireless Settings page displays.

5. From the **Channel Width** menu, select one of the following settings.

- **20 MHz.**
- **40 MHz.**
- **80 MHz.** This selection is available only for the 5 GHz radios.
- **Dynamic 20 / 40 MHz.** This selection is available only for the 2.4 GHz radio and is the default setting for that radio.
- **Dynamic 20 / 40 / 80 MHz.** This selection is available only for the 5 GHz radios and is the default setting for these radios.

6. Click the **Apply** button.

A pop-up warning window opens.

7. Click the **OK** button.

The pop-up window closes and your settings are saved. The radio or radios restart and WiFi clients might need to reconnect.

## Change the guard interval for a radio

The guard interval protects radio transmissions from interference. An automatic guard interval (which is the default) improves performance, but some legacy devices can operate only with a long -800ns guard interval.

### To change the guard interval for a radio:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic > Wireless Settings**.

The Wireless Settings page displays.

5. From the **Guard Interval** menu, select one of the following settings:

- **Auto**. This is the default setting.
- **Long-800 ns**.

6. Click the **Apply** button.

A pop-up warning window opens.

7. Click the **OK** button.

The pop-up window closes and your settings are saved. The radio or radios restart and WiFi clients might need to reconnect.

## Change the output power for a radio

By default, the output power of the access point is set at the maximum. If two or more access points are operating in the same area and on the same channel, interference can occur. In such a situation, you might want to decrease the output power for the access point. Make sure that you comply with the regulatory requirements for total radio frequency (RF) output power in your country.

### To change the output power for a radio:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
3. Enter the access point user name and password.  
The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.  
If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).  
The Dashboard page displays.
4. Select **Management > Configuration > Wireless > Basic > Wireless Settings**.  
The Wireless Settings page displays.
5. From the **Output Power** menu, select **100%(Max), 50%, 25%, 12.5%, or 4%(Min)**.  
The default is 100%(Max).
6. Click the **Apply** button.  
A pop-up warning window opens.
7. Click the **OK** button.  
The pop-up window closes and your settings are saved. The radio or radios restart and WiFi clients might need to reconnect.

## Change the channel for a radio

The available WiFi channels and frequencies depend on the country and the radio. The default is Auto, which enables the radio to automatically select the most suitable channel.

**Note:** You do not need to change the WiFi channel unless you experience interference (which is indicated by lost connections).

**Note:** If you use multiple access points, reduce interference by selecting different channels for adjacent access points. We recommend a channel spacing of four channels between adjacent access points (for example, use Channels 1 and 5, or 6 and 10).

### To change the channel for a radio:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
3. Enter the access point user name and password.  
The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.  
If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).  
The Dashboard page displays.
4. Select **Management > Configuration > Wireless > Basic > Wireless Settings**.  
The Wireless Settings page displays.
5. From the **Channel** menu, select a channel.  
The default is Auto. When you select a particular channel, the channel selection becomes static.
6. Click the **Apply** button.  
A pop-up warning window opens.
7. Click the **OK** button.  
The pop-up window closes and your settings are saved. The radio or radios restart and WiFi clients might need to reconnect.

## Manage Quality of Service for a WiFi radio

You can specify the Quality of Service (QoS) setting separately for the 2.4 GHz radio and for each 5 GHz radio. These settings are enabled by default for all radios. Disabling

QoS for a radio might impact the throughput and speed of WiFi traffic on the access point.

### To manage the QoS settings for a WiFi radio:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic > QoS Settings**.

The screenshot shows the QoS Settings page with the following configuration:

Frequency Band	Wi-Fi Multimedia (WMM)	WMM Powersave
2.4 GHz	Enable	Enable
5 GHz Low	Enable	Enable
5 GHz High	Enable	Enable

5. Enable or disable the following features for a radio by selecting the applicable **Enable** or **Disable** radio buttons:

- **Wi-Fi Multimedia (WMM)**. WiFi Multimedia (WMM) is a subset of the 802.11e standard. Time-dependent information such as video or audio is given higher priority than normal traffic. For WMM to function correctly, WiFi clients must also support WMM. By enabling WMM, you allow WMM to control upstream traffic

flowing from WiFi devices to the access point and downstream traffic flowing from the access point to WiFi devices. WMM defines the following four queues in decreasing order of priority:

- **Voice.** The highest priority queue with minimum delay, which makes it very suitable for applications such as VoIP and streaming media.
  - **Video.** The second highest priority queue with low delay. Video applications are routed to this queue.
  - **Best effort.** The medium priority queue with medium delay. Most standard IP applications use this queue.
  - **Background.** The low priority queue with high throughput. Applications such as FTP that are not time-sensitive but require high throughput can use this queue.
- **WMM Powersave.** Enabling the WMM Powersave feature saves power for battery-powered devices and fine-tunes power consumption.
6. Click the **Apply** button.  
A pop-up warning window opens.
  7. Click the **OK** button.  
The pop-up window closes and your settings are saved. The radio or radios restart and WiFi clients might need to reconnect.

# 5

## Manage the Advanced WiFi and Radio Features

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This chapter describes how you can manage the advanced WiFi and radio features of the access point. For information about the basic WiFi and radio settings, see [Manage the Basic WiFi and Radio Features](#) on page 55.

**Tip:** If you want to change the settings of the access point's WiFi network, use a wired connection to avoid being disconnected when the new WiFi settings take effect.

The chapter includes the following sections:

- [Configure advanced rate selection for a WiFi network](#)
- [Manage the advanced radio features](#)
- [Set a data volume limit for the access point](#)
- [Enable the WiFi Traffic Analyzer](#)
- [Set up a WiFi bridge between access points](#)

# Configure advanced rate selection for a WiFi network

Advanced rate selection lets you improve the capacity of an *individual* WiFi network (as opposed to a radio, which affects *all* WiFi network on the radio) so that you can reach the optimal balance between the following components in the WiFi network:

- Types of traffic (multicast, management, control, and data traffic)
- Number and proximity of clients (the client density)
- Types of clients (the WiFi modes that clients can support, including legacy WiFi modes)
- Throughput speed for clients
- Area that the WiFi network must cover

To successfully configure advanced rate selection, we recommend that you determine what the clients in your network can require (the types of traffic, the supported WiFi modes, and the expected throughput speed), how many clients potentially can connect simultaneously to the WiFi network, and where the clients can be located.

**Note:** By default, advanced rate selection is disabled. If you enable advanced rate selection, the access point applies rate control settings to WiFi connections in a regular WiFi network but not to connections in a wireless distribution system (WDS) or Insight Instant Mesh WiFi network.

Advanced rate selection lets you configure the following settings for each radio band in a WiFi network:

- **Fixed multicast rate:** The multicast traffic transmission rate that you select is automatically applied. The rates that you can select are the basic multicast rates that the radio band supports.
- **Rate control:** The rate that you select is automatically applied to beacon and other management frames and to control and data frames. If you enable rate control, you can set the density level, which consists of four components that are described below. That is, the density level includes much more than the client density (the number and proximity of clients in the WiFi network).  
The available settings for the density level in the WiFi network depend on the WiFi mode in which the radio operates. (For more information about WiFi modes, see [Change the WiFi mode for a radio](#) on page 96.)  
You can set a density level of 0 (actually spanning 0–4, the default setting), 1 (spanning 1–4), 2 (spanning 2–4), 3 (spanning 3–4), or 4. The setting is then applied to the

following *interdependent* components, which you cannot set individually precisely because they are interdependent:

- **Density:** The density (the number and proximity) of clients in the WiFi network. (The density is one of the four components of the density *level*.) A setting of 0 means a very low client density. A setting of 4 means a very high client density.
- **Compatibility:** The compatibility with WiFi modes for legacy clients in the WiFi network. A setting of 0 means compatibility with 802.11b/g/n clients. A setting of 4 means compatibility with 802.11g/n clients but not with 802.11b legacy clients.
- **Overall performance:** The throughput speed for the clients in the WiFi network. A setting of 0 means a reduced performance. A setting of 4 means an optimal performance. As an example, you can deliberately select a reduced performance if you require a very wide coverage area.
- **Coverage:** The area that the WiFi network must cover. A setting of 0 means a very wide coverage area. A setting of 4 means a very narrow coverage area. As an example, you can deliberately select a very narrow area if you require an optimal performance.

Another way to describe the density level is that a selected level is mapped to a corresponding client density level, WiFi mode, minimum legacy rate, beacon rate, and minimum Modulation Coding Scheme (MCS) rate.

### To configure advanced rate selection for a WiFi network:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Basic**.  
The page that displays lets you select and add an SSID.
5. Click the ► button to the left of the SSID.  
The settings for the selected SSID display.
6. Scroll down and click the **Advanced Rate Selection** tab.

▼ Advanced Rate Selection

---

**2.4 GHz**

Fixed Multicast Rate  
Auto

Rate Control

Density Level 4

Environment : Density - Very Low, Compatibility - 802.11b/g/n, Overall Peformance - Reduced, Coverage - Very Wide

---

**5 GHz Low**

Fixed Multicast Rate  
Auto

Rate Control

Density Level 4

Environment : Density - Very Low, Compatibility - 802.11a/n/ac, Overall Peformance - Reduced, Coverage - Very Wide

---

**5 GHz High**

Fixed Multicast Rate  
Auto

Rate Control

Density Level 4

Environment : Density - Very Low, Compatibility - 802.11a/n/ac, Overall Peformance - Reduced, Coverage - Very Wide

**Note:** For the selected SSID, you can specify the radio settings for the 2.4 GHz, 5 GHz Low, and 5 GHz High radio bands individually. The descriptions in the following steps apply to all radios.

7. To apply basic fixed multicast rates, from the **Fixed Multicast Rate** menu, select one of the following rates, depending on the radio band:
  - **2.4 GHz: 1, 2, 5.5, or 11** Mbps or **Auto**. (By default, Auto is 11 Mbps.)
  - **5 GHz Low: 6, 12, or 24** Mbps or **Auto**. (By default, Auto is 24 Mbps.)
  - **5 GHz High: 6, 12, or 24** Mbps or **Auto**. (By default, Auto is 24 Mbps.)
8. To enable automatic minimum rate control for beacon and other management frames and for control and data frames, select the **Rate Control** check box.  
If you select the **Rate Control** check box, the **Density Level** slider becomes available.
9. To set the density level for your environment, move the **Density Level** slider to **0, 1, 2, 3, or 4**.

As you move the slider, the selected density level is mapped to a corresponding WiFi mode, beacon rate, minimum legacy rate, and minimum MCS rate. The available settings depend on the WiFi mode that you select for the radio (see [Change the WiFi mode for a radio](#) on page 96).

The default WiFi mode for the 2.4 GHz radio is 11ng. For each 5 GHz radio, it is 11ac.

The density level for the WiFi network is based on the following interdependent components, for which a setting is assigned by the position of the slider but *which you cannot set individually*:

- **Density of the WiFi clients:** In the default 11ng and 11ac WiFi modes for the radios, the setting can be very low, low, medium, high, or very high, depending on the position of the slider.
- **Compatibility with WiFi modes for legacy clients:** In the default 11ng and 11ac WiFi modes for the radios, the setting can be as follows:
  - **2.4 GHz:** 802.11b/g/n, which supports 802.11b clients, or 802.11g/n, which does not.
  - **5 GHz Low:** 802.11a/n/ac, which supports 802.11a, 802.11n, and 802.11a clients in the 5 GHz Low radio band in any position of the slider.
  - **5 GHz High:** 802.11a/n/ac, which supports 802.11a, 802.11n, and 802.11a clients in the 5 GHz High radio band in any position of the slider.
- **Overall performance for the WiFi clients:** In the default 11ng and 11ac WiFi modes for the radios, the setting can be reduced, moderate, good, very good, or optimal, depending on the position of the slider.
- **WiFi coverage:** In the default 11ng and 11ac WiFi modes for the radios, the setting can be very narrow, narrow, average, wide, or very wide, depending on the position of the slider.

**Note:** The help text in the local browser UI provides a table with detailed information about how the WiFi mode of a radio affects these components and how these components depend on each other.

10. Click the **Apply** button.  
Your settings are saved.

## Manage the advanced radio features

You can manage the advanced radio features that are described in the following sections:

- [Manage the advanced WiFi settings for the radios](#)
- [Manage the maximum number of clients for a radio](#)
- [Manage the broadcast and multicast settings for a radio](#)
- [Manage sticky clients](#)
- [Manage load balancing for the radios](#)
- [Manage Airtime Fairness for the radios](#)
- [Manage the ARP proxy](#)
- [Manage the amount of broadcast traffic](#)

For information about the basic radio features, see [Manage the basic radio features](#) on page 91.

### Manage the advanced WiFi settings for the radios

The advanced WiFi settings for the radios apply to all WiFi networks (VAPs or SSIDs). You can specify the radio settings individually for the 2.4 GHz radio, 5 GHz low band radio (referred to as 5 GHz Low), and 5 GHz high band radio (referred to as 5GHz High). For information about the basic radio settings, see [Manage the basic settings for the radios](#) on page 91.

A radio must be turned on for you to specify the settings. For more information about turning a radio on, see [Turn a radio on or off](#) on page 95.

#### **To manage the advanced WiFi settings for the radios:**

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Advanced**.

The screenshot shows the 'Advanced' configuration page for wireless settings, organized into three radio sections: 2.4 GHz, 5 GHz Low, and 5 GHz High. Each section contains the following settings:

- 2.4 GHz:**
  - Max. Wireless Clients: 200
  - RTS Threshold (256-2346): 2346 (checked)
  - Beacon Interval (100-300): 100
  - 802.11n 256 QAM: checked
  - DTIM Interval (1-255): 2
  - Broadcast/Multicast Rate Limiting: checked (slider at 50)
- 5 GHz Low:**
  - Max. Wireless Clients: 200
  - RTS Threshold (256-2346): 2346 (checked)
  - Beacon Interval (100-300): 100
  - MU-MIMO: Enable (selected)
  - 802.11h: Disable (selected)
  - DTIM Interval (1-255): 2
  - Broadcast/Multicast Rate Limiting: checked (slider at 50)
- 5 GHz High:**
  - Max. Wireless Clients: 200
  - RTS Threshold (256-2346): 2346 (checked)
  - Beacon Interval (100-300): 100
  - MU-MIMO: Enable (selected)
  - 802.11h: Disable (selected)
  - DTIM Interval (1-255): 2
  - Broadcast/Multicast Rate Limiting: checked (slider at 50)

At the bottom of the page are 'Cancel' and 'Apply' buttons.

5. Configure the settings as described in the following table.

The descriptions in the table apply to all radios, but you can specify the radio settings for the 2.4 GHz, 5 GHz Low, and 5 GHz High radios individually. However, the 802.11n

256 QAM feature applies to the 2.4 GHz radio only and the MU-MIMO and 802.11h features apply to the 5 GHz radios only.

Setting	Description
Max. Wireless Clients	Enter the maximum number of WiFi clients that can simultaneously associate with the radio. The range is from 1 to 200. The default is 200 WiFi clients.
RTS Threshold (256-2346)	<p>Enter the Request to Send (RTS) threshold. The range is from 256 to 2346. The default is 2346.</p> <p>If the packet size is equal to or less than the RTS threshold, the radio uses the Carrier Sense Multiple Access with Collision Detection (CSMA/CD) mechanism and the data frame is transmitted immediately after the silence period. If the packet size is larger than the RTS threshold, the system uses the CSMA with Collision Avoidance (CSMA/CA) mechanism. In this situation, the transmitting device sends the RTS packet to the receiving device and waits for the receiving device to return a Clear to Send (CTS) packet before sending the actual packet data.</p>
Beacon Interval (100-300)	Enter an interval between 100 ms and 300 ms for each beacon transmission, which allows the radio to synchronize the WiFi network. The default is 100 ms.
802.11n 256 QAM	<p>Select the <b>802.11n 256 QAM</b> check box to enable the 2.4 GHz radio to function over 256-quadrature amplitude modulation (QAM), which can increase the 2.4 GHz radio throughput for clients that are capable of supporting 256 QAM. By default, 256 QAM is disabled for the 2.4 GHz radio, that is, the check box is cleared.</p> <p>By default, 256-QAM is enabled for the 5 GHz radios and you cannot disable it (the page does not provide check boxes for the 5 GHz radios).</p>
DTIM Interval (1-255)	Move the slider to specify the delivery traffic indication message (DTIM) interval or the data beacon rate, which indicates the beacon delivery traffic indication message period in multiples of beacon intervals. This value must be between 1 and 255. The default is 2.
Broadcast/Multicast Rate Limiting	Multicast and broadcast rate limiting is enabled by default to improve the overall network performance by limiting the number of packets that are transmitted across the network. By default, the setting is 50 (the maximum possible value), which specifies a maximum rate limit of 50 packets per second. To change the setting, move the slider. To disable multicast and broadcast rate limiting, clear the small check box.

(Continued)

Setting	Description
MU-MIMO	<p>By default, the MU-MIMO <b>Enable</b> radio button is selected and multiuser MIMO (MU-MIMO) is enabled. To disable MU-MIMO, select the MU-MIMO <b>Disable</b> radio button.</p> <p>802.11ac Wave 2 supports MU-MIMO, which enables multiple users to receive data from the access point simultaneously using the same channel. With MU-MIMO, the access point can transmit to multiple clients simultaneously using the same channel. MU-MIMO is used in the downstream direction and requires both the access point and the WiFi clients to be capable of 802.11ac Wave 2.</p> <p>You can enable or disable MU-MIMO for the 5 GHz radios but not for the 2.4 GHz radio.</p>
802.11h	<p>Select the 802.11h <b>Enable</b> radio button to enable 802.11h-capable WiFi clients to automatically switch to a new channel without disconnecting from the access point and without losing any data when the access point changes to another channel. By default, the 802.11h <b>Disable</b> radio button is selected and 802.11h is disabled.</p> <p>You can enable or disable 802.11h for the 5 GHz radios but not for the 2.4 GHz radio.</p>

6. Click the **Apply** button.  
A pop-up warning window opens.
7. Click the **OK** button.  
The pop-up window closes and your settings are saved. The radio or radios restart and WiFi clients might need to reconnect.

## Manage the maximum number of clients for a radio

The number of clients that are allowed to associate with a radio affects the reliability and throughput of the WiFi connection. A smaller number can increase the reliability and throughput and a large number can decrease the reliability and throughput.

By default, one radio allows up to 200 client associations. You can specify a lower number of clients. If the number of associated clients exceeds the maximum number that you specify, the radio rejects new client associations until the number drops below that maximum number.

### To manage the maximum number of clients for a radio:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Advanced**.

The Wireless Settings page displays.

5. In the **Max.Wireless Clients** field, enter the maximum number of WiFi clients that can simultaneously associate with the radio.

The range is from 1 to 200 for the radio. The default is 200 WiFi clients for the radio.

6. Click the **Apply** button.

A pop-up warning window opens.

7. Click the **OK** button.

The pop-up window closes and your settings are saved. The radio or radios restart and WiFi clients might need to reconnect.

## Manage the broadcast and multicast settings for a radio

Because multicast and broadcast traffic can adversely affect the throughput and latency of a WiFi network, you can change the multicast and broadcast rate limiting settings for a radio.

By default, multicast and broadcast rate limiting is enabled to improve the overall network performance by limiting the number of packets that are transmitted across the network. By default, the setting is 50 (the maximum possible value), which specifies a maximum rate limit of 50 packets per second. You can lower this number.

### To manage the broadcast and multicast settings for a radio:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Advanced > Wireless Settings**.

The Wireless Settings page displays.

5. To change the multicast and broadcast rate limiting settings for a radio, under Broadcast/Multicast Rate Limiting, take one of the following actions:

- To change the rate limiting setting, move the slider. By default, the setting is 50 (the maximum possible value), which specifies a maximum rate limit of 50 packets per second.
- To disable or enable multicast and broadcast rate limiting, clear or select the small check box.

6. Click the **Apply** button.

A pop-up warning window opens.

7. Click the **OK** button.

The pop-up window closes and your settings are saved. The radio or radios restart and WiFi clients might need to reconnect.

## Manage sticky clients

During roaming, sticky clients do not change to an access point with a better signal but remain associated with (that is, *stick to*) their initial access point, even though the quality of the connection to that access point is degraded. Such a situation causes delay for other clients that are associated with that access point.

**Note:** For a home WiFi network with a single access point, a sticky client is useful because no other access point is available to associate with during roaming. For a business or enterprise network with multiple access points, a sticky client can cause a drain on WiFi resources.

You can force sticky clients to disassociate from the radios of the access point.

If load balancing based on the RSSI of the client is enabled (see [Manage load balancing for the radios](#) on page 117), after a client is forced to disassociate, the client can join again in the following situations:

- The client can associate again if its RSSI is equal to or higher than the minimum required RSSI.
- If the client persistently tries to associate with the access point, the access point grants access to that client, even if its RSSI is below minimum required RSSI.

### To manage sticky clients:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Advanced > Load Balancing**.

The Load Balancing page displays.

5. Either select or clear the **Force Sticky Clients To Disassociate** check box.  
Selecting the check box forces sticky clients to disassociate from a radio. Clearing the check box allows sticky clients to remain associated with a radio.
6. Click the **Apply** button.  
Your settings are saved.

## Manage load balancing for the radios

You can configure the radio utilization thresholds to enable each radio to maintain the speed and performance of the WiFi network as clients associate with and disassociate from the WiFi network.

If you enable load balancing, client associations depend on the maximum number of clients per radio, the channel load per radio, and each client's Received Signal Strength Indicator (RSSI). New client associations are allowed if a radio's utilization remains within the defined load balancing settings. If a radio's utilization exceeds the defined load balancing settings, new client associations are temporary halted until the radio's utilization falls within the defined load balancing settings.

**Note:** The Dashboard page can show information about the client and traffic distribution per radio as well as the client, traffic, and channel utilization for each radio (see [View client distribution, connected clients, and client trends](#) on page 211 and [View WiFi and Ethernet traffic, traffic and ARP statistics, and channel utilization](#) on page 215).

By default, all of the following types of load balancing are enabled with their default settings:

- **Load balancing based on the maximum number of clients.** The access point allows client associations up to the specified maximum number of clients. After the maximum number is exceeded, new clients are rejected. Even though this is a global setting, it is implemented per radio.
- **Load balancing based on the channel load.** The access point allows client associations up to the defined maximum channel utilization. After the maximum channel utilization is exceeded, new clients are rejected. Even though this is a global setting, it is implemented per radio.

**Note:** If a client is rejected but persistently tries to associate with the access point, the access point grants access to that client.

- **Load balancing based on the RSSI of the client.** Clients with an RSSI that is equal to or higher than the defined minimum are allowed to associate with the access

point. Clients with an RSSI below the defined minimum are rejected. Even though this is a global setting, it is implemented per radio.

**Note:** If a client is rejected but persistently tries to associate with the access point, the access point grants access to that client.

You can change the default settings for each type of load balancing, or completely disable one or more types of load balancing.

### To manage load balancing for the radios:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Advanced > Load Balancing**.

5. To globally enable load balancing for the radios, select the Load Balancing Mode **Enable** radio button.

The page adjusts and displays a slider for each type of load balancing and each radio.

By default, load balancing is disabled. When you enable load balancing, all three types of load balancing are enabled. You can individually disable one or more types of load balancing.

6. To individually enable or disable one or more types of load balancing, do the following:
  - To disable a particular type of load balancing, clear the small blue check box to the left of the *Based On* text.
  - To enable a particular type of load balancing, select the small blue check box to the left of the *Based On* text.
7. To change the load balancing settings, do the following:
  - **Based On Maximum Number Of Clients.** For each radio, move the associated slider to specify the maximum number of clients allowed, before the radio stops accepting new client associations. For each radio, the minimum number of clients is 5 and the maximum number is 200, and the default number is 200.
  - **Based On Channel Load.** For each radio, move the associated slider to specify the maximum percentage of channel load that is allowed on the radio, before it stops accepting new client associations. For each radio, the minimum percentage of channel load is 50, the maximum percentage is 90, and the default percentage is 70.

- **Based on Channel Receive Signal Strength.** For each radio, move the associated slider to specify the minimum required RSSI value for an individual client, below which the radio does not accept the client association. For each radio, the minimum RSSI value is 1, the maximum value is 50, and the default value is 23.
8. Click the **Apply** button.  
A pop-up warning window opens.
  9. Click the **OK** button.  
The pop-up window closes and your settings are saved. The radio or radios restart and WiFi clients might need to reconnect.

## Manage Airtime Fairness for the radios

You can configure the Airtime Fairness to enable all radios to provide better WiFi performance in an environment with legacy and non-legacy clients.

Airtime fairness ensures that all clients receive equal time on the network. Network resources are divided by time, so if five clients are connected, they each get one-fifth of the network time. The advantage of this feature is that the slowest clients do not control network responsiveness. This feature is disabled by default, but you can enable it.

**Note:** On each radio, Airtime Fairness is supported for the first 50 clients. If the radio supports more than 50 clients, the remaining clients must share the unreserved network time on the radio, that is, Airtime Fairness does not apply to those clients.

### To manage Airtime Fairness for all radios:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
3. Enter the access point user name and password.  
The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.  
If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the

Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Advanced > Air Time Fairness**.  
The Air Time Fairness page displays.
5. To enable Airtime Fairness for all radios, select the **Enable** radio button.  
By default, Airtime Fairness is disabled for all radios.
6. Click the **Apply** button.  
A pop-up warning window opens.
7. Click the **OK** button.  
The pop-up window closes and your settings are saved. The radios restart and WiFi clients might need to reconnect.

## Manage the ARP proxy

By default, the ARP proxy is enabled on the access point, allowing it to inspect all ARP broadcast packets for its clients. In this way, the access point responds to ARP requests for its clients, preventing unnecessary broadcast traffic on the radios.

For information about the ARP statistics, including the number of proxied and dropped packets, see [View WiFi and Ethernet traffic, traffic and ARP statistics, and channel utilization](#) on page 215.

### To manage the ARP proxy:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
3. Enter the access point user name and password.  
The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.  
If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the

Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Advanced > ARP Proxy**.  
The ARP Proxy page displays.
5. Select one of the following radio buttons
  - **Enable**. The ARP proxy is enabled. This is the default setting.
  - **Disable**. The ARP proxy is disabled. Broadcast traffic on the radios might increase.
6. Click the **Apply** button.  
Your settings are saved.

## Manage the amount of broadcast traffic

The access point supports broadcast enhancements that reduce the broadcast traffic on the radios, and therefore on all WiFi networks that you configure on the access point.

We recommend that you enable the broadcast enhancements only if you expect the access point to host less than 20 clients on the 5 GHz radios and less than 10 clients on the 2.4 GHz radio. By default, the broadcast enhancements are disabled.

Note the following limitations for the broadcast enhancements:

- If more 20 clients are connected to a WiFi network, the broadcast enhancements do not work for that WiFi network.
- Broadcast enhancement do not work if the access point functions in a wireless distribution system (WDS) or in an Insight Instant Mesh WiFi network.

### To manage broadcast enhancements:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Advanced > Broadcast Enhancements**.

The Broadcast Enhancements page displays.

5. Select one of the following radio buttons
  - **Enable**. The broadcast enhancements are enabled.
  - **Disable**. The broadcast enhancements are disabled. This is the default setting.
6. Click the **Apply** button.  
Your settings are saved.

## Set a data volume limit for the access point

You can set a total monthly data volume limit that applies to all WiFi networks that you configure on the access point, that is, it applies to all SSIDs (or VAPs) collectively. A typical use of this feature is to restrict guest user data consumption.

For each SSID, you can define a percentage of the monthly data volume limit, in which case must allocate a data volume in MB to each WiFi client of that SSID. In relation to settings percentages for SSIDs, note the following:

- To make sure that each SSID receives its exact share of the total monthly data volume limit, make sure that the percentages for all SSIDs together do not exceed 100 percent.
- To set a less restrictive policy, the percentages for all SSIDs together do not need to add up to 100 percent. For example, if you set 60 percent for one SSID and 60 percent for another SSIDs, you are providing an equal chance to each SSID to consume 60 percent of the total monthly data volume limit. If one SSID actually consumes 60 percent, only 40 percent is available for the other SSID.
- If you do not set a data volume limit for any SSIDs, all SSIDs are allowed 100 percent of the total monthly data volume limit, and data is consumed on a *first come, first served* basis, up to the total monthly data volume limit.

You can specify when the monthly counter resets or manually reset the counter.

If the consumed data reaches a definable percentage of the profile data volume limit for an SSID, either the data is dropped for all WiFi clients of the SSID or those WiFi clients are disconnected.

### To set a data volume limit for the access point:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Advanced > Data Volume Limit**.

The Data Volume Limit page displays.

- Select the **Data Volume Limit** check box.

Data Volume Limit

Data Volume Limit Setup

Monthly limit  (in MB)

Data limit control by

Reset data limit counters at  on the  day of the month

---

SSID Profiles

Name	No Data Volume Limit	Profile Data Volume Limit(%)	Per Client
NetgearABCDEF	<input checked="" type="checkbox"/>		
NETGEAR-2	<input type="checkbox"/>	<input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="100"/> (0 MB)	<input type="text" value=""/> MB

Data Volume Limit Policy on SSID Profile

Pop-up a warning message  % MB before the profile limit is reached

When SSID profile limit is reached

Drop data for all wireless clients

Disconnect all wireless clients

- In the Data Volume Limit Setup section, specify the following settings, which apply to SSIDs collectively, whether or not you set a data volume limit for an SSID in [Step 7](#):
  - Monthly limit.** Enter the total monthly data volume limit in MB for the access point, that is, for all SSIDs collectively.  
For example, if you enter 500000, a data volume limit of 500 GB applies to all SSIDs collectively.  
The default value is 1024 MB (1 GB). The maximum that you can enter is 100 TB (100000 GB).
  - Data limit control by.** From the menu, select if the data volume limit applies to downloaded data, to uploaded data, or to both combined.
  - Reset data limit counters.** Specify the day and time of the month when the counter is reset and the data volume usage for all SSIDs is reset to zero.  
To immediately reset the counter to zero, click the **Reset Counter** button and confirm your action by clicking the **OK** button.

7. In the SSID Profiles section, specify the following settings for any individual SSID for which you want to set a percentage of the total monthly data volume limit:
  - a. **No Data Volume Limit.** To specify that the data volume limit applies to the SSID, clear the **No Data Volume Limit** check box for the SSID.  
If you leave the check box selected, no data volume limit applies to the SSID, which means that the SSID is assigned 100 percent. (If you do not set a data volume limit for any SSID, each SSID is assigned 100 percent.)
  - b. **Profile Data Volume Limit (%).** To set a percentage of the monthly data volume limit that you specified in [Step 6](#), move the slider to the percentage that you want to set.  
For example, if the monthly data volume limit is 500000 MB and you move the slider to 60 percent, the volume limit for the SSID is 300000 MB (300 GB). That means that the SSID cannot consume more data than 300 GB. However, the actual available data volume for the SSID might be less than 300 GB if the data consumption on other SSIDs causes the total monthly data volume limit to be reached before the SSID consumes 300 GB.
  - c. **Per Client.** If you set a percentage for an SSID, set a monthly data volume limit that applies to each WiFi client of the SSID by entering the monthly data volume limit in MB per WiFi client.  
Take the total monthly data volume limit and the percentage that you set for the SSID into account. For example, if the total monthly data volume limit is 500000 MB, the percentage for the SSID is 60 percent, and you expect about 30 clients to connect to the SSID, you could set a data volume of 10000 MB (10 GB) per WiFi client of the SSID.

**Note:** When the remaining data volume reaches 10 percent of the monthly data volume limit for a WiFi client, the data rate for that WiFi client is restricted to 256 Kbps. However, the WiFi client can continue to consume data as long as the volume limit for the SSID is not yet reached.

8. In the Data Volume Limit Policy on SSID Profile section, specify the following settings that apply to each individual SSID for which you set a profile data volume limit in [Step 7](#):
  - a. **Pop-up a warning message.** Specify the percentage of the profile data volume limit for an SSID that, if exceeded, causes a pop-up message to be displayed. By default, if 10 percent of the remaining profile data volume limit for an SSID is exceeded, a pop-up warning message is displayed on the Data Volume Limit page.
  - b. **When SSID profile limit is reached.** Select one of the following radio buttons to specify the action that occurs if the profile data volume limit for an SSID is exceeded:
    - **Drop data for all wireless clients.** The data for all WiFi clients of the SSID is dropped but the WiFi clients are not disconnected from the SSID.
    - **Disconnect all wireless clients.** All WiFi clients are disconnected from the SSID.
9. Click the **Apply** button.

Your settings are saved.

For information about monitoring the consumed data volume for each SSID for which you enabled a data volume limit, see [View the data volume consumption](#) on page 222.

## Enable the WiFi Traffic Analyzer

You can enable the Traffic Analyzer, which performs a deep analysis of the traffic on all WiFi networks that you configure on the access point, that is, it analysis traffic on all SSIDs (or VAPs).

The Traffic Analyzer inspects the network packets and classifies the traffic based on application, for example, YouTube, Twitter, Facebook, BitTorrent, and so on. For each application, you can view the traffic usage, usage percentage, the quantity of uploaded and downloaded traffic, the period of activity, and the number of WiFi clients. You can drill down to more details: For each application, you can view the WiFi clients. In addition, for each WiFi client, you can view the host name, MAC address, IP address, traffic usage, usage percentage, the quantity of uploaded and downloaded traffic, and the period of activity.

**Note:** Enabling the Traffic Analyzer significantly affects the data throughput of the access point. After you enable the Traffic Analyzer, it takes about 10 minutes before you can view results of the traffic analysis.

### To enable the Traffic Analyzer:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless > Advanced > Traffic Analyzer**.

The Traffic Analyzer page displays.

5. Select the **Enable** radio button.

6. Click the **Apply** button.

Your settings are saved.

For information about viewing the traffic analysis results, see [View the traffic analysis results](#) on page 224.

## Set up a WiFi bridge between access points

You can configure a wireless distribution system (WDS) that consists of point-to-point WiFi bridge connections between two access points. Each WiFi bridge connection requires a WDS profile for which the settings must match on the access points that make up the bridge.

**Note:** A WiFi bridge connection is *not* the same as a connection in a NETGEAR Insight Instant Mesh WiFi network, in which the access point must connect to a root access point (see [Install the Access Point in an Insight Instant Mesh WiFi Network](#) on page 20).

**Note:** If you enable Energy Efficiency Mode, you cannot use a WDS. To use a WDS, first disable Energy Efficiency Mode. For more information, see [Manage the Energy Efficiency Mode](#) on page 199.

If the access point is connected to the Internet over a wired connection, the access point can function as the WiFi base station for up to four other access points that function as WiFi repeaters. The access point itself can also function as a WiFi repeater if it is connected to another access point that functions as a WiFi base station.

A WiFi base station connects to the Internet, wired and WiFi clients can connect to the base station, and the base station sends its WiFi signal to one or more access points that function as WiFi repeaters. Wired and WiFi clients can also connect to a WiFi repeater, but the repeater connects to the Internet through the WiFi base station.

The following figure shows a WiFi repeating scenario with a WiFi base station on the left side and a single WiFi repeater on the right side.

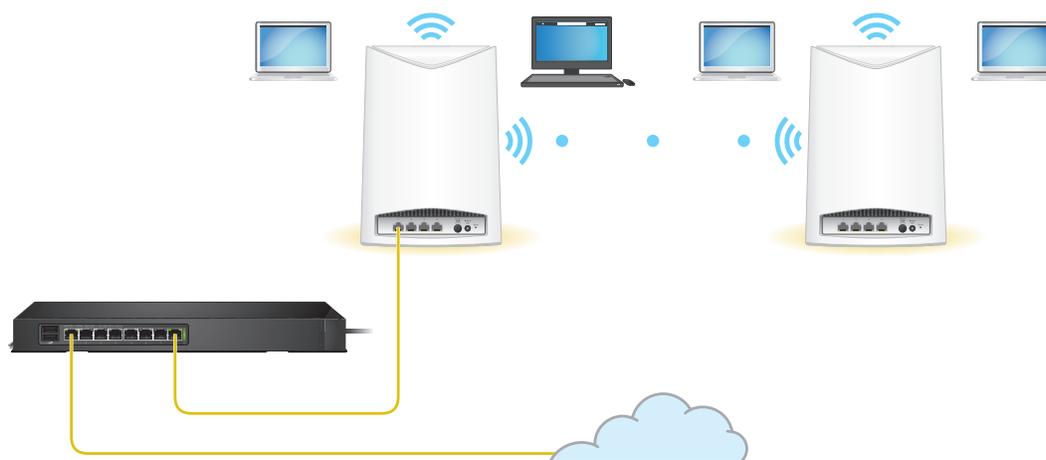


Figure 6. WiFi bridge configuration between two access points

To use a WiFi bridge, you cannot use the auto channel feature for the access point and the SSID broadcast must be enabled.

For a WiFi bridge, you must set up a WiFi base station (the master) and a WiFi repeater (the slave):

- **WiFi base station.** The access point functions as the master that bridges traffic to and from the repeater access point (the slave). The base station also handles local WiFi and wired traffic. To configure this mode, you must know the MAC address of the repeater access point. The MAC address is listed on the product label or on the WiFi bridge configuration page of the local browser interface.
- **WiFi repeater.** The access point functions as the slave and sends all traffic from its local WiFi or wired computers to the WiFi base station (the master). To configure this mode, you must know the MAC address of the base station.

By default, the access point functions in dual-band concurrent mode. If you enable the WiFi repeater in either radio band, the WiFi base station or WiFi repeater cannot be enabled in the other radio band. However, if you enable the WiFi base station in either radio band and use the other radio band for either client access or as a WiFi base station, dual-band concurrent mode is not affected.

Before you can set up a WiFi network with WDS, your configuration must meet the following conditions:

- Both access points must use the same WiFi channel and WiFi security settings.
- Both access points must be on the same LAN IP subnet. That is, all of the access point LAN IP addresses are in the same network.
- All LAN devices (wired and WiFi computers) are configured to operate in the same LAN network address range as the access points.

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

**CAUTION:** Before you set up a WiFi bridge between two access points, enable STP on the access points (see [Enable or disable Spanning Tree Protocol](#) on page 168) and on the switches to which the access points are connected. If your switches do not support STP, after the WiFi bridge is established, disconnect one of the access points from its switch to prevent a network loop and connectivity problems.

### To set up a WiFi bridge between two access points:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the

Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wireless Bridge**.

The page that displays lets you select a WDS profile (WDS 1, WDS 2, WDS 3, or WDS 4).

5. Click the ► button to the left of a WDS profile.

The WDS profile page displays.

6. Select the Band **2.4 GHz**, **5 GHz Low**, or **5 GHz High** radio button.

Your selection determines the radio band on which the WDS is established. For countries that do not support dual-band operation, you cannot select the radio.

7. Select the VAP **Enable** radio button.

By default, a WDS profile is disabled.

8. Configure the WDS profile settings as described in the following table.

Setting	Description
Wireless Network Name (SSID)	The WiFi network name of the network on which the WDS is established. The default name is Netgear-WDS-x, in which x is the number of the WDS (1, 2, 3, or 4).
Local MAC Address	The MAC address of the local WDS radio interface, that is, the MAC address of the local radio on which the WDS is established. You cannot change this MAC address on this page. The MAC address is displayed for your information. Enter this MAC address on the remote access point of the WDS connection.

(Continued)

Setting	Description
Remote MAC Address	The MAC address of the remote WDS radio interface, that is, the MAC address of the remote radio on which the WDS is established.
Network Authentication, Data Encryption, and Passphrase	<p>By default, the selection from the menu is Open, in which case authentication and data encryption are not applicable. To secure the WDS connection, select <b>WPA2 Personal</b> and specify the following settings:</p> <ul style="list-style-type: none"> <li>• <b>Encryption.</b> The data encryption is AES and you cannot change this setting.</li> <li>• <b>Passphrase.</b> The passphrase for the WDS connection. For you to enable the WDS connection, the passphrase on the remote access point must match the passphrase that you define in this field.</li> </ul>

9. Click the **Apply** button.

Your settings are saved.

10. Configure the WiFi bridge settings on the access point at the other end of the WiFi bridge and restart that access point.

If the device at the other end of the WiFi bridge is a NETGEAR model WAC505, WAC510, WAC540, or WAC564 access point, you do not need to restart it.

The WiFi bridge is established.

11. Verify connectivity across the LANs of both access points.

If the configuration is set up correctly, a computer on any WiFi or wired LAN segment of the access point that functions as the WiFi repeater can connect to the Internet or share files and printers with any other computer or server connected to the access point that functions as the WiFi base station.

**Note:** After the WiFi bridge is established, you cannot change the WiFi channel for the radio on which the WiFi bridge is established.

# 6

## Manage Access and Security

---

This chapter describes how you can manage access and security features and user accounts.

The chapter includes the following sections:

- [Block specific URLs and keywords for Internet access](#)
- [Manage local MAC access control lists](#)
- [Manage user accounts](#)
- [Manage neighbor AP detection](#)
- [Set up RADIUS servers](#)
- [Enable L2 security](#)

**Note:** For information about essential WiFi security (network authentication and encryption), see [Set up an open or secure WiFi network](#) on page 56.

# Block specific URLs and keywords for Internet access

You can set up a blacklist by specifying URLs (web addresses) for which Internet access must be blocked. You can also specify keywords that cause the access point to reject URLs that contain those keywords.

## **To set up a blacklist with URLs and keywords for which Internet access must be blocked:**

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Security > URL Filtering**.

The URL Filtering page displays.

- Select the **Enable** radio button.

- Compose the blacklist in the following ways:

- Blocked URLs.** To add a URL to the blacklist, type or copy the URL in the upper field (to the left of the upper **Add** button) and click the upper **Add** button. You can also select one or more URLs from the Popular URL list by selecting the check boxes for the URLs and clicking the **<< Move** button.

To remove a URL from the blacklist, select the check box for the URL and click the upper left **Remove** button.

When you block a URL, the domain and all URLs in the domain are blocked. For example, if you enter and add `www.google.com`, all web pages in the `www.google.com` domain are blocked, including, for example, `www.google.com/finance`.
- Blocked Keywords.** To add a keyword entry to the blacklist, enter the keyword in the lower field (to the left of the lower **Add** button) and click the lower **Add** button.

To remove a keyword entry from the blacklist, select the check box for the entry and click the lower **Remove** button.

All URLs that contain the keyword are blocked. For example, if you enter and add `Jobs`, all URLs that contains `Jobs` (or `jobs`) are blocked.

- Click the **Apply** button.  
Your settings are saved.

# Manage local MAC access control lists

The access point supports eight local access control lists (ACLs) that are based on MAC addresses. Each local MAC ACL can contain a total number of 512 MAC addresses.

If you set up an ACL with a policy that allows access and you apply that ACL to a WiFi network (that is, to an SSID), the ACL functions as follows:

- A WiFi device for which you place the MAC address in the ACL is allowed access to the WiFi network.
- All other WiFi devices are denied access to the WiFi network.

If you set up an ACL with a policy that denies access and you apply that ACL to a WiFi network (that is, to an SSID), the ACL functions as follows:

- A WiFi device for which you place the MAC address in the ACL is denied access to the WiFi network.
- All other WiFi devices are allowed access to the WiFi network.

An ACL takes effect only after you apply it to a WiFi network. For information about applying an ACL to a WiFi network, see [Select a MAC ACL for a WiFi network](#) on page 76. You can apply a MAC ACL to more than one WiFi network.

The following sections describe how you can manage MAC ACLs:

- [Manually set up a MAC access control List](#)
- [Import an existing MAC access control list](#)

## Manually set up a MAC access control List

You can compose up to eight access control lists (ACLs) that are each based on up to 512 MAC addresses. The access point includes MAC ACLs with the following default group names and settings, which you can change:

- **Management.** If enabled, allows access to trusted stations by default.
- **Guest.** If enabled, allows access to trusted stations by default.
- **Guest1.** If enabled, denies access to untrusted stations by default.
- **Custom.** If enabled, denies access to untrusted stations by default.
- **Custom 1.** If enabled, allows access to trusted stations by default.
- **Custom 2.** If enabled, allows access to trusted stations by default.
- **Custom 3.** If enabled, allows access to trusted stations by default.
- **Custom 4.** If enabled, allows access to trusted stations by default.

By default, these MAC ACLs are disabled and do not include any stations. You can manually add devices, import devices (see [Import an existing MAC access control list](#) on page 140), or do both.

You can use a MAC ACL to control which WiFi devices (stations) can access a WiFi network. You can apply one MAC ACL to more than one WiFi network.

### To manually set up a MAC ACL:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Security > MAC ACL**.

- Click the group name for the MAC ACL that you want to set up.

Management

---

Group Name Management

Import MAC Address List Replace Merge

Browse File No MAC list file chosen

[Download Sample](#)

ACL Policy Allow Deny

Trusted Stations

Select-all

No Station Found

00-00-00-00-00-00 Add Remove

Cancel Apply

« Move »

Available Stations Refresh

Select-all

<input type="checkbox"/>	50-6A-03-80-51-01	Connected
<input type="checkbox"/>	50-6A-03-80-51-02	Connected
<input type="checkbox"/>	50-6A-03-80-51-03	Connected

---

> Guest

---

> Guest1

---

> Custom

The previous figure shows some examples. Devices in the Available Stations table are automatically detected by the access point and are common to all MAC ACLs, which allows you to add a device to more than one MAC ACL. A neighboring station displays as Neighbor and a connected station displays as connected.

- To change the group name, enter a new name in the **Group Name** field.  
The default group names for the eight MAC ACLs are Management, Guest, Guest1, Custom, Custom 1, Custom 2, Custom 3, and Custom 4.
- Select the ACL Policy **Allow** or **Deny** radio button.  
If you select the **Allow** radio button, a WiFi device for which you place the MAC address in the ACL is allowed access to the WiFi network, but all other WiFi devices are denied access to the WiFi network.  
If you select the **Deny** radio button, a WiFi device for which you place the MAC address in the ACL is denied access to the WiFi network, but all other WiFi devices are allowed access to the WiFi network.

8. Compose the ACL in the following way:

- For an ACL for which you selected the **Allow** radio button in [Step 7](#), do the following:
  - To manually add a device to the Trusted Stations table, enter the MAC address in the format 00-00-00-00-00-00 in the field below the Trusted Stations table, and click the **Add** button.  
The device is added to the Trusted Stations table.
  - To move a device from the Available Stations table to the Trusted Stations table, select the check box for the device and click the **<< Move** button.  
You can search the Available Stations table. You can also filter devices in the Available Stations table by clicking the **filter** icon.
  - To remove a device from the Trusted Stations table, select the check box for the device and click the **Remove** button.  
You can search the Trusted Stations table.  
When you remove a device from the Trusted Stations table, after the access point redetects the device, the device is once again placed in the Available Stations table.
- For an ACL for which you selected the **Deny** radio button in [Step 7](#), do the following:
  - To manually add a device to the Untrusted Stations table, enter the MAC address in the format 00-00-00-00-00-00 in the field below the Untrusted Stations table, and click the **Add** button.  
The device is added to the Untrusted Stations table.
  - To move a device from the Available Stations table to the Untrusted Stations table, select the check box for the device and click the **<< Move** button.  
You can search the Available Stations table. You can also filter devices in the Available Stations table by clicking the **filter** icon.
  - To remove a device from the Untrusted Stations table, select the check box for the device and click the **Remove** button.  
You can search the Untrusted Stations table.  
When you remove a device from the Untrusted Stations table, after the access point redetects the device, the device is once again placed in the Available Stations table.

9. Click the **Apply** button.

Your settings are saved.

For more information about applying an ACL to a WiFi network, see [Select a MAC ACL for a WiFi network](#) on page 76.

WiFi devices in the Trusted Stations table can access the WiFi network to which you apply the ACL. WiFi devices in the Untrusted Stations table cannot access the WiFi network to which you apply the ACL.

## Import an existing MAC access control list

You can import an existing access control list (ACL) that is based on up to 512 MAC addresses. You can import the list into any MAC ACL, but the MAC addresses on the list are available only for the MAC ACL into which you import the list. That is, if you want to use the same list in another MAC ACL, you must also import the list into that MAC ACL.

The file with MAC addresses must be in the following format:

- Entries in the file must be MAC addresses only in hexadecimal format with each octet separated by a hyphen, for example 00-11-22-33-44-55.
- You must separate entries with a comma.
- The file must be in text format (that is, with a .txt or .cfg extension).

You can use a MAC ACL to control which WiFi devices can access a WiFi network. You can apply a MAC ACL to more than one WiFi network.

### To import an existing MAC ACL:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Security > MAC ACL**.

- Click the group name for the MAC ACL that you want to set up.

Management

Group Name Management

Import MAC Address List Replace Merge

Browse File No MAC list file chosen

[Download Sample](#)

ACL Policy Allow Deny

Trusted Stations

Select-all Search..

No Station Found

Available Stations Refresh

Select-all Search..

<input type="checkbox"/>	50-6A-03-80-51-01	Connected
<input type="checkbox"/>	50-6A-03-80-51-02	Connected
<input type="checkbox"/>	50-6A-03-80-51-03	Connected

00-00-00-00-00-00 Add Remove

Cancel Apply

> Guest

> Guest1

> Custom

The previous figure shows some examples. Devices in the Available Stations table are automatically detected by the access point and are common to all MAC ACLs, which allows you to add a device to more than one MAC ACL. A neighboring station displays as Neighbor and a connected station displays as connected.

- To change the group name, enter a new name in the **Group Name** field.  
The default group names for the eight MAC ACLs are Management, Guest, Guest1, Custom, Custom 1, Custom 2, Custom 3, and Custom 4.
- Select the ACL Policy **Allow** or **Deny** radio button.  
If you select the **Allow** radio button, a WiFi device for which you import the MAC address into the ACL is allowed access to the WiFi network, but all other WiFi devices are denied access to the WiFi network.  
If you select the **Deny** radio button, a WiFi device for which you import the MAC address into the ACL is denied access to the WiFi network, but all other WiFi devices are allowed access to the WiFi network.
- To download a sample of a MAC ACL in the format that is required for importing, click the **Download Sample** link.

9. Import and compose the ACL in the following way:
  - For an ACL for which you selected the **Allow** radio button in [Step 7](#), do the following:
    - a. Replace or merge the MAC addresses in the import list with the MAC addresses in the Trusted Stations table (if any are already in the table) by selecting one of the following radio buttons:
      - **Replace**. MAC addresses in the Trusted Stations table are replaced with the ones in the import list.
      - **Merge**. MAC addresses in the Trusted Stations table are merged with the ones in the import list.
    - b. Click the **Browse** button and navigate to and select the import file. The MAC addresses on the import list are placed in the Trusted Stations table.
    - c. To remove a MAC address from the Trusted Stations table, select the MAC address and click the **Remove** button. You can search the Trusted Stations table. When you remove a device from the Trusted Stations table, after the access point redetects the device, the device is once again placed in the Available Stations table.
  - For an ACL for which you selected the **Deny** radio button in [Step 7](#), do the following:
    - a. Replace or merge the MAC addresses in the import list with the MAC addresses in the Untrusted Stations table (if any are already in the table) by selecting one of the following radio buttons:
      - **Replace**. MAC addresses in the Untrusted Stations table are replaced with the ones in the import list.
      - **Merge**. MAC addresses in the Untrusted Stations table are merged with the ones in the import list.
    - b. Click the **Browse** button and navigate to and select the import file. The MAC addresses on the import list are placed in the Untrusted Stations table.
    - c. To remove a MAC address from the Untrusted Stations table, select the MAC address and click the **Remove** button. You can search the Untrusted Stations table. When you remove a device from the Untrusted Stations table, after the access point redetects the device, the device is once again placed in the Available Stations table.

10. Click the **Apply** button.

Your settings are saved. For information about manually adding MAC addresses to those in the Trusted Stations table or Untrusted Stations table, see [Manually set up a MAC access control List](#) on page 136.

For more information about applying an ACL to a WiFi network, see [Select a MAC ACL for a WiFi network](#) on page 76.

WiFi devices in the Trusted Stations table can access the WiFi network to which you apply the ACL. WiFi devices in the Untrusted Stations table cannot access the WiFi network to which you apply the ACL.

## Manage user accounts

User accounts provide either read/write or read-only access to the local browser interface of the access point. You can add, change, or delete user accounts. You cannot delete or change the default admin user account except for the password.

The following sections describe how you can manage user accounts:

- [Add a user account](#)
- [Change the settings for a user account](#)
- [Remove a user account](#)

For information about changing the password for the default admin user account, see [Change the admin user account password](#) on page 178.

### Add a user account

#### To add a user account:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > System > Advanced > User Accounts**.

The screenshot shows a configuration form for a user account. It has three main sections: 'User Name' with a blue 'a' icon and a text input containing 'admin'; 'Password' with a text input containing masked characters; and 'Privilege' with a dropdown menu showing 'Read-Write'. Below these is a 'Session Timeout' section with 'Hours' set to '0' and 'Minutes' set to '45'. At the bottom are two buttons: 'Cancel' and 'Apply'.

5. Click the add user account icon.  
Additional fields and a menu display.
6. Specify the settings for the new user account:
  - **User Name.** Enter a user name.
  - **Password.** Enter a password between 8 and 64 characters in length. The password must contain at least one uppercase letter, one lowercase letter, and one number. The following special characters are allowed:  
! @ # \$ % ^ & \* ( )
  - **Privilege.** From the menu, select **Read-Write** or **Read-Only**.
  - **Session Timeout.** Use the **Hours** and **Minutes** fields to specify the period after which a session automatically expires and the user must log in again. By default, a session expires after 45 minutes.
7. Click the **Apply** button.  
Your settings are saved.

## Change the settings for a user account

You cannot change the access privilege for the default admin user account.

### To change the user name, password, or access privilege for a user account:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > System > Advanced > User Accounts**.

The existing user accounts display.

5. To the right of the user account, change the existing settings as needed:

- **User Name.** Enter another user name.
- **Password.** Enter another password between 8 and 64 characters in length. The password must contain at least one uppercase letter, one lowercase letter, and one number. The following special characters are allowed:  
! @ # \$ % ^ & \* ( )
- **Privilege.** From the menu, select **Read-Write** or **Read-Only**.
- **Session Timeout.** Use the **Hours** and **Minutes** fields to specify the period after which a session automatically expires and the user must log in again. By default, a session expires after 45 minutes.

6. Click the **Apply** button.

Your settings are saved.

## Remove a user account

You can remove a user account that you no longer need. You cannot remove the default admin user account.

### To remove a user account:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
3. Enter the access point user name and password.  
The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.  
If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).  
The Dashboard page displays.
4. Select **Management > Configuration > System > Advanced > User Accounts**.  
The existing user accounts display.
5. Click the **X** to the right of the user account.  
A pop-up warning window opens.
6. Click the **Delete** button.  
The pop-up windows closes and the user account is removed.

## Manage neighbor AP detection

The access point can detect neighbor access points (APs) and you can classify them as known APs.

If you enable neighbor AP detection, the access point continuously scans the WiFi network, collects information about all access points on the channels, and maintains a list of access points it detects in the area. Initially all detected access points are displayed

in the Unknown AP List. You can add access points that you are familiar with to the Known AP List. You can also import a list of known access points in the Known AP List.

**Note:** If you enable Energy Efficiency Mode, the access point cannot detect neighbor APs in the 5 GHz radio band. To use neighbor AP detection in the 5 GHz radio band, first disable Energy Efficiency Mode. For more information, see [Manage the Energy Efficiency Mode](#) on page 199.

**CAUTION:** Access points in the Unknown AP List require further investigation. They could be rogue access points, which use the SSID of a legitimate network. These types of access points can present a serious security threat.

The following sections describe how you can manage neighbor AP detection and add neighbor access points to the Known AP List:

- [Enable neighbor access point detection and move access points to the Known AP List](#)
- [Import an existing neighbor access point list in the Known AP List](#)

## Enable neighbor access point detection and move access points to the Known AP List

The access point can detect neighbor access points (APs) and lets you classify them as known APs. After you enable neighbor AP detection, the access point maintains a list of access points it detects in the area. Initially all detected access points are displayed in the Unknown AP List. You can manually move access points from the Unknown AP List to the Known AP List.

By default neighbor access point detection is disabled.

### **To enable neighbor access point detection and move detected access points to the Known AP List:**

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
3. Enter the access point user name and password.  
The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Security > Neighbor AP**.

The page that displays lets you select the radio band (2.4 GHz, 5 GHz Low, or 5 GHz High).

5. Click the **>** button to the left of the radio band.

The Neighbor AP page displays for the selected radio band.

6. Select the **Enable Neighbor AP** check box.

7. Click the **Apply** button.

Your settings are saved. Neighbor AP detection is now enabled.

2.4 GHz

Enable Neighbor AP

Detection Policy Mild

Known AP List | Unknown AP List

Import Known AP List  Replace  Merge  [Download Sample](#)

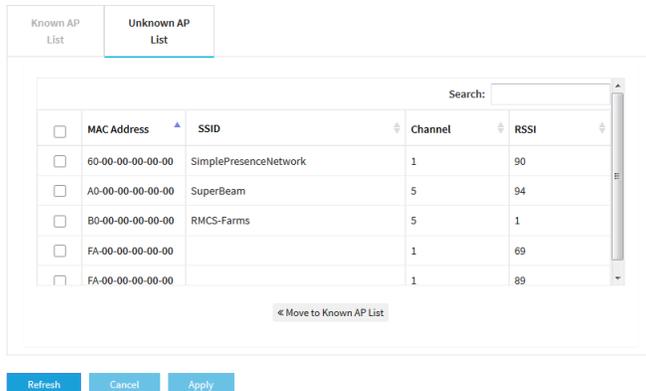
No AP list file chosen

<input type="checkbox"/>	MAC Address	SSID	Channel	RSSI

8. From the **Detection Policy** menu, select the scan method:

- **Mild.** The access point scans for neighbor access points every hour. This is the default setting.
- **Moderate.** The access point scans for neighbor access points every 30 minutes.
- **Aggressive.** The access point scans for neighbor access points every 15 minutes.

9. To move access points from the Unknown AP List to the Known AP List, do the following:
  - a. Click the **Unknown AP List** tab.



- b. If no access points display, click the **Refresh** button.
  - c. Select the check boxes for the access points that you are familiar with.
  - d. Click the **<< Move to Known AP List** button.
  - e. Click the **Known AP List** tab.  
The selected access points display in the Known AP List.

**Note:** You can delete access points from the Known AP List. After being detected, these access points once more display in the Unknown AP List.

10. Click the **Apply** button.  
Your settings are saved.

## Import an existing neighbor access point list in the Known AP List

You can import a list with MAC addresses of known neighbor access points in the Known AP List.

The file with MAC addresses must be in the following format:

- Entries in the file must be MAC addresses only in hexadecimal format with each octet separated by a hyphen, for example 00-11-22-33-44-55.
- You must separate entries with a comma.
- The file must be in text format (that is, with a .txt or .cfg extension).

For information about enabling neighbor AP detection, see [Enable neighbor access point detection and move access points to the Known AP List](#) on page 147.

**To import a list with MAC addresses of known neighbor access points in the Known AP List:**

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Security > Neighbor AP**.

The page that displays lets you select the radio band (2.4 GHz, 5 GHz Low, or 5 GHz High).

- Click the ► button to the left of the radio band.

▼ 2.4 GHz

Enable Neighbor AP

Detection Policy Mild

Known AP List | Unknown AP List

Import Known AP List  Replace  Merge  [Download Sample](#)

No AP list file chosen

<input type="checkbox"/>	MAC Address	SSID	Channel	RSSI

- To download a sample of an AP list in the format that is required for importing in the Known AP List, click the **Download Sample** link.
- Import and compose the Known AP List in the following way:
  - Replace or merge the MAC addresses in the import list with the MAC addresses in the Known AP List by selecting one of the following radio buttons:
    - Replace.** MAC addresses in the Known AP List are replaced with the ones in the import list.
    - Merge.** MAC addresses in the Known AP List are merged with the ones in the import list.
  - Click the **Browse** button and navigate to and select the import file. The MAC addresses on the import list are placed in the Known AP List.
  - To remove a MAC address from the Known AP List, select the MAC address and click the **Delete** button. When you remove a device from the Known AP List, after the access point redetects the device, the device is once again placed in the Known AP List.
- Click the **Apply** button. Your settings are saved.

# Set up RADIUS servers

If you use WPA2 Enterprise security or a RADIUS MAC ACL, you must set up RADIUS servers for authentication, accounting, or both authentication and accounting using RADIUS. You must set up primary IPv4 servers and you can set up secondary IPv4 servers. These RADIUS server settings apply either to all WiFi networks that use WPA2 Enterprise security (see [Set up an open or secure WiFi network](#) on page 56) or to all WiFi networks that use a RADIUS MAC ACL.

**Note:** WPA2 Enterprise security and a RADIUS MAC ACL are mutually exclusive. If you want to use a RADIUS MAC ACL for a WiFi network, select a different type of WiFi security (see [Set up an open or secure WiFi network](#) on page 56). If you want to use WPA2 Enterprise security for a WiFi network, use a local MAC ACL (see [Manage local MAC access control lists](#) on page 136).

If you use a RADIUS MAC ACL, you must define the ACL on the RADIUS server, using the format in the following example for client MAC addresses in the RADIUS server: If the client MAC address is 00:0a:95:9d:68:16, specify it as 000a959d6816 in the RADIUS server.

## To set up RADIUS servers:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Security > RADIUS Settings**.

The screenshot displays the RADIUS Settings configuration interface. It includes the following elements:

- Primary Authentication Server:** Fields for IPv4 Address, Port (1812), and Password (masked with dots). A blue 'Apply' button is to the right.
- Secondary Authentication Server:** Fields for IPv4 Address, Port (1812), and Password (masked with dots). A blue 'Apply' button is to the right.
- Enable Accounting:** A toggle switch currently in the off position.
- Authentication Settings:**
  - Reauthentication Time:** A field containing the value 3600.
  - Update Global Key:** A checked checkbox with a field containing the value 1800.
- Buttons:** 'Cancel' and 'Apply' buttons at the bottom left.

5. For each RADIUS server that you want to set up, configure the following settings:
  - **IPv4 Address.** Enter the IPv4 address of the RADIUS server. The access point must be able to reach this IP address.
  - **Port.** Enter the number of the UDP port on the access point that is used to access the RADIUS server. For authentication servers, the default port number is 1812. For accounting servers, the default port number is 1813.
  - **Password.** Enter the password (shared key) that is used between the access point and the RADIUS server during the authentication or accounting process. By default, the password is sharedsecret.
6. To enable accounting on the authentication servers, click the **Enable Accounting** button so that the button displays blue.
7. Configure the following authentication settings, which apply to all RADIUS server that you set up:
  - **Reauthentication time.** Enter the interval in seconds after which the supplicant (the WiFi client) must be reauthenticated with the RADIUS server. The default interval is 3600 seconds (1 hour). Enter **0** to disable reauthentication.
  - **Update Global Key.** Select the check box to allow the global key update, and enter the interval in seconds. The check box is selected by default, and the default interval is 1800 seconds (30 minutes). Clear the check box to prevent the global key update.
8. Click the **Apply** button.  
Your settings are saved.

# Enable L2 security

L2 security can prevent attacks via VLAN stacking by blocking VLAN-tagged packets on the WiFi interface. If you enable L2 security, the access point allows only certain types of client traffic, such as ARP, IPv4, and IPv6 traffic, on any WiFi network. L2 security is disabled by default.

## To enable L2 security:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Security > L2 Security**.

The L2 Security page displays.

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

By default the No radio button is selected, and L2 security is disabled.

6. Click the **Apply** button.

Your settings are saved.

# 7

## Manage the Local Area Network and IP Settings

---

This chapter describes how you can manage the local area network (LAN) and IP settings of the access point.

The chapter includes the following sections:

- [Disable the DHCP client and specify a fixed IP address](#)
- [Enable the DHCP client](#)
- [Set the 802.1Q VLAN and management VLAN](#)
- [Specify an existing domain name](#)
- [Manage port VLANs](#)
- [Enable or disable Spanning Tree Protocol](#)
- [Enable or disable the network integrity check function](#)
- [Enable or disable IGMP snooping](#)
- [Enable or disable Ethernet LLDP](#)
- [Enable or disable UPnP](#)

# Disable the DHCP client and specify a fixed IP address

By default, the DHCP client of the access point is enabled and the access point receives an IP address from a DHCP server (or a router that functions as a DHCP server) in your network. If your network does not include a DHCP server or you prefer to specify a fixed (static) IP address, disable the DHCP client of the access point.

## To disable the DHCP client and specify a fixed IP address:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > IP > LAN**.

The page that displays lets you specify the LAN settings, but the fields are masked because the DHCP client is enabled.

- Select the **Disable** radio button.

DHCP Client

Enable  Disable

IP Address: 192.168.100.113      Subnet Mask: 255.255.255.0      Gateway: 192.168.100.1

Primary DNS: 192.168.100.1      Secondary DNS: 0.0.0.0

---

802.1Q VLAN

Untagged VLAN:  1      Management VLAN: 1

---

Fully Qualified Domain Name ?

FQDN: \_\_\_\_\_

- Specify the settings that are described in the following table.

Setting	Description
IP Address	IP address in the range that is used by your LAN (usually 255.255.255.0).
Subnet Mask	The subnet mask must be compatible with your LAN.
Gateway	IP address of the gateway on your LAN.
Primary DNS	IP address of the primary Domain Name System (DNS) server on your LAN.
Secondary DNS	IP address of the secondary DNS server on your LAN, or leave this field blank.

- Click the **Apply** button.

Your settings are saved. The access point restarts with the new IP settings.

## Enable the DHCP client

By default, the DHCP client of the access point is enabled and the access point receives an IP address from a DHCP server (or a router that functions as a DHCP server) in your network.

If you disabled the DHCP client, you can reenabling it.

**To enable the DHCP client:**

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > IP > LAN**.

DHCP Client

Enable  Disable

IP Address	Subnet Mask	Gateway
<input type="text" value="192.168.100.113"/>	<input type="text" value="255.255.255.0"/>	<input type="text" value="192.168.100.1"/>
Primary DNS	Secondary DNS	
<input type="text" value="192.168.100.1"/>	<input type="text" value="0.0.0.0"/>	

---

802.1Q VLAN

Untagged VLAN <input checked="" type="checkbox"/>	Management VLAN
<input type="text" value="1"/>	<input type="text" value="1"/>

---

Fully Qualified Domain Name ?

5. Select the **Enable** radio button.

The fields are masked.

6. Click the **Apply** button.

Your settings are saved. The access point restarts with the new IP settings. It might take a while before the access point receives its IP address setting from the DHCP server.

## Set the 802.1Q VLAN and management VLAN

The 802.1Q VLAN protocol on the access point logically separates traffic on the same physical (wired) network. This protocol can work with tagged and untagged VLANs, as follows:

- **Untagged VLAN.** The access point sends untagged frames from its Ethernet interface. Incoming untagged frames are assigned to the untagged VLAN. By default, the untagged VLAN is VLAN 1. By default, the access point functions with an untagged VLAN.
- **Tagged VLAN.** The access point tags all frames that it sends from its Ethernet interface. Only the incoming frames that are tagged with known VLAN IDs are accepted.

The management VLAN is used for managing traffic such as Telnet, SNMP, and HTTP traffic to and from the access point. Frames that belong to the management VLAN and that are sent over the trunk do not receive an 802.1Q header. If a port is a member of a single VLAN, its traffic can be untagged.

### To set the 802.1Q VLAN and management VLAN:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.  
The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the

Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > IP > LAN**.

DHCP Client  
 Enable  Disable

IP Address: 192.168.100.113  
 Subnet Mask: 255.255.255.0  
 Gateway: 192.168.100.1

Primary DNS: 192.168.100.1  
 Secondary DNS: 0.0.0.0

---

802.1Q VLAN

Untagged VLAN  Management VLAN  
 1 1

---

Fully Qualified Domain Name ?

FQDN

Cancel Apply

5. To change the 802.1Q VLAN, either clear or select the **Untagged VLAN** check box:

- **Untagged VLAN.** By default, the **Untagged VLAN** check box is selected. The access point sends untagged frames from its Ethernet interface. Incoming untagged frames are assigned to the untagged VLAN. By default, the untagged VLAN is VLAN 1 but you can enter another VLAN ID in the field if that VLAN ID is supported on your network.
- **Tagged VLAN.** Clear the **Untagged VLAN** check box only if the hubs and switches on your LAN support the 802.1Q VLAN protocol. The access point tags all frames that it sends from its Ethernet interface. Only the incoming frames that are tagged with known VLAN IDs are accepted. Similarly, change the ID for the untagged VLAN only if the hubs and switches on your LAN support the 802.1Q VLAN protocol and the new VLAN ID is supported on your network.

6. To change the VLAN ID for the management VLAN, enter another VLAN ID in the **Management VLAN** field.

By default, the management VLAN is VLAN 1. If you change the VLAN ID, be sure that the VLAN ID is supported on your network.

7. Click the **Apply** button.

Your settings are saved. The access point restarts with the new VLAN settings.

## Specify an existing domain name

You can specify an existing fully qualified domain name (FQDN) for the access point so that you can access the access point by using a domain name instead of an IP address. The FQDN must be a domain name that is registered with a Domain Name System (DNS) provider.

The following are the requirements for the FQDN:

- The length can be from 1 to 64 characters.
- Alphanumeric characters are allowed (a-z and 1-9)
- A dot (.) and a hyphen (-) are allowed but the name cannot start with either.

An example is *myap01\_firstfloor\_myorganization.com*.

### To specify a FQDN:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > IP > LAN**.

DHCP Client  
 Enable  Disable

IP Address: 192.168.100.113      Subnet Mask: 255.255.255.0      Gateway: 192.168.100.1

Primary DNS: 192.168.100.1      Secondary DNS: 0.0.0.0

---

802.1Q VLAN

Untagged VLAN       Management VLAN

1      1

---

Fully Qualified Domain Name ?

FQDN

5. In the **Fully Qualified Domain Name** field, specify the FQDN.6. Click the **Apply** button.

Your settings are saved. The access point attempts to resolve the FQDN to an IP address.

## Manage port VLANs

A virtual LAN (VLAN) is a local area network (LAN) that maps devices on a basis other than geographic location, for example, by department, type of user, or primary application. Traffic that flows between different VLANs must go through a router, just as if the VLANs are on two separate LANs.

A VLAN is a group of network devices (WiFi clients, access points, computers, servers, and other resources) that behave as if they are connected to a single network segment, even though they might not be.

When multiple VLANs exist on your network, decide the following:

- Decide which access point ports must be members of which VLAN. All ports that are members of a VLAN receive traffic that is sent on that VLAN.

- Decide whether an access point port must be a tagged member or an untagged member of the VLAN:
  - **Tagged member.** A port is tagged for a VLAN when traffic that leaves the access point through that port includes an IEEE 802.1Q header with that VLAN's numerical identifier (VLAN ID) on it.
  - **Untagged member.** If a port is an untagged member of a VLAN, the access point removes the existing 802.1Q header before sending traffic through that port. Each port can be an untagged member of a single VLAN only. If a port is already an untagged member of a VLAN, you cannot add it as an untagged member of any other VLANs. All untagged traffic that enters the access point is assigned to the default or native VLAN, which is VLAN 1. By default, VLAN 1 is also the default management VLAN on the access point (see [Set the 802.1Q VLAN and management VLAN](#) on page 159).

## View the port and WiFi VLANs and add a port VLAN profile

You can view the default and custom port and WiFi VLANs and add a custom port VLAN profile. You can add up to 32 VLAN profiles.

By default, LAN ports 1 through 4 are untagged members of VLAN 1.

**Note:** When you add a port VLAN, you cannot change the configuration of a trunk port. For more information about trunk ports, see [Change the port mode or port VLAN ID for a port](#) on page 167.

### To view the port and WiFi VLANs and add a port VLAN profile:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
3. Enter the access point user name and password.  
The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.  
If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the

Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wired > VLAN**.

The VLAN page displays.

The Wired VLAN(s) table shows the port VLAN profiles. The default VLAN is VLAN 1, which includes all ports as members.

The Wireless VLAN(s) table shows the WiFi VLAN profiles. When you create a WiFi network (see [Set up an open or secure WiFi network](#) on page 56), you must define a VLAN ID, which displays in this table.

5. To add a port VLAN profile, do the following:

- a. Click the **Add** button.

A pop-up window opens.

- b. In the **VLAN ID** field, enter the ID for the VLAN.

This must be the ID for a VLAN that already exists in your network.

- c. In the **VLAN Name** field, enter the name for the VLAN.

- d. In the ports graphic, do the following to select the port or ports that must be members of the VLAN:

- **Include as a untagged port.** Click the port once. A "U" displays in the port.
- **Include as a tagged port.** Click the port twice. A "T" displays in the port.
- **Do not include.** This is the default setting for a port. After you click a port twice, click a third time to deselect the port. A port that you do not select is excluded from the VLAN. Neither a "U" nor a "T" displays in the port.

- e. Click the **Apply** button.

Your settings are saved. The pop-up window closes and the new port VLAN profile displays in the Wired VLAN(s) table.

## Change a port VLAN profile

You can change the default port VLAN profile or a port VLAN profile that you added. You cannot change the VLAN ID but you can change the VLAN name and the port selection for the VLAN.

For information about changing the VLAN ID for a WiFi network, see [Change the VLAN ID for a WiFi network](#) on page 72.

### To change a port VLAN profile:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wired > VLAN**.

The VLAN page displays.

5. Select the check box for a VLAN.

6. Click the **Edit** button.

A pop-up window opens.

7. Change the settings:

- a. To change name for the VLAN, in the **VLAN Name** field, enter a new name.

- b. To change the port selection for the VLAN, in the ports graphic, do the following:

- **Include as a untagged port.** Click the port until a "U" displays in the port.
- **Include as a tagged port.** Click the port until a "T" displays in the port.
- **Do not include.** Click the port until neither a "U" nor a "T" displays in the port. A port that you do not select is excluded from the VLAN.

- c. Click the **Apply** button.

Your settings are saved. The pop-up window closes and the changed port VLAN profile displays in the Wired VLAN(s) table.

## Remove a port VLAN profile

You can remove a port VLAN profile from the access point. You cannot remove the default port VLAN profile.

### To remove a port VLAN profile:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
3. Enter the access point user name and password.  
The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.  
If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).  
The Dashboard page displays.
4. Select **Management > Configuration > Wired > VLAN**.  
The VLAN page displays.
5. Select the check box for the VLAN.
6. Click the **Delete** button.  
A pop-up warning window opens.
7. Click the **Delete** button in the pop-up window.  
The pop-up window closes and your settings are saved. The port VLAN profile is removed.

## About trunk mode, access mode, and port VLAN IDs

In an 802.1Q VLAN configuration, you can assign one of the following port modes to a port in a VLAN:

- **Access mode.** A port that functions in access mode can belong to a single VLAN only and does not tag the traffic that it processes. You would typically use access

mode for a port that is connected to an end device such as a printer, media device, or computer. When a port that functions in access mode receives data that is untagged, the data is delivered normally. When a port that functions in access mode receives data that is tagged for a VLAN other than the one the port belongs to, the data is discarded.

- **Trunk mode.** A port that functions in trunk mode automatically belongs to all VLANs on the access point and tags the traffic that it processes. You would typically use trunk mode for a port that is connected to another network device. For example, you would assign trunk mode for an uplink to a root access point, a switch, or router and for a downlink to a switch. By default, port 1 functions in trunk mode as an uplink.

A default port VLAN ID (PVID) is a VLAN ID tag that the access point assigns to incoming data packets that are not already addressed (tagged) for a particular VLAN. For example, if you connect a computer to port 2 of the access point and you want it to be a part of VLAN 4, add port 2 as a member of VLAN 4 and set the PVID of port 2 to 4. This configuration automatically adds a PVID of 4 to all data that the access point receives from the computer and makes sure that the data from the computer on port 2 can be seen only by other members of VLAN 4. You can assign only one PVID to a port.

## Change the port mode or port VLAN ID for a port

A port can function in trunk mode or access mode.

By default, port 1 functions in trunk mode as an uplink. Ports 2, 3, and 4 function in access mode as downlinks. By default, all ports are untagged members of VLAN 1, that is, their PVID is 1.

**Note:** All WiFi ports function in access mode. You cannot change the port mode for a WiFi port.

### To change the port mode or port VLAN ID (PVID) for a port:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > Wired > VLAN**.

The VLAN page displays.

5. Click the **Ports** tab.

The Ports page displays.

6. To change the mode for a port, from the **Type** menu, one of the following modes:

- **Access.** The port functions as an access port. You *can* change the associated PVID.
- **Trunk.** The port functions as a trunk port. The associated PVID must be the untagged VLAN that you specified as part of the IPv4 LAN settings for the access point (see [Set the 802.1Q VLAN and management VLAN](#) on page 159).

7. To change the PVID for a port that functions as an access port, from the **PVID** menu, select the VLAN ID.

**CAUTION:** If you access the access point over an Ethernet port, make sure that the port is a member of the management VLAN. Otherwise, you are disconnected from the local browser interface.

8. Click the **Apply** button.

Your settings are saved.

## Enable or disable Spanning Tree Protocol

For locations where multiple access points are active and redundant network paths might be present, Spanning Tree Protocol (STP) can prevent network loops. If your location might include redundant network paths, we recommend that you enable STP.

### To enable or disable Spanning Tree Protocol:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > System > Advanced > General**.

The General page displays.

5. Select one of the following radio buttons:

- **Enable**. STP is enabled.
- **Disable**. STP is disabled. This is the default setting.

6. Click the **Apply** button.

Your settings are saved.

## Enable or disable the network integrity check function

The network integrity check function enables the access point to validate whether the upstream link is active before the access point allows WiFi associations. Make sure that the default gateway is configured correctly. By default, the network integrity check function is disabled.

### To enable or disable the network integrity check function:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > System > Advanced > General**.

The General page displays.

5. Select one of the following radio buttons:

- **Enable**. The network integrity check function is enabled.
- **Disable**. The network integrity check function is disabled. This is the default setting.

6. Click the **Apply** button.

Your settings are saved.

## Enable or disable IGMP snooping

IGMP snooping allows IP multicast packets to be transmitted only to the members of a corresponding multicast group. Enabling IGMP snooping prevents flooding of multicast traffic to all the ports in a broadcast domain. By default IGMP snooping is disabled on the access point.

### To enable or disable IGMP snooping:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > System > Advanced > General**.

The General page displays.

5. Select one of the following radio buttons:

- **Enable**. IGMP snooping is enabled.
- **Disable**. IGMP snooping is disabled. This is the default setting.

6. Click the **Apply** button.

Your settings are saved.

## Enable or disable Ethernet LLDP

Link Layer Discovery Protocol (LLDP), as specified in IEEE 802.1AB, can provide link-layer messages to adjacent network devices. For example, LLDP lets network devices such as switches and management devices discover the access point in a network.

### To enable or disable the LLDP:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > System > Advanced > Ethernet LLDP**.

The Ethernet LLDP page displays.

5. Select one of the following radio buttons:

- **Enable**. LLDP is enabled. This is the default setting.
- **Disable**. LLDP is disabled.

6. Click the **Apply** button.

Your settings are saved.

## Enable or disable UPnP

Universal Plug and Play (UPnP) lets the access point be discovered by other devices in the network that support UPnP. UPnP is enabled by default.

### To enable or disable UPnP:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the

Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > System > Advanced > UPnP**.

The UPnP page displays.

5. Select one of the following radio buttons:

- **Enable**. UPnP is enabled. This is the default setting.
- **Disable**. UPnP is disabled.

6. Click the **Apply** button.

Your settings are saved.

# 8

## Manage and Maintain the Access Point

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This chapter describes how you can manage and maintain the access point.

The chapter includes the following sections:

- [Change the management mode to NETGEAR Insight or Web-browser](#)
- [Change the country or region of operation](#)
- [Change the admin user account password](#)
- [Change the system name](#)
- [Specify a custom NTP server](#)
- [Set the time zone](#)
- [Manage the syslog settings](#)
- [Manage the firmware of the access point](#)
- [Manage the configuration file of the access point](#)
- [Reboot the access point from the local browser interface](#)
- [Schedule the access point to reboot](#)
- [Return the access point to its factory default settings](#)
- [Enable SNMP and manage the SNMP settings](#)
- [Manage the LEDs](#)
- [Manage the Energy Efficiency Mode](#)

# Change the management mode to NETGEAR Insight or Web-browser

The access point can function in one of the following management modes:

- **NETGEAR Insight mode.** For NETGEAR Insight Premium and Insight Pro subscribers, you can manage the access point remotely from a mobile device on which the NETGEAR Insight app is installed or through the Insight Cloud portal. The NETGEAR Insight mode is the default setting. In this mode, you *can* connect to the access point over the local browser interface, but only a basic and limited local browser interface is available. For information about the Insight app and Insight Cloud portal, visit [insight.netgear.com](https://insight.netgear.com) and see the NETGEAR knowledge base at [netgear.com/support/product/insight.aspx](https://netgear.com/support/product/insight.aspx).

**IMPORTANT:** When you change the management mode from Web-browser mode to NETGEAR Insight mode, the configuration of the access point is reset (cleared) with the exception of the IP address, access point name, and password for the local browser interface. The access point restarts and broadcasts SSID Netgearxxxxxx, in which xxxxxx represents the last six hexadecimal digits of the access point's MAC address. The MAC address is listed on the product label. The default WiFi passphrase is **sharedsecret**.

- **Web-browser mode.** You can manage the access point locally from a WiFi or wired device through the local browser interface. In this mode, the access point functions as a standalone device and is not connected to the Insight cloud-based management platform.

**IMPORTANT:** If you first add the access point to a NETGEAR Insight network location and manage the access point through the Insight app or Insight Cloud portal and then you change the management mode to Web-browser mode, you must continue to use the Insight network password to access the local browser interface until you manually change the admin password on the access point.

## To change the management mode to NETGEAR Insight mode or Web-browser mode:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > System > Basic > Management Mode**.

The Management Mode page displays.

5. Select one of the following radio buttons:

- **NETGEAR Insight**. The access point functions in NETGEAR Insight management mode.
- **Web-browser**. The access point functions in Web-browser management mode.

**WARNING:** When you change the management mode from Web-browser mode to NETGEAR Insight mode, the configuration of the access point is reset (cleared) with the exception of the IP address, access point name, and password for the local browser interface. The access point restarts and broadcasts SSID Netgearxxxxxx, in which xxxxxx represents the last six hexadecimal digits of the access point's MAC address. The MAC address is listed on the product label. The default WiFi passphrase is **sharedsecret**.

6. Click the **Apply** button.

A pop-up warning window opens.

7. Click the **OK** button.

The pop-up window closes and your settings are saved. The access point restarts in the new management mode.

# Change the country or region of operation

You can change the country or region in which the access point operates. Note the following:

- Make sure that the country is set to the location where the device is operating. You are responsible for complying with the local, regional, and national regulations that are set for channels, power levels, and frequency ranges.
- It might not be legal to operate the access point in a country or region other than those listed in the menu. If your country or region is not listed in the menu, you must check with your local government agency or check the NETGEAR website for information about which channels you can use.

## To change the country or region of operation:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > System > Basic**.

The General page displays the basic system settings.

5. Select a country or region from the **Country / Region** menu.

6. Click the **Apply** button.

A pop-up warning window opens.

7. Click the **OK** button.

The pop-up window closes and your settings are saved. The access point restarts with the default WiFi settings that are specific to the selected country or region.

## Change the admin user account password

This admin user account password is the password that you must use to log in to the local browser interface of the access point with the user name admin. (It is not the passphrase that you use for WiFi access.)

The password must be 8 to 63 characters in length and must contain at least one uppercase letter, one lowercase letter, and one number. The following special characters are allowed:

! @ # \$ % ^ & \* ( )

### To change the password for the user name admin:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > System > Advanced > User Accounts**.

The page that displays lets you change the user accounts.

5. Next to admin, in the **Password** field, enter the new password.

6. In the **Confirm Password** field, enter the same new password.

**Note:** You cannot change the user name. The name must remain admin.

7. Click the **Apply** button.

Your settings are saved. The next time that you log in to the access point, you must use the new password. If you forget the new password, you must reset the access point to factory default settings. Doing so restores the password to the default password.

## Change the system name

The system name is a unique NetBIOS name for the access point. The default system name is located on the access point label. By default, the system name is Netgearxxxxxx, in which xxxxxx represents the last six hexadecimal digits of the access point's MAC address.

### To change the system name:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > System > Basic**.

The General page displays the basic system settings.

5. Enter a new name in the **System Name** field.

Using the following guidelines:

- The name must contain alphanumeric characters, can contain hyphens, and cannot be longer than 15 characters.

- The name cannot start or end with a hyphen.
  - The name must contain at least one alphabetical character.
6. Click the **Apply** button.  
Your settings are saved.

## Specify a custom NTP server

By default, the access point receives its time from a default NETGEAR Network Time Protocol (NTP) server, but you can also specify a custom NTP server.

### To specify a custom NTP server:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > System > Basic > Time**.

The screenshot shows the 'Time' configuration page. It includes a 'Time Zone' dropdown menu set to 'USA-Pacific', a 'Current Time (24-hour)' display showing 'Tue Dec 13 14:14:54 PST 2016', an 'NTP Client' section with 'Enable' selected, a 'Use Custom NTP Server' checkbox, and radio buttons for 'Hostname' (selected) and 'IP Address'. The hostname field contains 'time-b.netgear.com'. At the bottom are 'Cancel' and 'Apply' buttons.

By default, the **Enable** radio button is selected and the access point receives its time from a default NETGEAR NTP server.

5. Select the **Use Custom NTP Server** check box.
6. Take one of the following actions:
  - Enter the host name of the NTP server.  
By default, the **Hostname** radio button is selected.
  - Select the **IP address** radio button and enter the IP address of the NTP server.
7. Click the **Apply** button.

Your settings are saved. When the access point connects over the Internet to the new NTP server, the date and time that display on the page are adjusted according to your settings.

For information about setting the time zone, see [Set the time zone](#) on page 181.

## Set the time zone

The access point might detect the time zone automatically or you might need to adjust the time zone and daylight saving time settings. When the access point synchronizes its clock with a Network Time Protocol (NTP) server, the page shows the date and time. If the page does not show the correct date and time, you might need to set the time zone and adjust the daylight saving time setting.

### To set the time zone and adjust the daylight saving time setting:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
3. Enter the access point user name and password.  
The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.  
If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the

Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > System > Basic > Time**.

The page that displays lets you change the time settings.

5. From the **Time Zone** menu, select the time zone for the area in which the access point operates.
6. Click the **Apply** button.

Your settings are saved. When the access point connects over the Internet to an NTP server, the date and time that display on the page are adjusted according to your settings.

For information about other time settings, see [Specify a custom NTP server](#) on page 180.

## Manage the syslog settings

If a syslog server is present on your network, you can configure the access point to send its system logs to the syslog server.

### To manage the syslog settings and enable the syslog function:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > System > Advanced > Syslog**.

Enable Syslog <input type="checkbox"/>	Syslog Server IP Address 192.168.0.1	Port Number 514
<div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>Cancel</span> <span>Apply</span> </div>		

5. Specify the IP address and port number for the syslog server:
  - **Syslog Server IP Address.** Enter the IP address of the syslog server on your network.
  - **Port Number.** Enter the port number at which the syslog can be reached. By default, the port number is 514.
6. To enable the syslog server function, select the **Enable Syslog** check box.
7. Click the **Apply** button.  
Your settings are saved.

## Manage the firmware of the access point

The access point firmware is stored in flash memory.

You can check to see if new firmware is available and upgrade the access point to the new firmware. You can also visit the NETGEAR support website, download the firmware manually to a local computer, and update the access point to the new firmware. If someone (usually the network administrator) places new firmware on a secure FTP (SFTP) server in the network, you can load the firmware from the server and upgrade the firmware of the access point.

Depending on how you are connected to the access point, we recommend the following firmware update methods:

- **WiFi connection:** If you are connected over WiFi to the access point, let the access point check the Internet to see if new firmware is available. See [Check for new firmware and upgrade the access point](#) on page 184.  
With this method, if new firmware is available, it is downloaded directly to the access point.
- **LAN connection:** If you are connected over the LAN to the access point, manually update the firmware from a computer or SFTP server. See [Manually download firmware and upgrade the access point](#) on page 185 or [Use an SFTP server to upgrade the access point](#) on page 188.

With this mode, if new firmware is available, you must either download it to your computer and then upload it to the access point or upload it from an SFTP server to the access point.

The following sections describe the firmware management methods:

- [Check for new firmware and upgrade the access point](#)
- [Manually download firmware and upgrade the access point](#)
- [Revert to the backup firmware](#)
- [Use an SFTP server to upgrade the access point](#)

### Check for new firmware and upgrade the access point

For you to check for new firmware, the access point must be connected to the Internet.

#### **To check for new firmware and upgrade your access point:**

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Click the **Check for Upgrade** button.

The access point detects new firmware if any is available and displays a message asking if you want to download and install it.

5. To download and install the new firmware, follow the prompts and dialog boxes.

The access point locates the firmware, downloads it, and begins the upgrade.

**WARNING:** To avoid the risk of corrupting the firmware, do not interrupt the upgrade. For example, do not close the browser, click a link, or load a new page. Do not turn off the access point. Wait until the access point finishes restarting and the Power LED remains solid green.

The firmware upgrade process takes several minutes. When the upgrade is complete, your access point restarts.

6. Verify that the access point runs the new firmware version by logging back in to the access point.

The firmware version is stated on the Dashboard page.

7. Read the new firmware release notes to determine whether you must reconfigure the access point after upgrading.

## Manually download firmware and upgrade the access point

Downloading firmware to a local computer and upgrading the access point are two separate tasks that are combined in the following procedure. After you upgrade the access point to new firmware, the old firmware is saved as backup firmware so that you can revert to it (see [Revert to the backup firmware](#) on page 187).

**IMPORTANT:** When you install an older firmware version (or the backup firmware version), that is, you downgrade rather than upgrade the firmware, the configuration of the access point is reset (cleared) with the exception of the IP address, access point name, and password for the local browser interface. The access point restarts and broadcasts SSID Netgearxxxxxx, in which xxxxxx represents the last six hexadecimal digits of the access point's MAC address. The MAC address is listed on the product label. The default WiFi passphrase is **sharedsecret**.

### To download firmware manually and upgrade your access point:

1. Visit [netgear.com/support/download/](http://netgear.com/support/download/), locate the support page for your product, and download the new firmware.
2. Read the new firmware release notes to determine whether you must reconfigure the access point after upgrading.
3. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
4. Enter the IP address that is assigned to the access point.  
A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

5. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

6. Select **Management > Maintenance > Upgrade > Firmware Upgrade**.

The Firmware Upgrade page displays.

7. Make sure that **Local** is selected from the **Upgrade Options** menu.

Local is the default selection.

8. Locate and select the firmware file on your computer by doing the following:

- a. Click the **Browse** button.
- b. Navigate to the firmware file.  
The filename ends in `.tar`.
- c. Select the firmware file.

9. Click the **Upgrade** button.

**WARNING:** To avoid the risk of corrupting the firmware, do not interrupt the upgrade. For example, do not close the browser, click a link, or load a new page. Do not turn off the access point. Wait until the access point finishes restarting and the Power LED remains solid green.

The firmware upgrade process takes several minutes. When the upgrade is complete, the access point restarts.

10. Verify that the access point runs the new firmware version by logging back in to the access point.

The firmware version is stated on the Dashboard page.

## Revert to the backup firmware

After you upgrade the access point to new firmware, the old firmware is saved as backup firmware so that you can revert to it.

**IMPORTANT:** When you revert to the backup firmware and the backup firmware is an earlier version than the firmware version that is running on the access point, the configuration of the access point is reset (cleared) with the exception of the IP address, access point name, and password for the local browser interface. The access point restarts and broadcasts SSID Netgearxxxxxx, in which xxxxxx represents the last six hexadecimal digits of the access point's MAC address. The MAC address is listed on the product label. The default WiFi passphrase is **sharedsecret**.

### To revert to the backup firmware on the access point:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Maintenance > Upgrade > Firmware Upgrade**.

The Firmware Upgrade page displays. The page shows both the current firmware version and the backup firmware version.

5. Click the **Bootup Backup Firmware** button.

A pop-up warning window opens.

**IMPORTANT:** When you revert to the backup firmware, the configuration of the access point is reset (cleared) with the exception of the IP address, access point name, and password for the local browser interface. The access point restarts and broadcasts SSID Netgearxxxxxx, in which xxxxxx represents the last six hexadecimal digits of the access point's MAC address. The MAC address is listed on the product label. The default WiFi passphrase is **sharedsecret**.

6. Click the **Swap** button.

The pop-up window closes, the firmware reversion process initiates, and the access point restarts.

**WARNING:** To avoid the risk of corrupting the firmware, do not interrupt the reversion. For example, do not close the browser, click a link, or load a new page. Do not turn off the access point. Wait until the access point finishes restarting and the Power LED remains solid green.

7. Verify that the access point runs the backup firmware version by logging back in to the access point.

The firmware version is stated on the Dashboard page.

## Use an SFTP server to upgrade the access point

If someone (usually the network administrator) places new firmware on a secure FTP (SFTP) server in the network, you can load the firmware from the SFTP server and upgrade the firmware of the access point.

### To upgrade the firmware of the access point from an SFTP server:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the

Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Maintenance > Upgrade > Firmware Upgrade**.

The Firmware Upgrade page displays.

5. From the **Upgrade Options** menu, select **SFTP**.

6. Specify the following server settings:

- **Firmware File.** The name of the access point firmware file on the SFTP server.
- **SFTP Server IP.** The IP address of the SFTP server on your network.
- **User Name.** The user name that is required to access the SFTP server.
- **Password.** The password that is required to access the SFTP server.

7. Click the **Upgrade** button.

**WARNING:** To avoid the risk of corrupting the firmware, do not interrupt the upgrade. For example, do not close the browser, click a link, or load a new page. Do not turn off the access point. Wait until the access point finishes restarting and the Power LED remains solid green.

The firmware upgrade process takes several minutes. When the upgrade is complete, the access point restarts.

8. Verify that the access point runs the new firmware version by logging back in to the access point.

The firmware version is stated on the Dashboard page.

## Manage the configuration file of the access point

The configuration settings of the access point are stored within the access point in a configuration file. You can back up (save) this file to your computer or restore it.

### Back up the access point configuration

You can save a copy of the current configuration settings. If necessary, you can restore the configuration settings later.

**Note:** The backup file is saved in a binary format so that it is protected and cannot be opened by a regular application.

**To back up the access point's configuration settings:**

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Maintenance > Upgrade > Backup and Restore > Backup Settings**.

The Backup Settings page displays.

5. Click the **Backup** button.

A pop-up window opens.

6. Enter a password to protect the backup file, and click the **Continue** button.

You can either using your existing password (the one that you use to log in to the access point) or enter a unique password.

The password must be 8 to 63 characters in length and must contain at least one uppercase letter, one lowercase letter, and one number.

**Tip:** We recommend that you write down the password because you must enter it again if you restore the configuration from the backup file.

7. Choose a location to store the file on your computer.

The name of the backup file is `WAC564-WAC564-dd-mm-yy_hh-mm-ss-config.tar`, in which dd is the date, mm is the month, yy is the year, hh is the hour (in 24-hour format), mm is the minutes, and ss is the seconds.

An example of a name of a backup file is  
`WAC564-WAC564-08-01-19_19-10-32-config.tar`.

8. Follow the directions of your browser to save the file.

## Restore the access point configuration

If you backed up the configuration file, you can restore the configuration from this file.

### To restore configuration settings that you backed up:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Maintenance > Upgrade > Backup and Restore > Restore Settings**.

The Restore Settings page displays.

5. Click the **Browse** button and navigate to and select the saved configuration file.

The name of the backup file is `WAC564-WAC564-dd-mm-yy_hh-mm-ss-config.tar`, in which dd is the date, mm is the month, yy is the year, hh is the hour (in 24-hour format), mm is the minutes, and ss is the seconds.

An example of a name of a backup file is  
`WAC564-WAC564-08-01-19_19-10-32-config.tar`.

6. Click the **Restore** button.  
A pop-up window opens.
7. Enter the password that you specified when you saved the backup file, and click the **Continue** button.
8. Click the **Restore** button.  
The pop-up window closes and the configuration is uploaded to the access point. When the restoration is complete, the access point reboots. This process takes about two minutes.

**WARNING:** To avoid the risk of corrupting the firmware, do not interrupt the restoration. For example, do not close the browser, click a link, or load a new page. Do not turn off the access point. Wait until the access point finishes restarting and the Power LED turns solid green.

## Reboot the access point from the local browser interface

If you cannot physically access the access point to reboot it (that is, disconnect the power and reconnect the power), you can use the local browser interface to reboot the access point.

### To reboot the access point:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
3. Enter the access point user name and password.  
The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.  
If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the

Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Maintenance > Reset > Reboot AP**.

The Reboot AP page displays.

5. Click the **Reboot AP** button.

A pop-up warning window opens.

6. Click the **Reboot** button.

The pop-up window closes and the access point reboots, which takes about one minute.

## Schedule the access point to reboot

You can schedule the access point to reboot at a time that is more convenient for the network, for example, when you do not expect any WiFi clients (or only a few) to be connected to the access point.

### To schedule the access point to reboot:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Maintenance > Reset > Reboot AP**.

The Reboot AP page displays.

5. Click the **Enable Scheduled Reboot** button so that the button displays blue.  
The scheduling controls display.
6. Select the check box for the day on which you want the access point to reboot.  
You can select multiple days.
7. Using the **Start Time** menus, specify the hour and minutes for the time at which the access point must reboot.  
Specify the hour in 24-hour format.
8. Click the **Apply** button.  
Your settings are saved.

## Return the access point to its factory default settings

Under some circumstances (for example, if you lost track of the changes that you made to the access point settings or you move the access point to a different network), you might want to erase the configuration and reset the access point to factory default settings.

If you do not know the current IP address of the access point, first try to use an IP scanner application to detect the IP address before you reset the access point to factory default settings.

To reset the access point to factory default settings, you can use either the **Reset** button on the side of the access point or the use the reset function in the local browser interface. However, if you cannot find the IP address or lost the password to access the access point, you must use the **Reset** button.

After you reset the access point to factory default settings, the password for the admin user name is password, the access point's DHCP client is enabled, the default SSID is shown in the format NETGEARxxxxx-SETUP, and the default password for WiFi access is sharedsecret. If the access point does not receive an IP address from a DHCP server, the LAN IP address is set to 192.168.0.100.

For an extensive list of factory default settings, see [Factory default settings](#) on page 253.

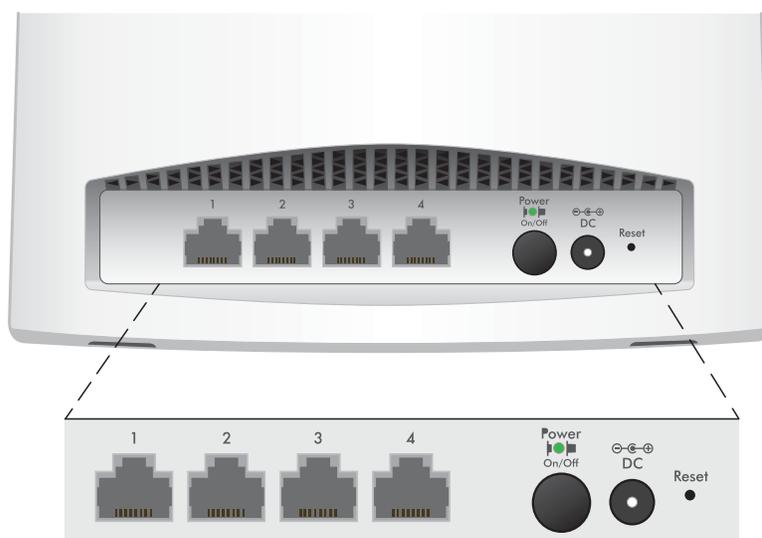
## Use the Reset button to reset the access point

You can use the **Reset** button to return the access point to its factory default settings. However, if you added the access point to a NETGEAR Insight network location, you must first use the Insight app or Insight Cloud portal to remove the access point from the Insight network location before the factory default settings function of the **Reset** button is available.

**CAUTION:** This process erases all settings that you configured in the access point.

### To reset the access point to factory default settings:

1. On the back panel of the access point, locate the recessed **Reset** button (see **1** in the following figure) at the opposite end of the DC power connector.



2. Using a straightened paper clip, press and hold the **Reset** button for at least 10 seconds.

**Note:** If you hold the **Reset** button for less than 10 seconds and then release it, the access point reboots rather than returning to its factory default settings.

3. Release the **Reset** button.

The configuration is reset to factory default settings. When the reset is complete, the access point reboots. This process takes about two minutes.

**WARNING:** To avoid the risk of corrupting the firmware, do not interrupt the reset. Do not turn off the access point. Wait until the access point finishes restarting and the Power LED turns solid green.

## Use the local browser interface to reset the access point

You can use the access point's local browser interface to return the access point to its factory default settings.

**CAUTION:** This process erases all settings that you configured in the access point.

### To erase the settings:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Maintenance > Reset > Restore Defaults**.

The Restore Defaults page displays.

5. Click the **Restore Defaults** button.

A pop-up warning window opens.

6. Click the **Restore** button.

The pop-up window closes and the configuration is reset to factory default settings. When the reset is complete, the access point reboots. This process takes about two minutes.

**WARNING:** To avoid the risk of corrupting the firmware, do not interrupt the reset. For example, do not close the browser, click a link, or load a new page. Do not turn off the access point. Wait until the access point finishes restarting and the Power LED turns solid green.

# Enable SNMP and manage the SNMP settings

You can access the access point over a Simple Network Management Protocol (SNMP) connection, which allows SNMP network management software such as HP OpenView to manage the access point by using the SNMPv1 or v2 protocol. By default, SNMP is disabled.

## To enable SNMP and manage the SNMP settings:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Maintenance > Remote Management**.

The Remote Management page displays.

5. Select the SNMP **Enable** radio button.

By default, SNMP is disabled.

The screenshot shows a configuration window with the following settings:

- Telnet:**  Enable,  Disable
- Secure Shell (SSH):**  Enable,  Disable
- SNMP:**  Enable,  Disable
- Read-Only Community Name:** public
- Read-Write Community Name:** private
- Trap Community Name:** trap
- IP Address (to receive traps):** 192.168.0.1
- Trap Port:** 162

Buttons: Cancel, Apply

6. Specify the following settings:

- **Read-Only Community Name.** The community string that allows the SNMP manager to read the access point's MIB objects. The default is public.
- **Read-Write Community Name.** The community string that allows the SNMP manager to read and write the access point's MIB objects. The default is private.
- **Trap Community Name.** The community name that is associated with the IP address at which traps must be received. The default is trap.
- **IP address (to receive traps).** The IP address of the SNMP manager that must receive the traps.
- **Trap Port.** The port number at which the SNMP manager must receive traps. The default is 162.

7. Click the **Apply** button.

Your settings are saved.

## Manage the LEDs

By default, all LEDs are enabled and function as described in [Front and top panel with Ring LED](#) on page 13 and [Back panel with Power LED](#) on page 15. You can manage whether the LEDs light at all. This function is useful if the access point must function in a dark environment.

### To enable or disable the LEDs:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > System > Advanced > LED Control**.

The LED Control page displays.

5. Select one of the following radio buttons:

- **Enable All LEDs**. All LEDs are enabled. This is the default setting.
- **Disable All LEDs**. All LEDs are disabled.
- **Enable Power LED**. All LEDs are disabled except for the Power LED.

6. Click the **Apply** button.

Your settings are saved.

## Manage the Energy Efficiency Mode

If no WiFi clients are connected to the access point, the access point can automatically enter Energy Efficiency Mode (EEM) to reduce power consumption and save energy. When one or more WiFi clients connect, the access point automatically leaves the EEM to resume normal operation.

If EEM is enabled and no WiFi clients are connected to the access point, antenna stream operation is limited to 1x1. (Under normal circumstances, the access point can support

multiple antenna streams.) If a WiFi client initiates a connection to the access point, the antenna streams resume normal operation.

Note the following restrictions:

- **Wireless distribution system:** EEM is mutually exclusive with a wireless distribution system (WDS, see [Set up a WiFi bridge between access points](#) on page 128).
- **Neighbor AP detection:** EEM does not let the 5 GHz radios detect neighbor APs (see [Manage neighbor AP detection](#) on page 146).
- **DFS channels:** When WiFi clients connect to the access point and the access point resumes normal operation, 5 GHz radio transmissions can be temporarily suspended if the access point operates in a DFS channel (about 1 minute suspension for a DFS channel; about 10 minutes suspension for a weather DFS channel).

**Note:** If use you EEM, we recommend that you enable band steering in your WiFi networks. Band steering lets 5-GHz-capable WiFi clients that are connected to the 2.4 GHz band to be steered to the 5 GHz band for improved performance. For more information, see [Enable or disable band steering with 802.11k RRM and 802.11v WiFi network management](#) on page 70.

### To enable or disable the Energy Efficiency Mode:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Configuration > System > Advanced > Energy Efficiency Mode**.

The Energy Efficiency Mode page displays.

5. Select a radio button:
  - **Enable:** Energy Efficiency Mode is enabled.
  - **Disable:** Energy Efficiency Mode is disabled. This is the default setting.
6. Click the **Apply** button.  
Your settings are saved.

# 9

## Monitor the Access Point and the Network

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This chapter describes how you can monitor the access point and the network.

The chapter includes the following sections:

- [View the access point Internet, IP, and system settings](#)
- [View the WiFi radio settings](#)
- [View unknown and known neighbor access points](#)
- [View client distribution, connected clients, and client trends](#)
- [View WiFi and Ethernet traffic, traffic and ARP statistics, and channel utilization](#)
- [View or download tracked URLs](#)
- [View, save, download, or clear the logs](#)
- [View a WiFi bridge connection](#)
- [View the data volume consumption](#)
- [View Air Time Fairness client distribution](#)
- [View the traffic analysis results](#)
- [View alarms and notifications](#)

# View the access point Internet, IP, and system settings

## To view the access point, Internet, IP, and system settings:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.  
A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

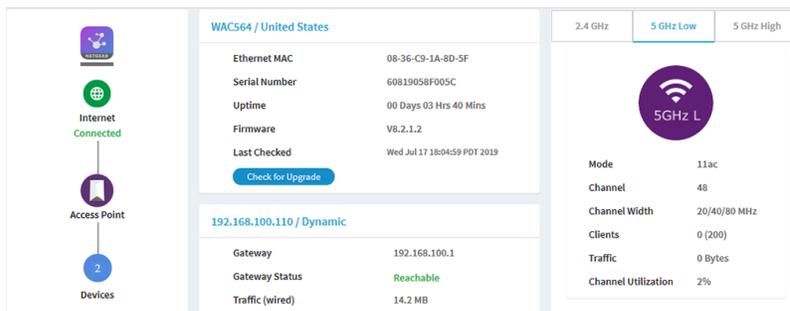
3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Locate the Connection Status Information pane, System Information pane, and IP Settings Information pane, which are shown, respectively, on the left, upper center, and lower center of the following Dashboard figure.



(If the page width on your device is narrow, these panes might be located elsewhere on the Dashboard.)

- **Connection Status Information pane.** The Connection Status Information pane is in the top, left corner of the Dashboard (if the page width on your device is sufficient; otherwise, it might be elsewhere) and displays the following:
  - Status of the connection to the NETGEAR Insight cloud-based management platform, if any.
  - Status of the Internet connection.
  - Functioning mode of the access point, which is always Access Point.
  - Number of clients connected to the access point.
- **System Information pane.** The System Information pane is in the center at the top of the Dashboard (if the page width on your device is sufficient; otherwise, it might be elsewhere) and displays the following:
  - System name of the access point and country or region of operation.
  - Ethernet MAC address.
  - The serial number.
  - Device uptime.
  - Firmware version.
  - The date and time that the access point itself or someone manually last checked if new firmware was available.

This pane also contains a button that you can click to check for firmware updates for the access point (see [Check for new firmware and upgrade the access point](#) on page 184).

- **IP Settings Information pane.** The IP Settings Information pane is in the center of the Dashboard page (if the page width on your device is sufficient; otherwise, it might be elsewhere) and displays the following:
  - IP address of the access point and its DHCP status
  - Gateway IP address
  - Gateway status
  - Wired traffic volume

5. To view more detailed information, select **Management > Monitoring > System**.

**System Information**

System Name	WAC564
System Mode	AP
Lan1 MAC Address	08-36-C9-1A-8D-5F
Lan2 MAC Address	08-36-C9-1A-8D-6F
Lan3 MAC Address	08-36-C9-1A-8D-7F
Lan4 MAC Address	08-36-C9-1A-8D-8F
Wireless MAC Address for 2.4 GHz	08-36-C9-1A-8D-50
Wireless MAC Address for 5 GHz Low	08-36-C9-1A-8D-60
Wireless MAC Address for 5 GHz High	08-36-C9-1A-8D-70
Ethernet LLDP	Enabled
LLDP Neighbour	WAC540BetaFW
Country / Region	United States
Current Firmware Version	V8.2.1.2
Backup Firmware Version	V8.2.1.1
Bootloader Version	U-Boot-2012.07-V8.1.0.6
Serial Number	60819058F005C
Current Time	Thu Jul 18 11:01:34 PDT 2019
Uptime	00 Days 21 Hrs 11 Mins

**AP Interface Status**

**IPv4 Settings**

IPv4 Address	192.168.100.110
Subnet Mask	255.255.255.0
Default Gateway	192.168.100.1
DHCP Client	Enabled
LAG Status	

**Wireless Settings**

Parameters	2.4 GHz	5 GHz Low	5 GHz High
Antenna	2x2	2x2	4x4
Wireless Mode	11ng	11ac	11ac
Channel / Frequency	6/2.437 GHz	48/5.24 GHz	153/5.765 GHz

The page shows four sections:

- **System Information section.** The following settings are displayed:
  - **System Name.** The access point NetBIOS name.
  - **System Mode.** The access point system mode (AP).
  - **Lan 1 MAC Address** through **Lan 4 MAC Address.** The MAC address of the four LAN Ethernet ports of the access point.
  - **Wireless MAC Address for 2.4 GHz.** The MAC address of 2.4 GHz WiFi interface (radio) of the access point.
  - **Wireless MAC Address for 5 GHz Low.** The MAC address of 5 GHz low band WiFi interface (radio) of the access point.
  - **Wireless MAC Address for 5 GHz High.** The MAC address of 5 GHz high band WiFi interface (radio) of the access point.
  - **Ethernet LLDP.** The status of Ethernet LLDP feature (Enabled or Disabled).
  - **LLDP Neighbour.** The name of the LLDP neighbour, if any.
  - **Country / Region.** The country or region in which the access point operates or for which the access point is licensed.
  - **Current Firmware Version.** The version of the firmware that is running on the access point.
  - **Backup Firmware Version.** The version of the backup firmware on the access point.
  - **Bootloader Version.** The primary bootloader (U-Boot) version that is installed on the access point.
  - **Serial Number.** The serial number of the access point.

- **Current Time.** The current system time of the access point.
- **Uptime.** The time since the access point was last restarted.
- **AP Interface Status.** A green icon indicates that the interface is in use. A gray icon indicates that the interface is not in use.
- **IPv4 Settings section.** The following settings are displayed:
  - **IPv4 Address.** The IPv4 address of the access point.
  - **Subnet Mask.** The subnet mask of the access point.
  - **Default Gateway.** The default gateway for the access point.
  - **DHCP Client.** The status of DHCP client (Enabled or Disabled).
  - **LAG Status.** Currently not supported.
- **Wireless Settings section.** The following settings are displayed, with separate columns for the 2.4 GHz and 5 GHz radios:
  - **Antenna.** The type of antenna (2x2 or 4x4).
  - **Wireless Mode.** The operating WiFi mode of the radio.
  - **Channel / Frequency.** The channel and frequency that are used by the radio.

## View the WiFi radio settings

### To view the WiFi radio settings of the access point:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the

Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Locate the Radio Information pane at the top, right corner of the Dashboard page (if the page width on your device is sufficient; otherwise, it might be elsewhere).



The following settings are displayed:

- Radio status (If the 2.4 GHz, 5 GHz Low, or 5GHz High icon is displayed as gray, the radio is turned off.)
  - Mode
  - Channel
  - Channel width
  - Number of connected clients and maximum number of supported clients
  - WiFi traffic volume
  - Channel utilization
5. To view information for a 5 GHz radio, click the **5 GHz Low** or **5 GHz High** tab. By default, information for the 2.4 GHz radio is shown.

6. To view more detailed information, select **Management > Monitoring > System**.

The screenshot displays four sections of the system configuration page:

- System Information:** A table listing various system parameters such as System Name (WAC564), System Mode (AP), LAN MAC addresses (Lan1 through Lan4), Wireless MAC addresses for 2.4 GHz, 5 GHz Low, and 5 GHz High, Ethernet LLDP status (Enabled), LLDP Neighbour (WAC540BetaFW), Country / Region (United States), Current Firmware Version (V8.2.1.2), Backup Firmware Version (V8.2.1.1), Bootloader Version (U-Boot-2012.07-V8.1.0.6), Serial Number (60819058F005C), Current Time (Thu Jul 18 11:01:34 PDT 2019), and Uptime (00 Days 21 Hrs 11 Mins).
- AP Interface Status:** A visual representation of the four LAN ports (LAN1, LAN2, LAN3, LAN4) and their corresponding wireless frequencies (2.4GHz, 5GHz Low, 5GHz High).
- IPv4 Settings:** A table showing network configuration details: IPv4 Address (192.168.100.110), Subnet Mask (255.255.255.0), Default Gateway (192.168.100.1), DHCP Client (Enabled), and LAG Status.
- Wireless Settings:** A table comparing parameters across three frequency bands: 2.4 GHz, 5 GHz Low, and 5 GHz High. Parameters include Antenna (2x2, 2x2, 4x4), Wireless Mode (11ng, 11ac, 11ac), and Channel / Frequency (6/2.437 GHz, 48/5.24 GHz, 153/5.765 GHz).

The page shows four sections:

- **System Information section.** The following settings are displayed:
  - **System Name.** The access point NetBIOS name.
  - **System Mode.** The access point system mode (AP).
  - **Lan 1 MAC Address** through **Lan 4 MAC Address.** The MAC address of the four LAN Ethernet ports of the access point.
  - **Wireless MAC Address for 2.4 GHz.** The MAC address of 2.4 GHz WiFi interface (radio) of the access point.
  - **Wireless MAC Address for 5 GHz Low.** The MAC address of 5 GHz low band WiFi interface (radio) of the access point.
  - **Wireless MAC Address for 5 GHz High.** The MAC address of 5 GHz high band WiFi interface (radio) of the access point.
  - **Ethernet LLDP.** The status of Ethernet LLDP feature (Enabled or Disabled).
  - **LLDP Neighbour.** The name of the LLDP neighbour, if any.
  - **Country / Region.** The country or region in which the access point operates or for which the access point is licensed.
  - **Current Firmware Version.** The version of the firmware that is running on the access point.
  - **Backup Firmware Version.** The version of the backup firmware on the access point.
  - **Bootloader Version.** The primary bootloader (U-Boot) version that is installed on the access point.

- **Serial Number.** The serial number of the access point.
- **Current Time.** The current system time of the access point.
- **Uptime.** The time since the access point was last restarted.
- **AP Interface Status.** A green icon indicates that the interface is in use. A gray icon indicates that the interface is not in use.
- **IPv4 Settings section.** The following settings are displayed:
  - **IPv4 Address.** The IPv4 address of the access point.
  - **Subnet Mask.** The subnet mask of the access point.
  - **Default Gateway.** The default gateway for the access point.
  - **DHCP Client.** The status of DHCP client (Enabled or Disabled).
  - **LAG Status.** Currently not supported.
- **Wireless Settings section.** The following settings are displayed, with separate columns for the 2.4 GHz and 5 GHz radios:
  - **Antenna.** The type of antenna (2x2 or 4x4).
  - **Wireless Mode.** The operating WiFi mode of the radio.
  - **Channel / Frequency.** The channel and frequency that are used by the radio.

## View unknown and known neighbor access points

If you enabled neighbor access point (AP) detection (see [Manage neighbor AP detection](#) on page 146), you can view the unknown access points in the Unknown AP list and the known access points in the Known AP list.

### To view the detected neighbor access points:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Monitoring > Neighbor AP**.

Unknown AP    Known AP

2.4 GHz : 5    5 GHz Low : 0    5 GHz High : 0

Show 10 Entries    Search:

MAC Address	SSID	Radio	Channel	RSSI	Timestamp
08-00-00-00-00-00	Netgear3A21CF	2.4 GHz	6	94	Fri Aug 4 17:30:05 PDT
60-00-00-00-00-00	SimplePresenceNetwork 5GHz	2.4 GHz	4	53	Fri Aug 4 17:30:05 PDT
B0-00-00-00-00-00	RMCS-Farms	2.4 GHz	5	2	Fri Aug 4 17:09:53 PDT
FA-00-00-00-00-00		2.4 GHz	1	79	Fri Aug 4 17:34:57 PDT
FA-00-00-00-00-00		2.4 GHz	1	87	Fri Aug 4 17:34:57 PDT

Previous 1 Next

Refresh

At the top of the page, for each radio band, the page states the total number of unknown access points.

5. To display the most recent unknown access points, click the **Refresh** button.
6. To view the Known AP list, click the **Known AP** tab.

Unknown AP    Known AP

2.4 GHz : 2    5 GHz Low : 0    5 GHz High : 0

Show 10 Entries    Search:

MAC Address	SSID	Radio	Channel	RSSI	Timestamp
08-00-00-00-00-00	Netgear3A21CF	2.4 GHz	5	94	Fri Aug 4 17:34:57 PDT
60-33-00-00-00-00	SimplePresenceNetwork	2.4 GHz	1	90	Fri Aug 4 17:34:57 PDT

Previous 1 Next

Refresh

At the top of the page, for each radio band, the page states the total number of known access points.

7. To display the most recent known access points, click the **Refresh** button.

## View client distribution, connected clients, and client trends

### **To view the clients that are connected to the access point, either over WiFi or through an Ethernet connection:**

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

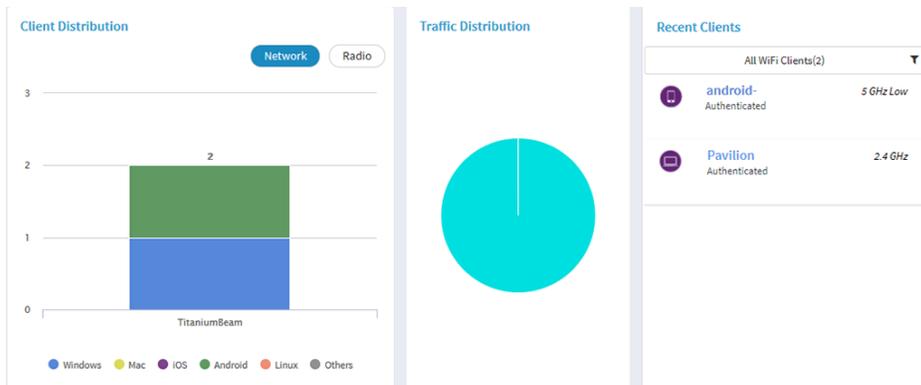
3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Locate the Client Distribution pane (shown on the left side in the following figure) and the Recent Clients pane (shown on the right side).



The Client Distribution pane shows the types of clients (Windows, Mac, iOS, Android, Linux, and other operating systems) and how these clients are distributed over the networks. (By default, the **Network** button is selected.)

The Recent Clients pane shows the top 5 recently connected clients list.

- To see how the clients are distributed over the radios, click the **Radio** button in the Client Distribution pane.

The page adjusts and shows the types of clients for each radio.

- To see recent clients for all networks or a single network, in the Connected Clients pane, click the icon in the menu under Recent Clients, and select **All WiFi Clients**, the clients for a specific WiFi network (SSID), or **LAN Devices**.

For your selection, the pane displays the total number of connected clients and the device names of the connected clients.

- To view information about a connected client, click its device name.

The page displays the MAC address, device name, IP address, and SSID (WiFi clients only) for the client. You can also view more information, including very detailed information (see [Step 11](#)).

- To view trends about clients, scroll down to the Hours Trend pane.



The Hours Trend pane shows a graph with the number of clients, the traffic in MBps, or the channel utilization over a period that you can select. (The previous figure shows the trend for the last 2 hours.) By default, the client information is selected (that is, the **Client** button is selected) and the graph shows the total number of clients

for all radios and the number of clients for each radio (2.4 GHz, 5 GHz Low, and 5 GHz High).

You can also click the **Traffic** button or the **Channel Utilization** button. For more information, see [View WiFi and Ethernet traffic, traffic and ARP statistics, and channel utilization](#) on page 215.

9. To view more information, point to a node on one of the lines on the graph.
10. To change the period over which information is filtered and displayed, select the number of recent hours from the menu to the right of the buttons.
11. To view more information about currently connected WiFi and wired clients, select **Management > Monitoring > Connected Clients**.

#	SSID	MAC Address	IP Address	Host Name	OS	Mode
1	TitaniumBeam	C0-B0-B0-B0-B0-F1	192.168.100.198	android-	Generic Android	11NG
2	TitaniumBeam	D0-B0-B0-B0-B0-41	192.168.100.195	Pavilion	Windows Vista/7 or Server 2008	11NG

5 GHz Low Clients : 0 (200)  
No Available Clients

5 GHz High Clients : 0 (200)  
No Available Clients

Refresh

By default, the **Wireless Clients** tab is selected and the connected WiFi clients display. (For information about wired clients, see [Step 14](#)).

For each radio, the page displays the number of connected clients and the maximum number of supported clients.

For each radio and each WiFi client, the page displays the SSID, MAC address, IP address, host name, operating system (OS), and WiFi mode.

12. To display very detailed information about a WiFi client, click the information (I) icon to the left of the client.

The Detailed Client Information page displays and shows the following information:

- **MAC Address.** The MAC address of the client.
- **IP Address.** The IP address associated with the client.
- **Host Name.** The host name of the client.
- **OS.** The operating system that runs on the client.

- **BSSID.** The BSSID that the client connects to.
- **SSID.** The SSID of the radio that the client connects to.
- **Channel.** The channel that the client connects to.
- **Channel Width.** The width of the channel that the client connects to.
- **Tx Rate.** The rate of traffic transmission of the client.
- **Rx Rate.** The rate of traffic reception of the client.
- **RSSI.** The RSSI threshold value of the client.
- **Tx Bytes.** The number of bytes that the client transmitted.
- **Rx Bytes.** The number of bytes that the client received.
- **State.** The QoS state of the connection.
- **Type.** The type of WiFi security that is used for the connection.
- **Device Type.** The type of device that the client is.
- **Mode.** The WiFi mode of the connection.
- **Status.** The security status of the connection.
- **Idle Time.** The time that the client remained idle.
- **Assoc Time Stamp.** The time that is associated with the information on the Detailed Client Information page.
- **Vlan ID.** The VLAN ID to which the client is connected.
- **User name.** The user name that is associated with the client.
- **PMF Support.** If PMF is enabled on the access point, indicates if the client supports PMF.

13. If you opened the Detailed Client Information page, click the Close button.  
The Detailed Client Information page closes.

14. To view information about the wired clients, click the **Wired Clients** tab.

#	MAC Address	Host Name	IP Address	OS
1	74:86:34:34:34:34	-	192.168.100.125	Windows Vista/7 or Server 2008

For each wired client, the page displays the MAC address, host name, IP address, and operating system (OS).

15. To display the most recent information, click the **Refresh** button.

## View WiFi and Ethernet traffic, traffic and ARP statistics, and channel utilization

### To view WiFi and Ethernet traffic, traffic and ARP statistics, and channel utilization:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Scroll down to the Hours Trend pane at the bottom of the Dashboard page.

By default, the **Clients** button is selected.



The previous figure shows the trend for the last 2 hours. (The default is the last 48 hours.)

5. To view traffic information, do the following:
  - a. Click the **Traffic** button.  
The graph shows the information for Ethernet traffic, total WiFi traffic, WiFi traffic for the 2.4 GHz radio, WiFi traffic for the 5 GHz Low radio, and WiFi traffic for the 5 GHz High radio.
  - b. To view more information, point to a node on one of the lines on the graph.
6. To view channel utilization, do the following:
  - a. Click the **Channel Utilization** button.  
The graph shows the channel utilization for the 2.4 GHz radio.
  - b. To view the channel utilization in the 5 GHz band, click the **5 GHz Low** or **5 GHz High** button.
  - c. To view more information, point to a bar.
7. To change the period over which information is filtered and displayed, select the number of recent hours from the menu to the right of the buttons.
8. To view traffic statistics, select **Management > Monitoring > Statistics**.

Wireless

Parameters	2.4 GHz		5 GHz Low		5 GHz High	
	Received	Transmitted	Received	Transmitted	Received	Transmitted
Unicast Packets	12944	8354	6229	5550	129	121
Broadcast Packets	1095	8168	17	2852	4	40
Multicast Packets	9716	87089	109	27804	8	418
Total Packets	23755	103611	6355	36206	141	579
Total Bytes	6402759	20141107	1528636	7914648	40968	142728
Number of Clients	2		0		0	

Ethernet (LAG Enabled)

Parameters	LAN1		LAN2	
	Received	Transmitted	Received	Transmitted
Total Packets	444793	74828	0	0
Total Bytes	73704404	15667970	0	0

Refresh

The page displays the network traffic statistics for both the WiFi and wired (Ethernet) interfaces of the access point since the access point started or rebooted. The page

also displays the number of clients that are associated with each radio. If the LAG is disabled, the page does not show (*LAG Enabled*).

If the ARP proxy is enabled (see [Manage the ARP proxy](#) on page 121), the page also displays the ARP statistics, including the number of proxied and dropped packets.

ARP Statistics

ARP Packets Received	Proxied ARP's	ARP Packets Dropped
631	16	631

- To display the most recent information, click the **Refresh** button.

## View or download tracked URLs

If you enabled URL tracking for a WiFi network (see [Enable or disable URL tracking for a WiFi network](#) on page 74), you can view the tracked URLs by URL, WiFi client, and SSID. You can also download a URL tracking report as a `.csv` file.

### To view or download tracked URLs:

- Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
- Enter the IP address that is assigned to the access point.  
A login window opens.  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
- Enter the access point user name and password.  
The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.  
If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).  
The Dashboard page displays.

4. Select **Management > Monitoring > URL Tracking**.

List by

URL	Clients	SSIDs	Hit-Count
connectivitycheck.android.	C0-BD-D1-B0-F0-F1...	NETGEAR-1...	2
clients3.google.com	C0-BD-D1-B0-F0-F1...	NETGEAR-1...	1
g.whatsapp.net	C0-BD-D1-B0-F0-F1...	NETGEAR-1...	1
mqtt-mini.facebook.com	C0-BD-D1-B0-F0-F1...	NETGEAR-1...	1
android.googleapis.com	C0-BD-D1-B0-F0-F1...	NETGEAR-1...	1
app.bugfender.com	C0-BD-D1-B0-F0-F1...	NETGEAR-1...	1
mtalk.google.com	C0-BD-D1-B0-F0-F1...	NETGEAR-1...	1
connectivitycheck.gstatic.	C0-BD-D1-B0-F0-F1...	NETGEAR-1...	1
www.msftncsi.com	C0-BD-D1-B0-F0-F1...	NETGEAR-1...	1
us.norton.com	C0-BD-D1-B0-F0-F1...	NETGEAR-1...	1

Previous 1 2 3 4 5 6 Next [View All](#)

Clear Download

By default, the table shows the URLs that were accessed, each with the MAC address of the WiFi client that accessed the URL, the associated SSID, and the number of times that the WiFi client accessed the URL.

5. To view additional information, click the ... link to the right of a MAC address or SSID.
6. To view URL tracking information by WiFi client, do the following:
  - a. From the menu, select **Client**.  
The table shows the MAC addresses of the WiFi clients, each with the client host name, and the first URL of the list of URLs that the client accessed.
  - b. To view all URLs that a WiFi client accessed, click the ... link to the right of the first URL.  
A pop-up window opens and displays all URLs that the WiFi client accessed.
  - c. Click the **Close** button.  
The pop-up window closes.

7. To view URL tracking information by SSID, do the following:
  - a. From the menu, select **SSID**.  
The table shows the SSIDs and the first URL of the list of URLs that were accessed on the SSID.
  - b. To view all URLs that were accessed on the SSID, click the **...** link to the right of the first URL.  
A pop-up window opens and displays all URLs that the were accessed on the SSID.
  - c. Click the **Close** button.  
The pop-up window closes.
8. To download a URL tracking report as a .csv file, click the **Download** button, and follow the directions of your browser.
9. To clear all URL tracking information, do the following:
  - a. Click the **Clear** button.  
A pop-up warning window opens.
  - b. Click the **OK** button.  
The pop-up window closes and the information is cleared.

## View, save, download, or clear the logs

You can view and manage the activity logs of the access point. You can also download a detailed log file.

**Note:** If the access point functions in the NETGEAR Insight management mode, you can also view and manage the cloud activity logs, which show the connection of the access point to the Insight cloud-based management platform. If the access point functions in the NETGEAR Insight management mode, this is option is available from the Dashboard page by selecting **Management > Monitoring > Cloud Logs**.

### To view, save, download, or clear the logs:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

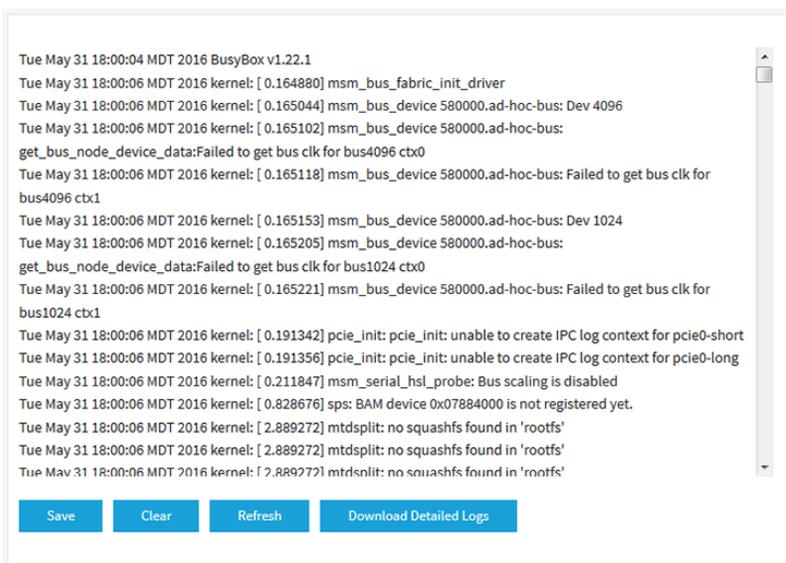
3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Monitoring > Logs**.



5. To save the logs, do the following:
  - a. Click the **Save** button.
  - b. Follow the directions of your browser to save the file to your computer.
6. To download the detailed log entries, do the following:
  - a. Click the **Download Detailed Logs** button.  
Depending on the size of the file, downloading the detailed log entries might take several minutes.
  - b. Follow the directions of your browser to save the file to your computer.
7. To refresh the log entries onscreen, click the **Refresh** button.

**WARNING:** After you clear the log entries, you can no longer save or download them.

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

## View a WiFi bridge connection

You can view whether a WiFi bridge is established and view the function (master or slave), MAC addresses, and IP addresses of the access points that form the WiFi bridge.

### To view a WiFi bridge connection:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

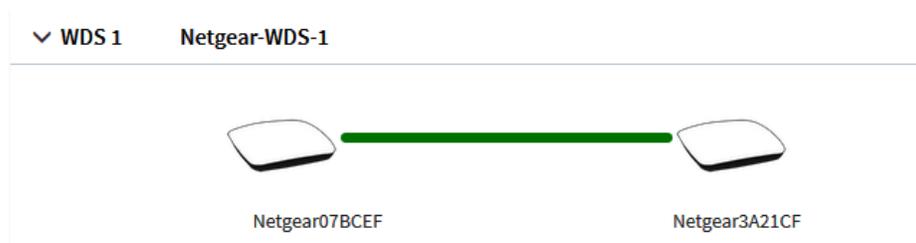
3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Monitoring > Wireless Bridge**.



5. To view the function, MAC address, and IP address of an access point, point to the access point.

# View the data volume consumption

If you enabled data limits for one or more WiFi networks (see [Set a data volume limit for the access point](#) on page 123), you can view the data volume consumption and volume status details.

## To view the data volume consumption and volume status details:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Monitoring > Data Volume Limit**.

Start date and time	Jun 22 2018 14:08:33
Current date and time	Jun 23 2018 12:46:30
Total volume left (MB)	19999.04

Profile	Allocated Data (MB)	Uploaded Data (MB)	Downloaded Data (MB)	Total Consumption (MB)
NETGEAR-1	20000	0.30	0.96	1.26
NETGEAR-2	12000	0.00	0.00	0.00

Refresh      Volume Status

At the top, the page states the start date and time of the data volume counter, the current date and time, and the total volume that is left in relation to the data volume limit that you set.

For each SSID, the table shows the allocated data (which is the allocated SSID percentage of the total monthly data volume limit that you set), the uploaded and downloaded data, and the total data consumption.

5. To view details about the volume, do the following:
  - a. Click the **Volume Status** button.  
A pop-up window opens and, for each SSID, displays details in a graphic.
  - b. Click the **X** in the upper right corner.  
The pop-up window closes.
6. To display the most recent information, click the **Refresh** button.

## View Air Time Fairness client distribution

If you enabled Air Time Fairness (ATF) for all radios (see [Manage Airtime Fairness for the radios](#) on page 120), you can view the client distribution and associated performance in each radio band.

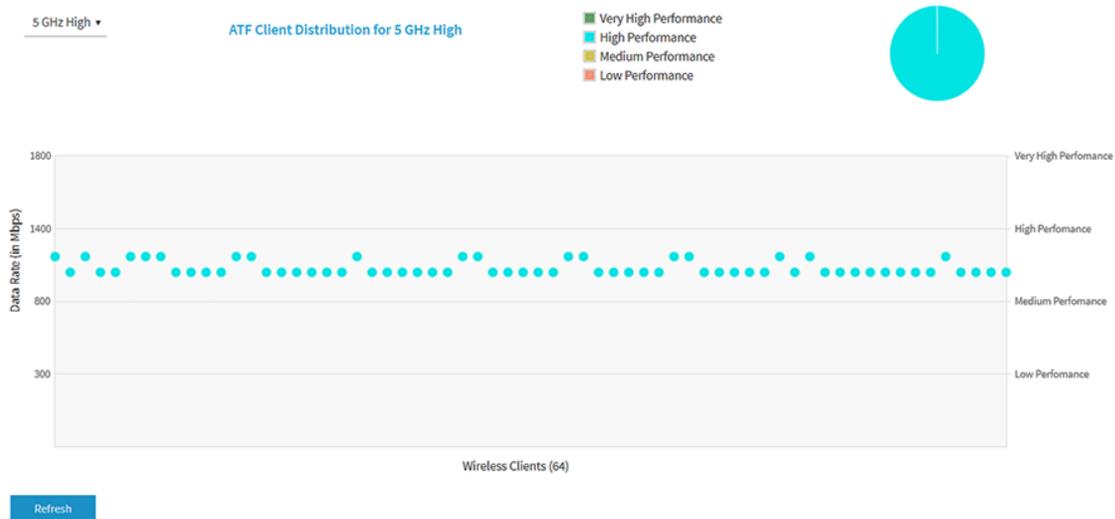
### To view the ATF client distribution and associated performance:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
3. Enter the access point user name and password.  
The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.  
If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).  
The Dashboard page displays.

4. Select **Management > Monitoring > Air Time Fairness**.

The Air Time Fairness page displays.

5. From the menu at the top left on the page, select the radio band for which you want to view the client distribution and associated performance.



The graph shows the performance for the connected WiFi clients. (The previous figure shows multiple clients connected in the 5 GHz High radio band.)

6. To view more information about a single WiFi client, point to the WiFi client in the graph (that is, the small green dot in the previous figure).
7. To view more information about the performance in the entire radio band, point to the circle at the top right of the page (that is, the large green circle in the previous figure).
8. To display the most recent information, click the **Refresh** button.

## View the traffic analysis results

If you enabled the WiFi Traffic Analyzer (see [Enable the WiFi Traffic Analyzer](#) on page 127), you can view the traffic analysis results and details.

**Note:** After you enable the Traffic Analyzer, it takes about 10 minutes before you can view results of the traffic analysis.

The traffic analysis results show the WiFi traffic statistics that are categorised into applications used by WiFi clients. For each application, you can view the traffic usage, usage percentage, the quantity of uploaded and downloaded data (traffic), the period

of activity, and the number of WiFi clients. You can drill down to more details by viewing the WiFi clients for each application. In addition, for each WiFi client, you can view the host name, MAC address, IP address, traffic usage, usage percentage, the volume of uploaded and downloaded data (traffic), and the period of activity.

### **To view the data volume consumption and volume status details:**

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

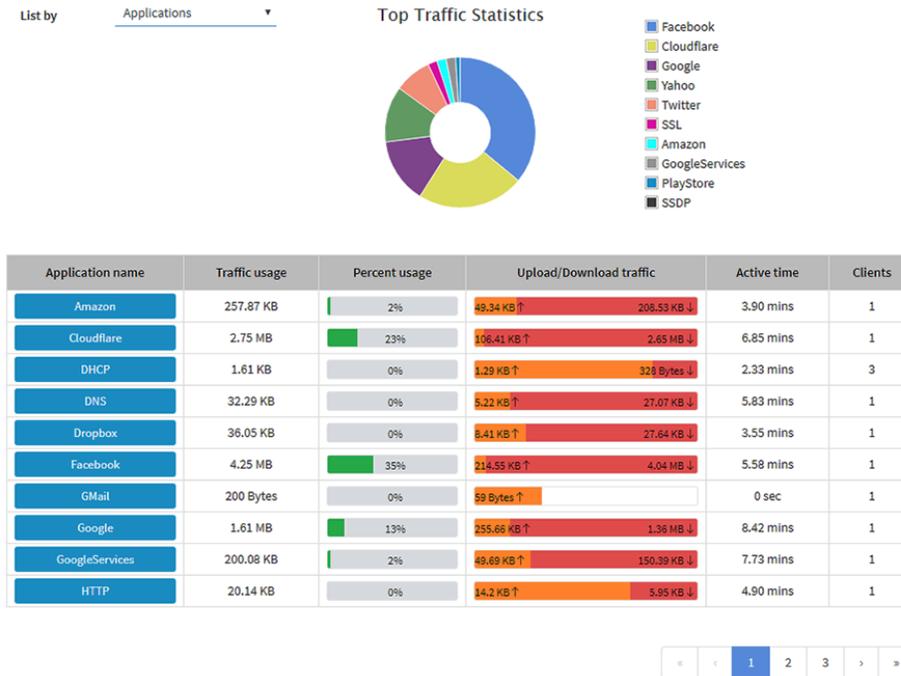
3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Monitoring > Traffic Analysis**.



The pie chart graphic represents the traffic analysis of the top ten applications by data usage.

For each application, the table displays the following information:

- **Application name.** The name of the application that is used by at least one client.
- **Traffic usage.** The total amount of traffic that is used by the application.
- **Percent usage.** The percentage of traffic that is used by the application in relation to the total available bandwidth.
- **Upload/Download traffic.** The total amount of traffic that is uploaded and downloaded by the application.
- **Active time.** The period that the application is actively used.
- **Clients.** The total number of clients that are using the application.

By default, the table is sorted by application name.

5. To view more applications, click a numbered button for another page.
6. To view details about traffic usage for an application, do one of the following:
  - In the pie chart graphic, point to an application, and click.
  - In the table, in the Application name column, click the button for on application.

The page adjusts to display application details.

For each client, the table displays the following information:

- **Host name.** The host name of the client.
- **MAC address.** The MAC address of the client.
- **IP Address.** The IP address that is associated with the client.
- **Traffic usage.** The total amount of traffic that is used by the client for the application.
- **Upload/Download traffic.** The total amount of traffic that is uploaded and downloaded by the client for the application.
- **Active time.** The period that the application is actively used by the client.

7. To return to the Traffic Analysis overview page, click the **Back** button.

## View alarms and notifications

You can view the alarms and notifications from any access point page. The following procedure describes how you can view them from the Dashboard page.

### To view the alarms and notifications:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Locate the alarm bell icon at the top right of the page.

The icon shows a number, indicating the total number of new alarms and notifications since the last time that you viewed alarms and notifications.

5. Click the alarm bell icon.



The pop-up window shows the alarms (indicated by a red bell) and notifications (indicated by a blue bell) with a description and time.

6. To view more alarms and notification, scroll down in the pop-up window.

# 10

## Diagnosics and Troubleshooting

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This chapter describes how you can capture WiFi packets and troubleshoot the access point and network.

The chapter includes the following sections:

- [Capture WiFi and Ethernet packets](#)
- [Perform a ping test](#)
- [Check the Internet speed](#)
- [Quick tips for troubleshooting](#)
- [Troubleshoot with the LEDs](#)
- [The extender access point and root access point cannot connect](#)
- [Troubleshoot the WiFi connectivity](#)
- [Troubleshoot Internet browsing](#)
- [You cannot log in to the access point over a LAN connection](#)
- [Changes are not saved](#)
- [You enter the wrong password and can no longer log in to the access point](#)
- [Troubleshoot your network using the ping utility](#)

# Capture WiFi and Ethernet packets

You can capture WiFi and Ethernet packets that are received and transmitted by the access point and save the file with captured packets to your computer. During the packet capture process, normal functioning of the access point is not affected.

The packet capture capability can be useful for analyzing a WiFi deployment, monitoring a WiFi network, debugging protocols, determining WiFi network bottlenecks, and, in general, troubleshooting any irregularities in a WiFi network.

You can select to capture all packets or selected packets only.

**Note:** To view the captured packets, you need an application that can open .pcap files.

## To capture packets:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Diagnostics > Packet Capture**.

5. Specify the settings that are described in the following table.

Setting	Description
Capture Interface	<p>From the <b>Capture Interface</b> menu, select one of the following interfaces on which packets must be captured:</p> <ul style="list-style-type: none"> <li>• <b>brtrunk</b>. All packets are captured, that is, packets on the Ethernet interfaces, 2.4 GHz radio, 5 GHz low band radio, and 5 GHz high band radio. This is the default setting.</li> <li>• <b>Eth0</b>. Only packets on the four LAN interfaces are captured. For packet capturing, the four LAN interfaces are treated as a single interface.</li> <li>• <b>radio1</b>. Only packets on the 2.4 GHz radio are captured.</li> <li>• <b>radio2</b>. Only packets on the 5 GHz low band radio are captured.</li> <li>• <b>radio2</b>. Only packets on the 5 GHz high band radio are captured.</li> </ul>
Max. Capture File Size (64-4096 KB)	Enter the maximum size that the file with captured packets is limited to. The range is from 64 to 4096 KB. The default is 64 KB.
Promiscuous Capture	<p>To enable the access point to capture packets in promiscuous mode, select the <b>Enable</b> check box. By default, promiscuous mode is disabled.</p> <p>In promiscuous mode the radio or radios receive all traffic on the channel, including traffic that is not destined for the access point. While the radio or radios are operating in promiscuous mode, they continue to serve associated clients. Packets that are not destined for the access point are not forwarded. When the capture process stops, the radio or radios revert to nonpromiscuous mode.</p>
Client Filter	To capture packets for a specific client only, select the <b>Client Filter</b> check box and enter the client’s MAC address in the <b>Client Filter MAC Address</b> field.

(Continued)

Setting	Description
Client Filter MAC Address	If you select the <b>Client Filter</b> check box, enter the client's MAC address to capture the packets only for the specific client on the selected interface. You must enter the MAC address in hexadecimal format with each octet separated by a hyphen, for example 00-11-22-33-44-55.
Capture Duration (10-3600 secs)	Enter the maximum duration of the capture process (that is, if you do not click the <b>Stop</b> button). The range is from 10 to 3600 seconds. By default, the maximum duration is 60 seconds.

6. To start the packet capture process, click the **Start** button.  
If any captured packets are already stored on the access point, you are prompted to allow the packet capture process to overwrite the old information.
7. To stop the packet capture process, click the **Stop** button.
8. To download the file with captured packets, do the following:
  - a. Click the **Download** button.
  - b. Follow the directions of your browser to save the file to your computer.
9. To display the latest information on the page, click the **Refresh** button.

## Perform a ping test

You can ping the IP address of a device or network location from the access point and view the results of the ping test.

### To perform a ping test:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.
2. Enter the IP address that is assigned to the access point.  
A login window opens.  
If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.
3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Diagnostics > Ping Test**.

The screenshot shows a configuration interface for a Ping Test. It includes the following fields and controls:

- Ping Count:** 16
- Packet Size(in Bytes):** 64
- Ping Interval(in sec):** 1
- Ping Timeout(in sec):** 60
- Remote Host:** 8.8.8.8
- Ping Result:** A large empty text area for displaying test results.
- Start:** A blue button to initiate the ping test.
- Stop:** A blue button to terminate the ping test.

5. Specify the settings that are described in the following table.

Setting	Description
Ping Count	The number of pings that the access point must send. The default number is 16.
Packet Size (in Bytes)	The size of each ping packet. The default size is 64 bytes.
Ping Interval (in sec)	The interval between pings. The default interval is 1 second.
Ping Timeout (in sec)	The period after which a ping times out. The default period is 60 seconds.
Remote Host	The IP address that the access point must ping.

6. To start the ping test, click the **Start** button.

The results of the ping test display in the Ping Result field.

7. To stop the ping test before the ping count is reached or if the ping times out, click the **Stop** button.

# Check the Internet speed

You can check the Internet speed of the access point. The results might be helpful if you want to set bandwidth rate limits (see [Set bandwidth rate limits for a WiFi network](#) on page 78).

## To check the Internet speed:

1. Launch a web browser from a computer that is connected to the same network as the access point or directly to the access point through an Ethernet cable or WiFi connection.

2. Enter the IP address that is assigned to the access point.

A login window opens.

If your browser does not display the login window but displays a security warning, dismiss the warning. For more information, see [Dismiss a browser security warning](#) on page 53.

3. Enter the access point user name and password.

The user name is **admin**. The password is the one that you specified. The user name and password are case-sensitive.

If you previously added the access point to a NETGEAR Insight network location and managed the access point through the Insight app or Insight Cloud portal, enter the Insight network password for that location. For more information, see [Connect over WiFi using the NETGEAR Insight App](#) on page 35).

The Dashboard page displays.

4. Select **Management > Diagnostics > Speed Check**.

The Internet Speed Check page displays.

5. Click the **Test Speed** button.

The Privacy Policy pop-up window opens.

6. Click the **Agree** button.

The pop-up window closes. After a short delay, the page displays the measured latency in ms, download speed in Mbps, and upload speed in Mbps.

7. To view the test history, click the **View History** link.

A table shows the results of previous tests.

# Quick tips for troubleshooting

If your network is unresponsive or does not function normally, restart your network:

1. If you use an Ethernet cable from the access point to your network switch or router, unplug the cable.
2. Turn off power to the access point.
3. If you use an Ethernet cable from the access point to your network switch or router, plug in the cable. Wait two minutes.
4. Turn on the power to the access point. Wait two minutes.

If you cannot connect over WiFi to the access point, try the following:

- Make sure that the WiFi radios are on. For more information about the WiFi radios, see [Turn a radio on or off](#) on page 95.
- Make sure that the WiFi settings in your WiFi device and access point match exactly. For a device that is connected over WiFi, the WiFi network name (SSID) and WiFi security settings of the access point and WiFi device must match exactly. For information about accessing the access point for initial configuration in an Insight Instant Mesh WiFi network, see [Install the Access Point in an Insight Instant Mesh WiFi Network](#) on page 20. For information about accessing the access point for initial configuration over a WiFi connection, see [Connect to the access point for initial configuration](#) on page 34.
- Make sure that your WiFi device supports the security that you are using for your WiFi network (WPA2 Personal or WPA2 Personal Mixed). For more information, see [View or change the settings of a WiFi network](#) on page 64.
- Make sure that your WiFi device is not too far from the access point or too close. To see if the signal strength improves, move your WiFi device near the access point but at least 6 feet (1.8 meters) away.
- Make sure that the WiFi signal is not blocked by objects between the access point and your WiFi device.
- Make sure that the access point's SSID broadcast is not disabled. If the access point's SSID broadcast is disabled, the WiFi network name is hidden and does not display in your WiFi device's scanning list. To connect to a hidden network, you must enter the network name and the WiFi password. For more information about the SSID broadcast, see [Hide or broadcast the SSID for a WiFi network](#) on page 69.
- Make sure that your WiFi device does not use a static IP address but is configured to receive an IP address automatically with DHCP. (For most devices, DHCP is the default setting.)

If you cannot connect over an Ethernet cable to the access point, try the following:

- Make sure that the Ethernet cables are securely plugged in.
- Make sure that your network includes a DHCP server that can issue an IP address to the access point or, if your access point requires a fixed (static) IP address, that the IP address and subnet are correct.

## Troubleshoot with the LEDs

For general information about the Ring LED and Power LED, see [Front and top panel with Ring LED](#) on page 13 and [Back panel with Power LED](#) on page 15.

After initial installation, when you turn on the power, the LEDs light as described here:

1. The Ring LED and the Power LED light solid amber.
2. After about 90 seconds, the Ring LED pulses either green or blue:
  - **Pulsing green.** The access point is preparing to function as a standalone access point.
  - **Pulsing blue.** The access point is preparing to function as an Insight managed device in an Insight Instant Mesh WiFi network and is connected to the Insight cloud.
3. After about two minutes, the Power LED turns solid green, indicating that the startup procedure is complete and the access point is ready.
4. When the startup procedure is complete, the the Ring LED lights as follows:
  - **Pulsing green, three seconds on, three minutes off.** The access point functions as a standalone access point.
  - **Pulsing blue, three seconds on, three minutes off.** The access point functions as an Insight managed device in an Insight Instant Mesh WiFi network and is connected to the Insight cloud.

You can use the LEDs for troubleshooting. For more information, see the following sections:

- [Power LED remains off](#)
- [Power LED remains solid amber](#)
- [The Ring LED does not stop pulsing amber](#)
- [The Ring LED does not stop pulsing red, green, and blue](#)

## Power LED remains off

If the Power LED remains off when you turn on the power to the access point, do the following:

- Make sure that the power adapter is correctly connected to the access point, and that the power adapter is correctly connected to a functioning power outlet. If it is plugged into a power strip, make sure that the power strip is turned on. If it is plugged directly into the wall, verify that the outlet is not switched off.
- Make sure that you are using the NETGEAR 12V, 2.5A power adapter for this product.

If the error persists, a hardware problem might exist. For recovery instructions or help with a hardware problem, contact technical support at [netgear.com/support](http://netgear.com/support).

## Power LED remains solid amber

When you turn on the power to the access point, the Power LED lights solid amber for about two minutes and then turns solid green, indicating that the startup procedure is complete and the access point is ready.

If the Power LED remains solid amber after five minutes, either a boot error occurred or the access point is malfunctioning.

Do the following:

1. Turn the power off and back on, and wait several minutes to see if the startup procedure completes successfully.
2. If the startup procedure still does not complete successfully and the Power LED remains solid amber after five minutes, you can use the **Reset** button to return the access point to its factory default settings. For more information, see [Use the Reset button to reset the access point](#) on page 195.

If the error persists, a hardware problem might exist. For recovery instructions or help with a hardware problem, contact technical support at [netgear.com/support](http://netgear.com/support).

## The Ring LED does not stop pulsing amber

During installation, the Ring LED pulses amber while the access point is contacting a network router or DHCP server to receive an IP address. If the Ring LED does not stop pulsing amber, the access point did not receive an IP address.

Check the following items:

- Make sure that the DHCP client of the access point is enabled (it is by default, see [Enable the DHCP client](#) on page 157), that your network includes a DHCP server or a router that functions as a DHCP server, and that the DHCP server can reach the access point (both must be on the same network).

- Make sure that the ping protocol is not blocked in the network.

In the unlikely situation that your network does not include a DHCP server, you might need to configure a fixed (static) IP address on the access point (see [Disable the DHCP client and specify a fixed IP address](#) on page 156).

## The Ring LED does not stop pulsing red, green, and blue

During the initial installation and configuration process, the Ring LED pulses red, green, and blue while the access point is being configured either as a managed device in an Insight Instant Mesh WiFi network or as a standalone access point.

If the Ring LED does not stop pulsing red, green, and blue, the access point cannot connect. Depending on the type of setup, check the following items or try the following troubleshooting steps:

- For an extender access point in an Insight Instant Mesh WiFi network:
  - Make sure that at least one root access point is available for the extender access point to connect to.
  - Make sure that all root access points run the latest firmware version.
  - Make sure that the output power of each radio on each root access point is at its maximum level. By default, the output power for a radio is at its maximum level. For more information, see [Change the output power for a radio](#) on page 100.
  - Make sure that the extender access point is not too far away from a root access point. For more information, see [The extender access point and root access point cannot connect](#) on page 239.
  - Restart the extender access point.
  - Remove the extender access point from your Insight network location and from your Insight account. Then, readd the extender access point to your Insight account and to your Insight network location.
- For a standalone access point or for a root access point in an Insight Instant Mesh WiFi network:

Unplug the Ethernet cable from the access point to your network switch or router, and turn off power to the access point. Then, plug in the cable again (make sure that you use port 1 on the access point), wait two minutes, turn on the power to the access point, wait another two minutes, and try again to connect the access point to your network.

# The extender access point and root access point cannot connect

After you add the access point as an extender to an Insight network location that includes one or more root access points (see [Connect the access point as an extender to a root access point using the Insight app](#) on page 27), if you are experiencing difficulty connecting the extender access point with a root access point, we recommend that you move the extender access point into the same room as a root access point during the sync. Then, move the extender access point to the location where you intend to use it. For a reliable WiFi connection, place the extender access point less than 25 feet (line of sight, with minimal obstacles) from the closest root access point.

## **To sync the extender access point and the root access point after you already added the extender access point to an Insight network location:**

1. Place the extender access point in the same room as the root access point. Use this extender access point location only during the sync process.
2. Connect the extender access point to a power source. If the Power LED does not light, press the **Power On/Off** button. The Power LED on the back of the extender access point lights amber and then lights green.
3. Wait for the extender access point to go through the initial connection and configuration process and for the Ring LED to stop pulsing red, green, and blue and to start pulsing blue.

**Note:** The initial connection and configuration process might take up to 10 minutes. The extender access point might restart during the configuration process.

The Ring LED lights as follows during the initial connection and configuration process:

- **Pulsing cyan.** The Ring LED pulses cyan while the extender access point is attempting to detect a root access point.
- **Solid cyan.** The Ring LED lights solid cyan while the extender access point is making its first connection with the root access point that provides the strongest WiFi signal.
- **Pulsing amber.** The Ring LED pulses amber slowly while the extender access point is contacting the network router or DHCP server to receive an IP address. If the Ring LED does not stop pulsing amber, see [The Ring LED does not stop pulsing amber](#) on page 237.

- **Pulsing magenta.** The Ring LED pulses magenta while the extender access point is making its first connection with the Insight cloud and the Insight cloud starts to push the firmware that enables the extender access point to become a managed device.
- **Pulsing red, green, and blue.** The Ring LED pulses red, green, and blue while the extender access point is being configured as a managed device in the Insight Instant Mesh WiFi network.  
If the Ring LED does not stop pulsing red, green, and blue, see [The Ring LED does not stop pulsing red, green, and blue](#) on page 238.

When the configuration is complete, the Ring LED lights as follows:

- **Pulsing blue.** The Ring LED pulses blue when the configuration is complete and the extender access point is ready for operation.
  - **Pulsing blue, three seconds on, three minutes off.** The Ring LED pulses blue for three seconds and then goes off for three minutes while the extender access point functions in the Insight Instant Mesh WiFi network and is connected to the Insight cloud.
4. Turn off the extender access point and move it to the location where you intend to use it.
  5. At the new location, repeat [Step 2](#) and [Step 3](#).
  6. Wait for the extender access point to resync with the root access point.  
When the extender access point's Ring LED pulses blue, the access point and root access point resynced successfully.

If the extender access point and root access point did not resync, move the extender access point closer to the root access point and try again. The extender access point must be within the root access point's WiFi cover area to establish a good or fair WiFi connection.

## Troubleshoot the WiFi connectivity

If you are experiencing trouble connecting over WiFi to the access point, try to isolate the problem:

- Make sure that the WiFi settings in your WiFi device and access point match exactly. For a device that is connected over WiFi, the WiFi network name (SSID) and WiFi security settings of the access point and WiFi device must match exactly. For information about accessing the access point for initial configuration over a WiFi connection, see [Connect to the access point for initial configuration](#) on page 34.

- Does the WiFi device that you are using find your WiFi network?  
If not, check the WLAN LEDs. If a WLAN LED is off, the associated WiFi radio is probably off, too. For more information about the WiFi radios, see [Turn a radio on or off](#) on page 95.
- If you disabled the access point's SSID broadcast, your WiFi network is hidden and does not display in your WiFi client's scanning list. (By default, SSID broadcast is enabled.) For more information about the SSID broadcast, see [Set up and manage WiFi networks](#) on page 56.
- Does your WiFi device support the security that you are using for your WiFi network (WPA2 Personal or WPA2 Personal Mixed). For more information, see [Set up and manage WiFi networks](#) on page 56.

**Tip:** If you want to change the WiFi settings of the access point's network, use a wired connection to avoid being disconnected when the new WiFi settings take effect.

If your WiFi device finds your network but the signal strength is weak, check these conditions:

- Is your access point too far from your WiFi device, or too close? Place your WiFi device near the access point, but at least 6 feet (1.8 meters) away, and see whether the signal strength improves.
- Are objects between the access point and your WiFi device blocking the WiFi signal?

## Troubleshoot Internet browsing

If your computer or WiFi device is connected to the access point but unable to load any web pages from the Internet, it might be for one of the following reasons:

- Your computer might not recognize any DNS server addresses.  
If you manually entered a DNS address when you set up the access point (that is, the access point uses static IP address settings), reboot your computer and verify the DNS address. Alternatively, you can configure your computer manually with DNS addresses, as described in your operating system documentation.
- Your computer might not use the correct TCP/IP settings.  
If your computer obtains its information by DHCP, reboot the computer and verify the address of the switch or Internet modem to which the access point is connected. For information about TCP/IP problems, see [Troubleshoot your network using the ping utility](#) on page 244.

# You cannot log in to the access point over a LAN connection

If you are unable to log in to the access point from a computer on your local network and use the access point's local browser interface, check the following:

- If you are using an Ethernet-connected computer, check the Ethernet cable between the computer and the access point.
- Make sure that the IP address of your computer is in the same subnet as the access point.  
If you disabled the access point's DHCP client and configured a fixed (static) IP address when you connected the access point to your network (see [Disable the DHCP client and specify a fixed IP address](#) on page 156), change the IP address and subnet mask on your computer to so that the IP addresses of your computer and the access point are in the same IP subnet.
- If your access point's IP address was changed (for example, the DHCP server in your network issued an IP address to the access point) and you do not know the current IP address, use an IP scanner application to detect the IP address. If you still cannot find the IP address, reset the access point's configuration to factory defaults. This sets the access point's IP address to 192.168.0.100. For more information, see [Use the Reset button to reset the access point](#) on page 195.
- Make sure that Java, JavaScript, or ActiveX is enabled in your browser. If you are using Internet Explorer, click the **Refresh** button to be sure that the Java applet is loaded.
- Try quitting the browser and launching it again.
- Make sure that you are using the correct login information. The user name is **admin** and the password is the one that you specified the first time that you logged in. Make sure that Caps Lock is off when you enter this information.

## Changes are not saved

If you are logged in to the access point's local browser interface and the access point does not save the changes that you make on a page, do the following:

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

# You enter the wrong password and can no longer log in to the access point

If you enter the wrong admin password three or more times, access to the access point's local browser interface is blocked for a period. For example, if you enter the wrong password three times, access to the access point is blocked for five minutes.

The blockage period depends on the number of failed login attempts. During the blockage period, any attempts to log in to the access point are ignored, even if you enter the correct password. You must wait until the blockage is lifted, and then you get *a single opportunity* to enter the correct password. If you enter the wrong password again, the blockage period is extended as described in the following table.

Table 2. Login blockage periods

Number of failed attempts	Blockage period in minutes
3	5
4	10
5	20
6	40
And so on	And so on

In addition, the following rules apply to the number of failed login attempts:

- If the number of failed login attempts is smaller than the number of allowed retry attempts, the counter for failed login attempts is reset after 30 minutes. For example, if you enter the wrong password twice but enter the correct password at the third login attempt, the two failed login attempts are erased from memory after 30 minutes.
- If the number of failed login attempts is larger than the number of allowed retry attempts, the counter for failed login attempts is reset after 24 hours. For example, if you enter the wrong password five times but enter the correct password at the sixth login attempt, the five failed login attempts are erased from memory after 24 hours.
- The last access attempt determines whether the counter for failed login attempts is increased.
- If you reboot the access point, the counter for failed login attempts is reset.

# Troubleshoot your network using the ping utility

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

## Test the LAN path to your access point

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

### To ping the access point from a Windows-based computer:

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

**ping 192.168.0.100**

3. Click the **OK** button.

A message such as the following one displays:

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

If the path is working, you see this message:

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

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

```
Request timed out
```

If the path is not functioning correctly, one of the following problems might be occurring:

- Wrong physical connections  
For a wired connection, make sure that the numbered LAN LED is lit for the port to which you are connected.  
Check that the appropriate LEDs are on for your network devices. If your access point and computer are connected to a separate Ethernet switch, make sure that the link LEDs are lit for the switch ports that are connected to your computer and access point.
- Wrong network configuration  
Verify that the Ethernet card driver software and TCP/IP software are both installed and configured on your computer.

Verify that the IP address for your access point and your computer are correct and that the addresses are in the same subnet.

## Test the path from your computer to a remote device

After you verify that the LAN path works correctly, test the path from your computer to a remote device.

### **To test the path from your computer to a remote device:**

1. From the Windows toolbar, click the **Start** button and select **Run**.
2. In the field provided, enter **ping -n 10 IP address**.

*IP address* is the IP address of a remote device such as a remote DNS server.

If the path is functioning correctly, replies as described in [Test the LAN path to your access point](#) on page 244 display. If you do not receive replies, do the following:

- Check to see that your computer lists the IP address of the router to which the access point is connected as the default router. If the IP configuration of your computer is assigned by DHCP, this information is not visible in your computer's Network Control Panel.
- Check to see that the network address of your computer (the portion of the IP address specified by the netmask) is different from the network address of the remote device.

# A

## Mount the Access Point on a Wall or Ceiling

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The access point package includes wall-mounting and ceiling-mounting components. Before you wall-mount or ceiling-mount the access point, you must attach the base, cables, and cover to the access point.

You can also install the access point freestanding.

This appendix includes the following sections:

- [Install the access point freestanding](#)
- [Wall-mount the access point](#)
- [Ceiling-mount the access point](#)

# Install the access point freestanding

If you intend to use the access point freestanding, we recommend that you attach the base and cover for better stability of the access point.

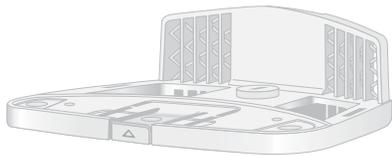


Figure 7. Base

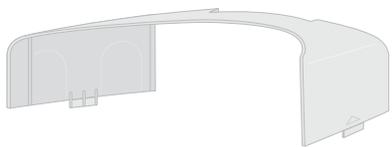


Figure 8. Cover

## To attach the base and cover:

1. Thread the cables through the openings in the back of the base and attach them to the access point Ethernet ports and DC connector.
2. Place the access point on the base and attach it to the base with the provided screws.



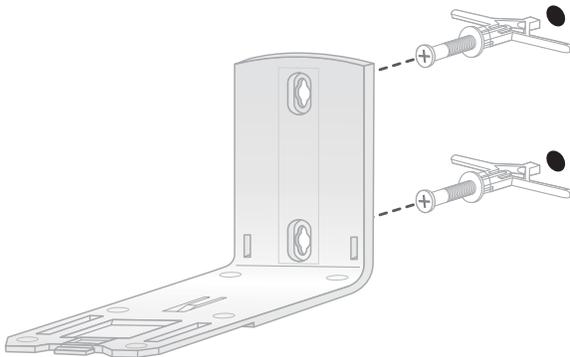
3. Attach the cover to the base.



## Wall-mount the access point

### To wall-mount the access point:

1. Use the wall anchors with screws to attach the wall bracket to the wall.



2. Thread the cables through the openings at the bottom of the base and attach them to the access point Ethernet ports and DC connector.

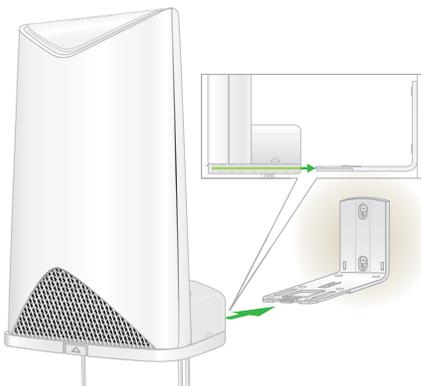
3. Place the access point on the base and attach it to the base with the provided screws.



4. Attach the cover to the base.



5. Slide the base with the access point attached onto the wall bracket until the base locks.

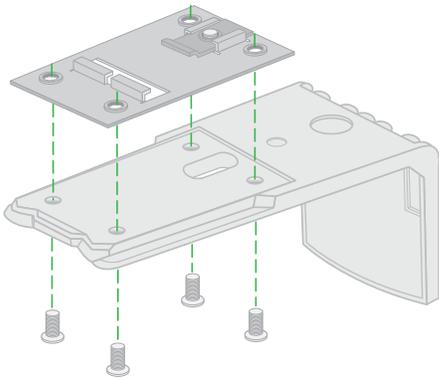


## Ceiling-mount the access point

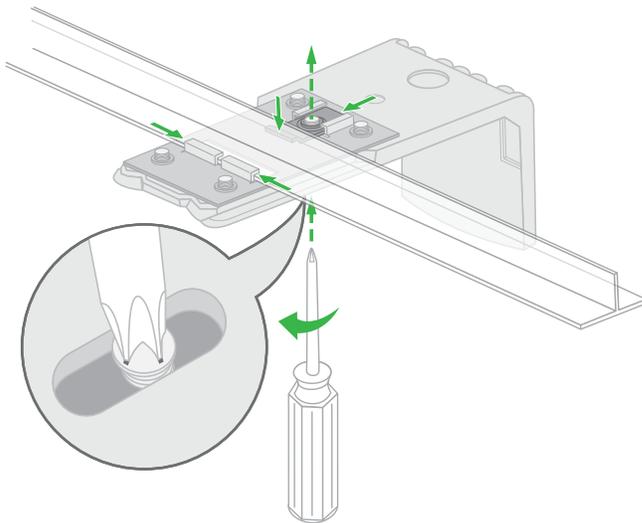
The following instructions require a drop ceiling with a T-bar.

### To ceiling-mount the access point:

1. Attach the T-bracket to the ceiling bracket with the T-bracket screws.



2. Secure the T-bracket to the T-bar, insert the locking screw, and tighten it.



3. Thread the cables through the openings in the back of the base and attach them to the access point Ethernet ports and DC connector.

4. Place the access point on the base and attach it to the base with the provided screws.



5. Attach the cover to the base.



6. Slide the base with the access point attached onto the ceiling bracket until the base locks.



# B

## Factory Default Settings and Technical Specifications

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This appendix includes the following sections:

- [Factory default settings](#)
- [Technical specifications](#)

# Factory default settings

You can reset the access point to the factory default settings, which are shown in the following table.

For more information about resetting the access point to its factory settings, see [Return the access point to its factory default settings](#) on page 194.

Table 3. Factory default settings

Feature	Default Setting
<b>Management and login settings</b>	
Management mode	NETGEAR Insight management mode
User login URL	192.168.0.100
User name (case-sensitive)	admin, nonconfigurable
Login password (case-sensitive)	password, configurable
<b>General system settings</b>	
Operating mode	AP mode
DHCP client	Enabled so that the access point receives an IP address from a DHCP server or router in the network.
NTP client	Enabled
Spanning Tree Protocol	Disabled
Network integrity check	Disabled
802.1Q VLAN	Untagged VLAN with VLAN ID 1
Management VLAN	VLAN ID 1
Syslog	Disabled
Ethernet LLDP	Enabled
UPnP	Enabled
LEDs	Enabled
Energy Efficiency Mode	Disabled
<b>WiFi network settings for initial setup</b>	
SSID name	SSID for initial setup is NETGEARxxxxxx-SETUP, where xxxxxx is the last six hexadecimal digits of the access point's MAC address.

Table 3. Factory default settings (Continued)

Feature	Default Setting
Security	WPA2 Personal (which is WPA2-PSK) WiFi password (network key): sharedsecret
RF channel	Auto. The available channels depend on the region.
<b>WLAN settings for an individual WiFi network (SSID or VAP)</b>	
WiFi communication	The 2.4 GHz radio and both 5 GHz radios are enabled.
WiFi client isolation	Disabled
Broadcast SSID	Enabled
Band steering	Disabled Automatic band steering includes automatic 802.11k RRM and automatic 802.11v WiFi network management.
VLAN ID (for WiFi clients)	1
Network authentication	WPA2 Personal (which is WPA2-PSK)
Data encryption	AES
Passphrase	sharedsecret
802.11w (PMF)	Disabled
URL tracking	Disabled
DHCP offer broadcast to unicast	Enabled
MAC ACL	None assigned
Rate limit	None
Advanced rate selection	Fixed multicast rate: Auto Rate control: Disabled
Captive portal	None
<b>Basic WiFi settings for all WiFi networks (SSIDs or VAPs)</b>	
Radios	The 2.4 GHz radio and both 5 GHz radios are enabled.
WiFi mode	2.4 GHz radio: 11ng mode, which also supports 11b and 11bg 5 GHz radios: 11ac mode, which also support 11a and 11na
Channel width	Dynamic 20 / 40 MHz for the 2.4 GHz radio Dynamic 20 / 40 / 80 MHz for the 5 GHz radios
Output power	Maximum (100%)
Guard interval	Auto

Table 3. Factory default settings (Continued)

Feature	Default Setting
Channel	Auto
WiFi schedule	None
Wi-Fi Multimedia (WMM)	Enabled
WMM powersave	Enabled
<b>Advanced WiFi settings for all WiFi networks (SSIDs or VAPs)</b>	
Number of WiFi clients	Default: 200 per radio Maximum: 200 per radio
Beacon interval	100 millisec.
RTS threshold	2346
DTIM interval	2 sec.
Broadcast/multicast rate limiting	Enabled with a limit of 50 packets per second
MU-MIMO	Enabled for the 5 GHz radios (nonconfigurable for the 2.4 GHz radio)
802.11h	Disabled for the 5 GHz radios (nonconfigurable for the 2.4 GHz radio)
Load balancing between radios	Disabled
Force sticky clients to disassociate	Disabled
ARP proxy	Enabled
Broadcast enhancements	Disabled
Data volume limit	None
Wireless bridge	None configured
<b>General security</b>	
URL filtering	None
RADIUS servers	None configured
Neighbour AP detection	Disabled

Table 3. Factory default settings (Continued)

Feature	Default Setting
MAC ACLs	None
L2 security	Disabled

## Technical specifications

The following table shows the technical specifications of the access point.

Table 4. Technical specifications

Feature	Description
Supported WiFi radio frequencies and WiFi modes	2.4 GHz band: 802.11ng, 801.11bg, and 802.11b 5 GHz band: 802.11ac, 802.11na, and 802.11a Supports 2.4 GHz and 5 GHz concurrent operation
Maximum theoretical throughput	About 3000 Mbps simultaneous throughput (400 Mbps on the 2.4 GHz band, 867 Mbps on the 5 GHz low band, and 1733 Mbps on the 5 GHz high band) <b>Note:</b> Throughput can vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, affect the data throughput rate.
Maximum number of supported clients	Maximum number of 2.4 GHz WiFi clients: 200 (200 per radio) Maximum number of 5 GHz WiFi clients: 400 (200 per radio) Maximum number of clients for the access point: 600 (3 radios)
WiFi standards	IEEE 802.11ac Wave 2 standard WiFi Multimedia Prioritization (WMM) Wireless distribution system (WDS)
802.11 security	WPA3 Personal, WPA3/WPA2 Personal (mixed), WPA2 Personal, WPA2/WPA Personal (mixed), and WPA2 Enterprise

Table 4. Technical specifications (Continued)

Feature	Description
Operating frequency range	2.4 GHz band: <ul style="list-style-type: none"> <li>• US: 2.412-2.462 GHz</li> <li>• Europe: 2.412-2.472 GHz</li> <li>• Australia: 2.412-2.472 GHz</li> </ul> 5 GHz low band: <ul style="list-style-type: none"> <li>• US: 5.18-5.24 GHz</li> <li>• Europe: 5.18-5.24 GHz and DFS 5.25-5.35 GHz</li> <li>• Australia: 5.18-5.24 GHz</li> </ul> 5 GHz high band: <ul style="list-style-type: none"> <li>• US: 5.745-5.825 GHz</li> <li>• Europe: DFS 5.50-5.70 GHz</li> <li>• Australia: 5.745-5.825 GHz</li> </ul>
Power adapter	12 VDC, 2.5A The plug is localized to the country of sale.
Hardware interfaces	Four LAN ports, which are 10/100/1000BASE-T RJ-45 ports with Auto Uplink (Auto MDI-X).
Dimensions (W x D x H)	6.9 x 3.3 x 9.7 in. (174 x 85 x 247 mm)
Weight	1.78 lb (810 g)
Operating temperature	32° to 104°F (0° to 40°C)
Operating humidity	10 to 90% maximum relative humidity, noncondensing
Storage temperature	-4° to 158°F (-20° to 70°C)
Storage humidity	5 to 95% maximum relative humidity, noncondensing
EMI certification	FCC Part 15 Report (EMI) SubPart B ACMA EMI Report CE EMC Report, EN 55032/24 Report EN 301 489-17 EMC Report
Regulatory compliance US	FCC Grant, FCC Authorization FCC Spectrum Report, Part 15, SubPart C (15.247) FCC Spectrum Report, Part 15, SubPart E (15.407) FCC Standard Absorption Rate Report (SAR or MPE), FCC Part 2 SpJ
Regulatory compliance Europe	EN 300 328, Radio Spectrum Report EN 301 893 Radio Spectrum Report EN 301 893 DFS Report EN RF Exposure (SAR or MPE), EN 62311(for Wi-Fi) , EN 62479 (for BT), EN 50385 (for AP router), EN 50566 (Body SAR)

Table 4. Technical specifications (Continued)

Feature	Description
Regulatory compliance Australia and New Zealand	AS/NZS 4268:2012, AUS RF - Short range devices Australia SDoC Australia ACMA Registration Australia MPE Maximum Personal Exposure New Zealand SDoC
Safety and energy compliance	IEC 60950-1 CB Certificate and Test Report, CB IEC60950 / EN60950 CE LVD Report, EN60950 Report AU/NZ Report, AS/NZS EN 60950 EC 278/2009, External Power Supply SNE VA