SETUP ISSUES

Google Home app can't find Wifi devices

If your Google Nest Wifi Pro, Nest Wifi, or Google Wifi device isn't found in the setup list in the app, it might not be ready for setup, or you might have a temporary connection issue. If the device has been set up before, it might require a factory reset.

Note: When your router or point is ready for setup, the LED light will slowly pulse white if you have Nest Wifi or blue if you have Google Nest Wifi Pro or Google Wifi.

This article covers troubleshooting steps for Wifi device setup issues. If you want to set up a different device, you can find the instructions in Set up smart devices in the Google Home app.

1. Close the Google Home app, then try setup again.
2. If you're using an iPhone or iPad, open your device's Settings app.
    1. Tap **Bluetooth** › turn on Bluetooth.
    2. Tap **Privacy** › **Local Network** › turn on "Local Network" for the Google Home app.
3. Disconnect your router or point from power › reconnect to power › wait until the light slowly pulses either white or blue › start setup.
    - Make sure the power adapter is connected to a working wall outlet.
4. If the device uses an Ethernet cable, check the connection. **Note**:
    - Google Nest Wifi points don't have Ethernet ports.
    - Make sure the cable is connected to both your modem and router or point.
    - Make sure the modem is powered on.
5. For Wifi devices, open your phone's Wi-Fi settings, then find the Wi-Fi network that matches the sticker on the bottom of your device. Connect to this network using the setup code on the bottom of your device as the password, then return to the app to continue setup.
6. If your router or point still doesn't appear in the Google Home app, factory reset your device › wait for the light to slowly pulse white (Nest Wifi) or blue if you have Nest Wifi Pro or Google Wifi › start setup again.
    - **Note**: A factory reset can take up to 10 minutes. Make sure to wait until the process is complete before you start setup.

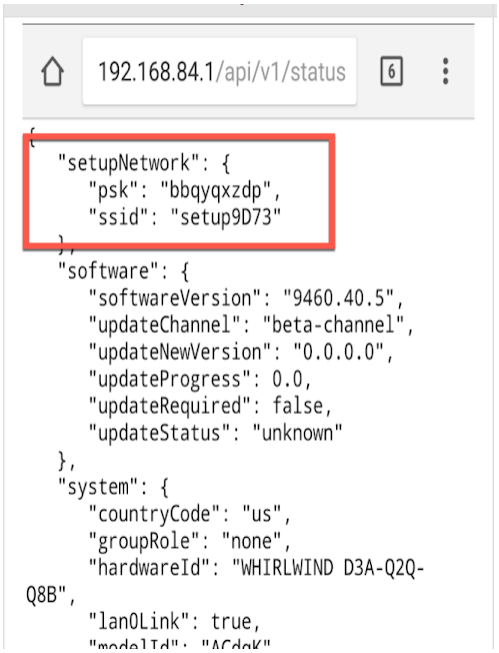
Google Nest Wifi device or Google Wifi point doesn't have QR code

Each Google Nest Wifi device or Google Wifi point has a unique QR code printed on a label on the bottom of the device. When setting up a new router or point, you need to scan this code with your phone's camera in order to connect your phone to the device.

If the QR code label is missing or you're unable to scan it with your phone, you can manually retrieve a Nest Wifi device or Google Wifi point code and enter the QR code into the Google Home app.

Nest Wifi router

1. Using an Ethernet cable, connect a computer directly to the Nest Wifi router that's missing the QR code label.
2. Open your computer's web browser and go to **http://192.168.84.1/api/v1/status**.
3. Look for the "setupNetwork" section of the output.
4. Find the "ssid" (this will be the name of the setup Wifi network) and the "psk" (this will be the password used to connect).



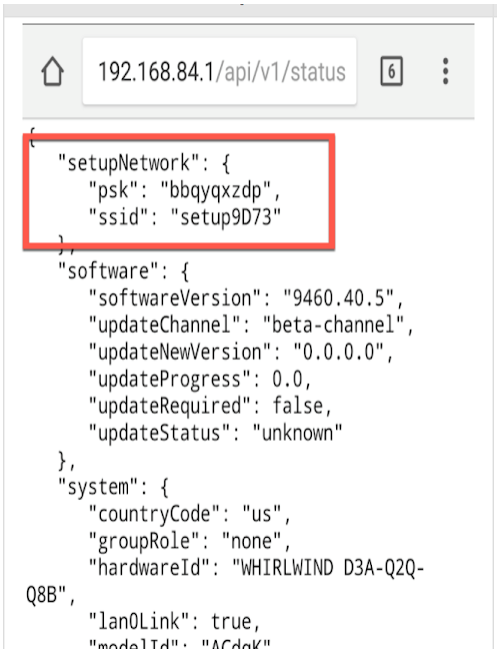
5. Manually connect to the SSID and enter the PSK to connect to the Nest Wifi router and begin the setup process.

Nest Wifi point

If you're unable to scan the QR code, tap **Continue without scanning**, then enter the setup key on the bottom of your device.

Google Wifi point

1. Using an Ethernet cable, connect a computer directly to the Google Wifi point that's missing the QR code label.
2. Open your computer's web browser and go to **http://192.168.84.1/api/v1/status**.
3. Look for the "setupNetwork" section of the output.
4. Find the "ssid" (this will be the name of the setup Wifi network) and the "psk" (this will be the password used to connect).



5. Manually connect to the SSID and enter the PSK to connect to the Wifi point and begin the setup process.

How to plug in Nest Wifi points

To provide Wi-Fi coverage to every corner of your home, the connection between each Wifi point needs to be strong. Make sure the Nest Wifi router and points are evenly spread out, but not too far from each other.

Google Nest Wifi Pro (Wi-Fi 6E) can't be combined with Nest Wifi or Google Wifi (Wi-Fi 5) in a mesh network. However, you can follow the same instructions for adding additional Nest Wifi Pro routers to your Nest Wifi Pro network.

1. Start with your router.
2. Think about where else you want a strong Wi-Fi signal in your home. Place your point about halfway in that direction, but no more than 2 rooms away from your router or another point.
    - If you're setting up a Nest Wifi point, this location will also be where you'll interact with the Google Assistant. **Note**: Nest Wifi Pro routers don't include Google Assistant.
    - Place your point in an open area. Avoid placing it near other objects that could physically block the signal, for example, large appliances or fish tanks.
3. Find a nearby wall outlet. Make sure the power adapter is connected to your point, then plug the other end into the outlet.
    - If you're setting up a Nest Wifi point, the point's light will pulse to indicate that it's powering on.
    - If you're setting up a Nest Wifi Pro router, the light on your router will pulse white, then blue to indicate it's ready for setup.



Set up a network that uses VLAN tagging

Some Internet Service Providers (ISP) require VLAN tagging in order for their modems to communicate with wireless routers.

Nest Wifi and Google Wifi devices built or updated after June 2020, automatically support some VLAN tags and additional steps aren't usually needed to set up a network.

However, some devices with older firmware don't support VLAN tagging out of the box. For these, you'll need additional equipment to support VLAN tagging or your setup will fail.

Google supports VLAN tag values of 2, 7, and 10 (from a possible range of 0 to 4095). If your ISP requires a different tag, your setup will require an additional device for it to work. To determine the proper tag required, check with your ISP or your modem's manual.

To confirm if your ISP uses VLAN tagging, or if you have IPTV or VoIP service through your ISP, ask your ISP if your CPE box (ISP provided modem or router) requires a VLAN tag. If it does, and it isn't a Google-supported tag follow the instructions below.

Use Nest Wifi or Google Wifi with a VLAN-tagged broadband connection

When VLAN tagging is required by your ISP, for some Nest Wifi and Google Wifi devices to work, you'll need to add a switch to your network or use an additional VLAN-supported router.

Note: If your ISP uses a Google supported tag, and you temporarily use a VLAN-supported router, then once your network is set up and online, Nest Wifi and Google Wifi devices will be able to download an update that allows it to support VLAN tagging. This will allow you to set up your Nest Wifi router or Google Wifi primary point again in the future without additional equipment.

Use a managed network switch

Add a separate managed network switch (sometimes called a "smart network switch") with VLAN features.

1. Connect your modem's LAN port to the switch's WAN port with an Ethernet cable.
2. Connect the switch's LAN port to your Google Nest Wifi router's or Google Wifi primary point's WAN port with an Ethernet cable.
3. When finished, set up your Google Nest Wifi or Google Wifi in the Google Home app.

Use a VLAN-supported router

If you have a router already connected that supports VLAN tagging, you can add your Google Nest Wifi router or Google Wifi primary point to it.

1. Connect your modem's LAN port to the third-party router's WAN port with an Ethernet cable.

2. Connect the third-party router to the Nest Wifi router or primary Wifi point's WAN port with an Ethernet cable.
3. When finished, set up your Nest Wifi or Google Wifi devices in the Google Home app.

With this configuration, you may run into Double NAT, which isn't necessarily a problem. But if it is causing problems, it's recommended to put your third-party router in bridge mode and turn off Wi-Fi on your third-party router to avoid interference.

PPPoE issues during Google Nest Wifi or Google Wifi setup

In rare cases, if your connection requires Point-to-Point Protocol over Ethernet (PPPoE) authentication, you may encounter an error during the authentication process. This may result in the following error message in the Google Home app, “Error connecting to WAN,” followed by the PPPoE credentials screen.

If this happens during setup, take these steps:

1. Make sure you’re entering your PPPoE username and password. This will probably be different from any password you’ve created for previous Wi-Fi networks and may differ from the username and password you use to manage your account with your Internet Service Provider (ISP).
2. Unplug the modem from the power source.
3. Wait 30 seconds and plug the modem back in.
4. Wait approximately 3 minutes to let the modem come back online completely.
5. Try to set up again. If prompted, enter your PPPoE username and password again in the PPPoE credentials screen.
6. If you continue to receive the “Error connecting to WAN” message followed by the PPPoE credentials screen, please contact your ISP.

Network issues

Mesh point or additional router doesn't work

If you're able to access the internet with at least one Wifi router or point, follow these steps to get your other devices back online.

Fix a mesh Wifi point or additional router is offline

1. Make sure any offline Wifi devices are powered on and that all cables are secure. If your device is hardwired, check that your Ethernet cables are correctly connected to another Wifi point or switch. Learn more about how to set up hardwired devices.
2. Unplug the Wifi device that is offline and plug it back in.
3. Open the Google Home app > touch and hold your device's tile > Settings > **Restart Wifi point.**
4. Perform a mesh test to confirm your devices are working properly.
5. Check that your points are within range of your router or primary Wifi point. You might need to move the point closer towards your router or another mesh point.
6. Run a mesh test again.
7. Factory reset your offline device, wait until the light indicates that your device is ready to set up, then add your Google Nest Wifi point or additional router or Google Wifi point again.
8. For additional help, contact support.

Devices appear offline in the Google Home app

If your Wifi device shows an offline status in the Google Home app while still connected to the internet, follow these steps to fix.

Disable Internet Protocol version 6 (IPv6)

Disable IPv6 in the Google Home app:

1. Open the Google Home app .
2. Tap the Wifi coin > Settings .
3. Scroll down and tap **Advanced networking**.
4. Scroll down to IPv6.
5. Toggle the switch off .

Restart your device with the power cable

1. Unplug the power cable from your Wifi device.
2. Wait 10 to 20 seconds for it to fully power off.
3. Plug the power cable back into your Wifi device.
4. Wait for 1 to 2 minutes for it to fully power on.

Troubleshoot slow internet on Google Nest Wifi or Google Wifi

When the internet or Wi-Fi speeds on your Google Nest Wifi or Google Wifi are slow, it can affect the performance of all of your devices. Devices can include phones, tablets, computers, TVs, smart displays and speakers, and anything else connected to your Wifi router or points.

Wi-Fi speed can vary depending on a few things: the type of device you are using, distance between the device and your router or point, the frequency your devices are connected to, and physical barriers like walls in your home.

To improve your Wi-Fi speed, try one or more of these steps:

- Move the connected device closer to your Wifi router or point.
- Run a mesh test to confirm placement of your Wifi points. Try to move your router or point to a more open or unobstructed location and your router or points closer to each other.
- Restart your network.
- Contact your Internet Service Provider (ISP) to confirm your service is working properly.

Things that could affect your Wi-Fi speed

- Your device is far from your Wifi router or point(s). Often, moving your device closer to your router or point will result in improved speeds.
- Building materials and other objects located between your router and Wifi points or between your Wifi points and mobile devices may slow your connection. If possible, try to use your device within a clear line of sight to your router or point.
- The internet speed from your provider may be currently slower than expected. Test your internet speeds. If the results are less than you expected, contact your ISP.
- Devices connected on the 2.4 GHz channel may not achieve speeds as fast as the 5 GHz channel.
- Some devices do not support the faster Wi-Fi standards. Speed is dependent on both the router or point and the device that is connected to it. If you have an older device, it's likely it won't support the latest standards for the fastest speeds.
- There could be signal interference due to traffic on your Wi-Fi network, on your neighbors' Wi-Fi networks, or from other sources like microwaves or baby monitors.
- Nest Wifi and Google Wifi are designed for personal home use and not intended to be used for sharing networks across multiple dwellings. Using Nest Wifi or Google Wifi in this manner can result in slower Wi-Fi speeds and unreliable connections.

Too far from your Wifi point

The closer your device is to your Wifi router or point, the better your Wi-Fi can perform. Your Wifi router and points should be centrally located. Make sure there is a clear line of sight between your router and points and there isn't anything too close to your router or points that may physically block the signal to your device. Learn where to put your Wifi points.

Other devices are using bandwidth

Whenever a device connects to your Wi-Fi network, it competes with other devices for bandwidth (internet speed). A TV streaming Netflix, a laptop downloading, and an Xbox Live gaming session, all require bandwidth, and depending on your service, performing multiple high-bandwidth activities at the same time may result in a slower connection.

To solve this:

- Make sure all unused devices are off and do not drain bandwidth with large downloads. Learn more about which devices are connected to your network and review their data usage.
- Set a priority device or change your activity preferences to streamline bandwidth.
- Call your ISP and upgrade your plan to get more bandwidth.

Slow WAN connection
Modem issues

You can restart your modem to fix internet connection problems, improve slow performance and resolve common wireless issues. Even if your modem appears to be working correctly, you may need to restart it to establish a secure connection to the Wifi point.

Here's how to reboot a modem:

1. Unplug the power cable from the modem.
2. Wait 2 minutes.
3. Reconnect the power cable to the modem.
4. Wait for the modem and router or primary Wifi point to boot up and the internet light to turn on, then check if your connection speed has improved.

Ethernet cables or upstream equipment issues

Nest Wifi and Google Wifi support 10/100/1000 Mbps (Megabits per second) on the Ethernet port. However, your internet speeds will be limited by the slowest component on your network. It can be reduced to 100 Mbps or 10 Mbps if the connection on the path to the internet doesn't support the higher speed.

If you're not getting your expected internet speeds in your internet speed test or if you have received a priority event notice for limited Ethernet speeds in your Google Home app feed:

1. Check if you have an Ethernet cable with a speed rating that's lower than the expected speeds from your Internet Service Provider (ISP). Cat 5e or Cat 6 are recommended for more than 100 Mbps internet speeds.
2. Check the Ethernet port ratings of any equipment in your network. **Examples:** Switch, modem, splitter, etc.
    - They should all be rated as fast or faster than the speed from your ISP.
    - The software configuration of your equipment could also be reducing your network's speed.

Internet service provider issues

Your Internet Service Provider (ISP) controls the initial bandwidth and speed of the internet coming into your home. This can affect the internet speed to all of your devices.

You may temporarily receive slow internet from your ISP if they are working on their network in your area or have made other changes. Your speed could also be limited based on your plan.

If you have recurring problems with slow internet, ask your ISP if there are any current issues that might be slowing your internet or if there is anything they can do to improve your speed.

Other nearby routers causing interference

If one or more wireless routers broadcast Wi-Fi near your Wifi router or points, this may cause interference. As a result, your Wi-Fi performance can suffer.

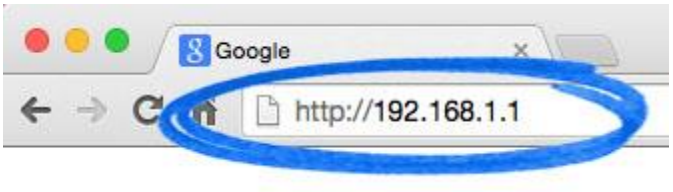
If another router broadcasts the same Wi-Fi network name as your Google Nest Wifi router or Google Wifi point, your devices may jump between your points and the other router or your devices might not be able to connect.

Try to turn off Wi-Fi on the non-Google router or move the routers farther apart.

Turn off Wi-Fi on non-Google Wi-Fi router

One solution is to turn off Wi-Fi on your other router (not Google Nest Wifi or Google Wifi devices). Check the lights in the front of the router. Most routers have a light indicating whether the wireless radios are active or inactive. The light may look like this: .

To disable Wi-Fi, go into the router's settings and turn off the wireless option. To access your router's settings, you may have to open an internet browser while connected to the **non-Google router**. Then open an internet browser and enter your router's IP address in the address bar, like this:



Steps will vary depending on the router. If your router was supplied by your ISP, they can assist in turning off your Wi-Fi. Many ISPs and manufacturers provide instructions on how to do this.

Wifi router or point issues

Restarting your Wifi router or point can sometimes fix connectivity issues. This won't erase any data and all of your settings will remain. Learn more about how to restart your Google Nest or Google Wifi devices.

Network insights

Wi-Fi network insights may be available in your Google Home Feed for issues related to this article. When an issue with your network is identified by Nest Wifi or Google Wifi devices, you'll have an insight card in your Google Home feed letting you know there could be a problem and suggesting a solution.

If you received a related network insight, check your insight message below for more information:

Ethernet connection is limiting your network speed

This insight is shown when a speed test has been performed recently in which the link speed of your network was 100Mbps or lower, and your point's speed was 90% or less than the speed of your router. This likely means you have an issue with your Ethernet cables, connection, or other networking equipment.

Fix: Review Ethernet cables or upstream equipment issues.

Slow internet speeds - Internet service providers (ISP)

You'll receive this alert when Nest Wifi or Google Wifi determines that your internet requests are taking longer to complete than expected. Nest Wifi and Google Wifi send test packets to detect slowness in your internet service provider's (ISP) network. They can then determine in this situation that the internet is likely slow because of an issue with your ISP.

Your ISP controls the initial bandwidth and speed of the internet coming into your home. To improve your speed you'll need to check with your provider to understand if this is a temporary issue or something they can correct.

Fix: Review internet service provider issues above and contact your ISP.

Slow internet speeds - Network congestion

You'll receive this alert when Nest Wifi or Google Wifi detects your internet is slow because of congestion or a lack of bandwidth.

This means the devices running in your home may be exceeding the bandwidth capacity provided by your ISP. When you run out of bandwidth, your internet will slow down.

Fix: Review your network usage and turn off unneeded devices running on your network.

Fix Double NAT when two routers run at the same time

For most people, a double Network Address Translation (NAT) configuration doesn't create a noticeable effect on network performance. But some people who play online games or use port forwarding rules and Universal Plug and Play (UPnP) might prefer to avoid a double NAT configuration. Learn more about Double NAT.

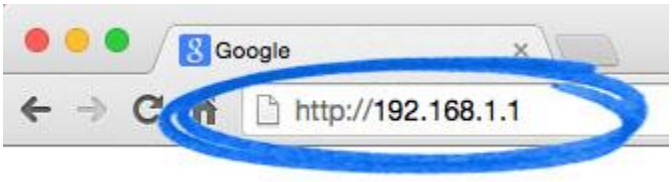
To avoid a double NAT configuration on your Google Nest Wifi Pro, Nest Wifi, or Google Wifi devices, here's what you can do:

(Recommended) Remove ISP-provided router from your network

If you have 2 separate ISP devices, a modem and router, turn off and unplug the ISP-provided router, then connect your modem directly to your Wifi device.

If your ISP-provided router is combined with the ISP's modem in a single device, enable bridge mode on your modem/router combo to fix the Double NAT issue. When you enable bridge mode on your ISP router, it'll turn off its NAT and allow your Wifi device to be the sole device that performs NAT.

1. Connect a computer directly to your ISP-provided router with an Ethernet cable.
2. Log in to your modem and router combo, then find its settings to enable bridge mode.
3. To access your router's settings, you might have to open an internet browser and enter your router's IP address in the address bar like this:



Steps will vary depending on the device. Many ISPs and manufacturers provide instructions on how to enable bridge mode. To learn how to turn on bridge mode, check your ISP's support website.

(Not Recommended) Enable Bridge mode on your Wifi router device

A single Wifi device that isn't part of a mesh system can be set to bridge mode. Bridge mode disables the DHCP and routing functions so double NAT is no longer an issue. In bridge mode, this single mesh point will operate as a pure Wi-Fi access point connected over an Ethernet wire to your modem.

Note: Bridge mode on Wifi devices only works on a single Wifi device setup. If you create a mesh network with multiple Wifi devices, your primary Wifi router can't be in bridge mode because it needs to control settings and communication within your Wi-Fi network. If your primary Wifi router is in bridge mode, in addition to losing mesh capability, you'll also lose some functionality of your Wifi device such as:

- Family Wi-Fi, priority device, and Guest Wi-Fi will be unavailable.
- DNS and WAN settings can't be edited.
- You won't be able to test your mesh connection.
- Philips Hue pairing and controls will be unavailable on OnHub devices.

Additionally, bridge mode disables many of Google Wifi and Google Nest Wifi's security protections. This is because your upstream router (the modem/router combo in the above scenario) is the one performing DNS steering, packet inspection, executable patching, and so on.

Your Wifi devices automatically install security updates to maximize your privacy and security. These protective features are most effective, and in some cases, only effective, when all traffic passes through your primary Wifi router, instead of through another router.

If you have a third-party router, you can wire your primary Wifi router to it, then mesh additional Wifi points downstream.

If you still want to turn your primary Wifi device into a bridge, you can follow the steps below:

1. Open the Google Home app.
2. Tap **Wi-Fi** > Settings > **Advanced Networking**.
3. Tap **Network mode** > your Wifi router or point > **Bridge mode**.
4. Tap Save.

You can't transition your primary Wifi device into bridge mode if your WAN IP is a public IP address. To enable bridge mode, there needs to be another router between your modem and primary Wifi device. If your primary Wifi device's WAN port has a public IP, that means it's directly connected to your modem. In this scenario, the bridge mode option in the app will be unavailable.

Additional questions

What's the difference between NAT and double NAT?

Your internet service provider (ISP) usually assigns your home internet connection a single public and globally unique IP address. You can view Wifi device information in the Google Home app.

Most households have multiple devices connected to its home network, with each device requiring their own IP address. Your router assigns a local IP address to each device in your home network through DHCP (Dynamic Host Configuration Protocol).

Google Nest Wifi Pro, Nest Wifi, and Google Wifi devices transfer data that comes in or goes out from the public IP address to the device in your home network. This process of transferring data from the public IP address to the specific device local IP address is called Network Address Translation (NAT).

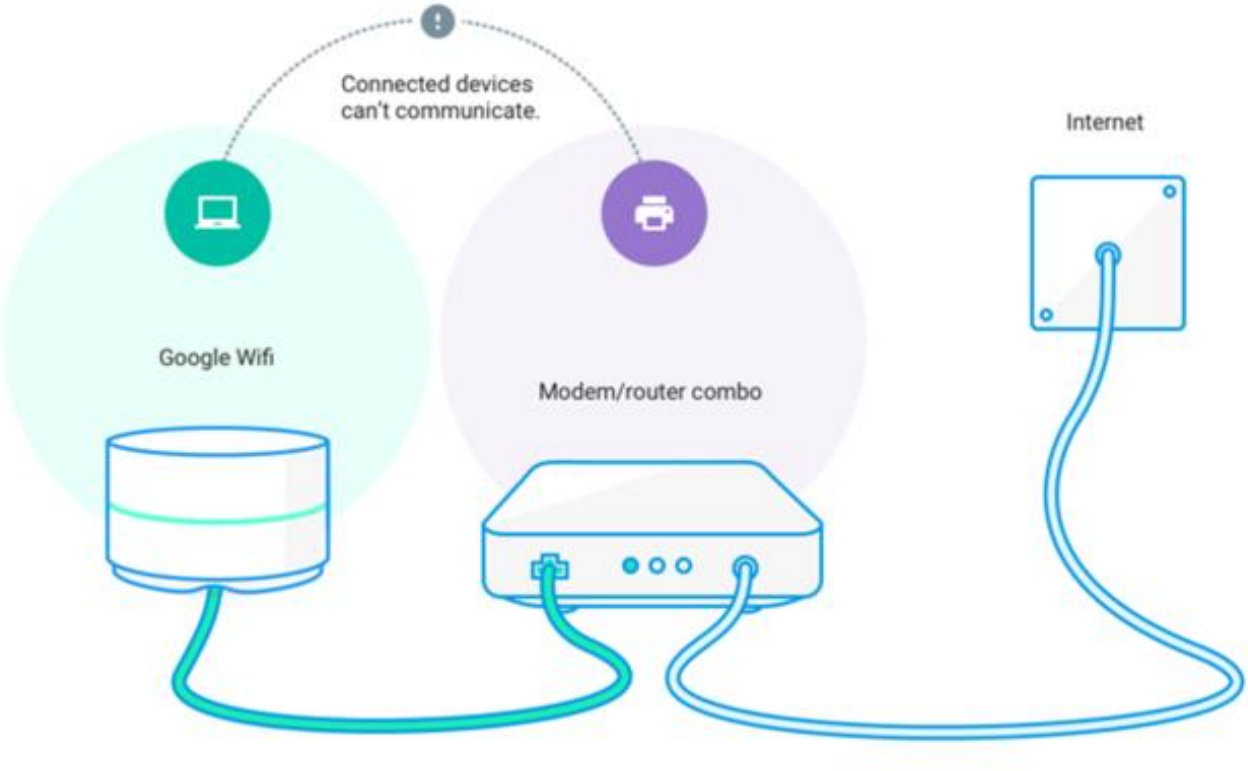
Internet providers usually provide a modem or gateway, which is a modem and router combo, that converts the signal that comes into your home internet connection. In many cases, the modem or gateway is set up to perform NAT. A double NAT happens if another router, for example a Nest Wifi router, is connected to the ISP modem or gateway. All this means is that data is going through a NAT process twice, which might cause a very small delay, of the order of milliseconds to data getting in and out of your home.

What other disadvantages are there in a Double NAT configuration?

You can connect 2 or more independent (non-meshed) router systems to extend the Wi-Fi coverage in your home. But when you have 2 routers, each with their own private Wi-Fi network, your personal devices can have a hard time communicating with each other because of the different sets of IP addresses and firewalls between the 2 independent router systems.

For example, let's say you want to wirelessly print a picture from your computer. If you have 2 independent networks, it's possible your computer is on one network while your printer is on the other. And if both networks are private, your computer won't be able to tell your printer to print the picture.

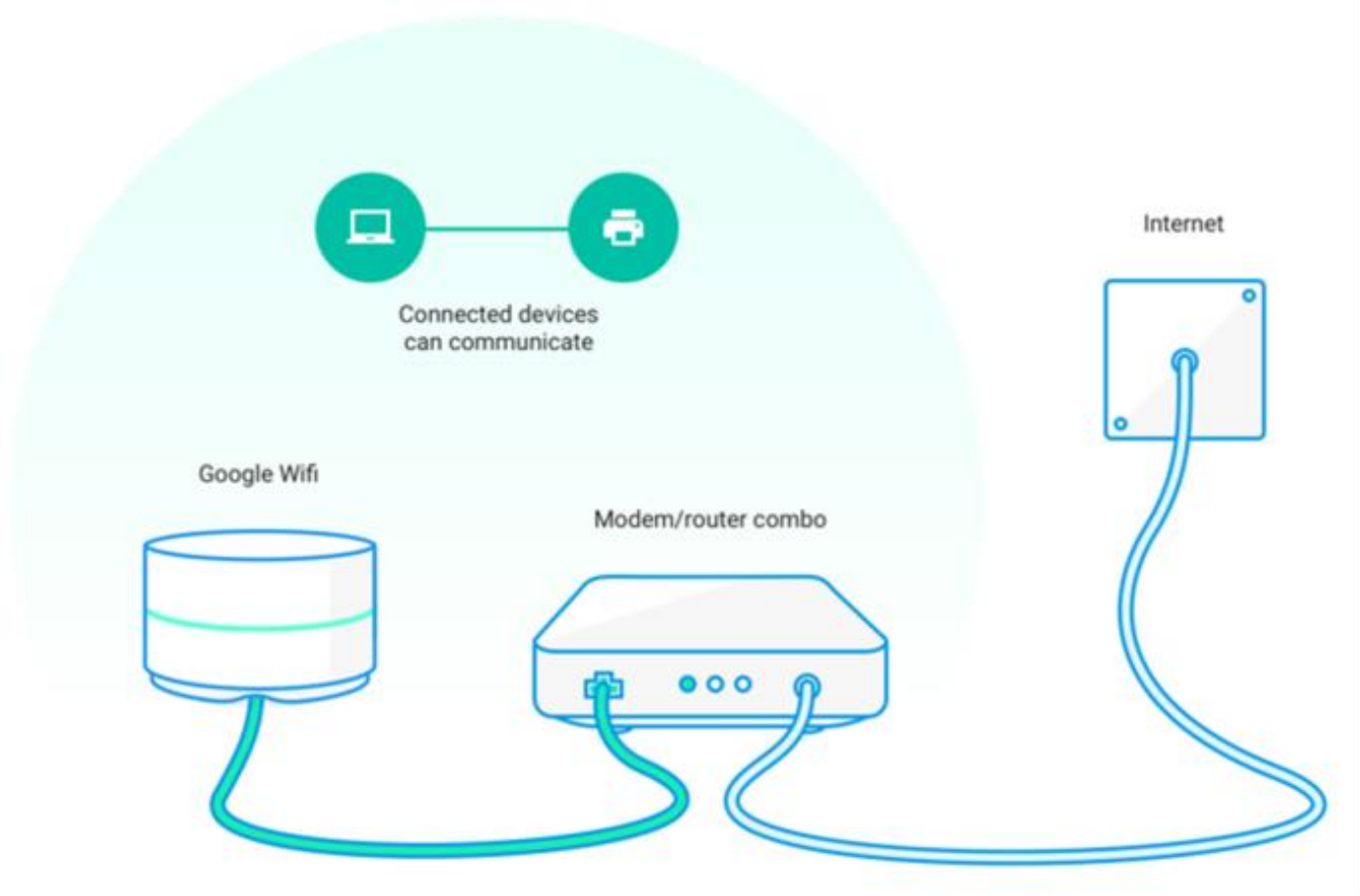
Double NAT



A double NAT can also result in performance issues if you play online games or use port forwarding rules and UPnP.

To fix this, bridge mode lets multiple routers share one single Wi-Fi network. Here's what that could look like:

Bridge mode



Google Nest Wifi or Google Wifi chose a crowded channel

If you've noticed that your Google Nest Wifi or Google Wifi network is sharing a channel with several other networks, don’t worry. Crowded isn’t the same as busy.

What makes a channel busy?

- **The activity level of each network matters more than the number of networks.** A single Wi-Fi network with heavy use can clog a channel far worse than many unused networks. Not sure what this means?
- **Channel scanning apps don’t always measure other sources of congestion and interference.** Non-Wi-Fi signals (like those from microwaves, Bluetooth devices, cordless phones, garage door openers, baby monitors, etc.) can all congest a channel but

may not show up in a scan. So it's possible that a channel can appear empty, while it is, in fact, saturated with other kinds of interference.

When choosing a channel, Google Nest Wifi and Google Wifi factor in how busy the other networks are, as well as non-Wi-Fi interference.

If your Google Nest Wifi or Google Wifi network is using a crowded channel but you aren't experiencing slow speeds, don't worry. Your point is always scanning its environment to choose the channel that is most likely to give you the best Wi-Fi.

More about channel congestion

Imagine you and a friend are in a room with 10 other people. If everyone is quiet, you can still have a clear conversation with your friend.

Now, imagine you and your friend are in a room with just 2 other people, except they're both yelling at the top of their lungs. It would be pretty hard to understand your friend.

It's the same with Wi-Fi. Your Wi-Fi devices communicate with each other more clearly and quickly when there's no competing "noise" (for example, network congestion). It's more about how much traffic each Wi-Fi network has, and less about how many networks there are.

Can't find or identify device in Family Wi-Fi

When you create a Family Wi-Fi group, all of the devices currently and recently connected to your Wi-Fi network should be listed. Some devices might display some hard to identify names. For example, a phone or computer might be shown as "a738b00002." If you're having trouble identifying a specific device, follow the steps below.

Note: You can only add a device to one group. If you've previously added a device to a group, that device will no longer show among your devices when you create a group.

With the Google Home app

There are a couple of ways to try to identify a device:

Compare MAC address of your device to the devices listed in the Google Home app (Recommended)

1. Open the Google Home app .

2. Tap **Wi-Fi** > **Devices**. Devices that are currently connected and used most often are listed towards the top.
3. Tap the device you want to know more about to check it's MAC address.
4. Most devices will display a MAC or IP address in the device's settings (not in the Google Wifi or Google Home app). Compare these numbers to the numbers shown in the Google Home app. If they match, you've identified your device.

Wi-Fi basics

What is a router?

A router is a device that provides Wi-Fi and is typically connected to a modem. It sends information from the internet to personal devices like computers, phones, and tablets. These internet-connected devices in your home make up your Local Area Network (LAN). Once a modem brings in information from the internet, a router distributes this data to your personal devices.

Note: To use Google Wifi, you'll need to set up one of your Google Wifi points as a router (primary Wifi point). Connect your router or primary Wifi point to a modem with an Ethernet cable. Keep in mind, some apartment buildings and dorms don't require modems for broadband connections. If this is the case, you can plug your router directly into an available wall Ethernet port.

How to plug in Google Wifi point

First, check that your modem is powered on. Now, the steps are a little different for your primary Wifi point and additional Wifi points.

Note: For Google Nest Wifi, visit How do I plug in my Google Nest Wifi point?

Primary Wifi point

Step 1. Find the ports

The power and Ethernet ports are found on the bottom of your Google Wifi point near the base.

If you have a TP-Link OnHub, you'll need to twist the outer shell counterclockwise and lift to reveal the ports. If the cover feels tightly in place, don't be afraid to use some muscle while twisting it off. Your OnHub will be able to handle it.

On the ASUS OnHub, the ports are on the back near the base.

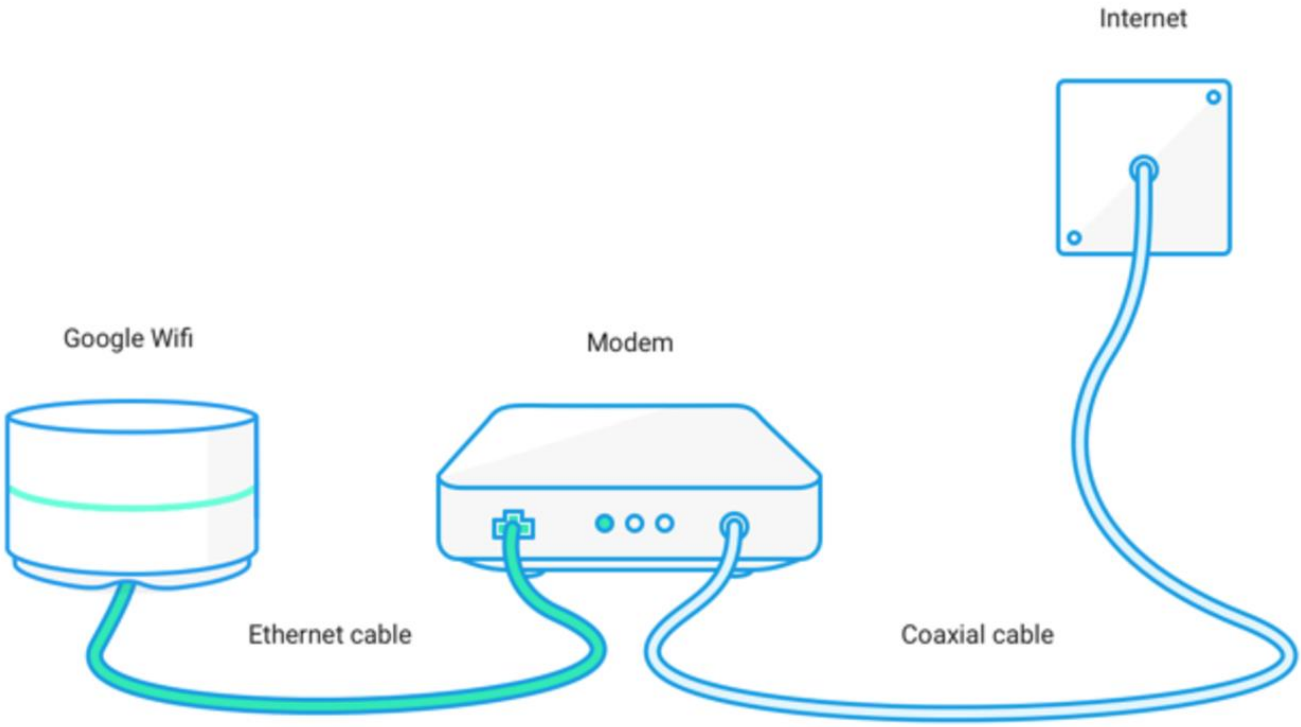


Step 2. Check the power cable

Make sure the power adapter is connected to your Google Wifi point, then plug the other end to a working wall outlet. Your Google Wifi point's light will glow to indicate that it's powering on.

Step 3. Check the Ethernet cable

Connect the provided Ethernet cable to your Google Wifi point's WAN port icon. Plug the other end to your modem and make sure it's powered on.



Note: Some apartment buildings don’t require a modem to access the Internet. In this case, plug the cable directly into your wall’s Ethernet jack.

Step 4. Get online

If you haven’t completed the setup process, open the Google Home app and follow the setup instructions.

If these steps don’t work, please contact us.

Additional Wifi point

Step 1. Find the ports

The power and Ethernet ports are found on the bottom of your Google Wifi point near the base.

If you have a TP-Link OnHub, you'll need to twist the outer shell counterclockwise and lift to reveal the ports. If the cover feels tightly in place, don't be afraid to use some muscle while twisting it off. Your OnHub will be able to handle it.

On the ASUS OnHub, the ports are on the back near the base.



Step 2. Check the power cable

Make sure the power adapter is connected to your Google Wifi point, then plug the other end to a working wall outlet. Your Google Wifi point's light will glow to indicate that it's powering on.

Step 3. Get online

If you haven't completed the setup process, open the Google Home app and follow the setup instructions.

What is a modem?

A modem is a device that sends information between the outside world or Wide Area Network (WAN), and your home.

A modem turns your inbound connection (coax cable, telephone line, fiber optic line, or other) into an Ethernet connection, which then allows a Wi-Fi router to connect to the Internet.

Modems are usually provided by your Internet Service Provider (ISP). Your router or primary Google Wifi point should be connected to your modem with an Ethernet cable.

Modem and router combination devices (Gateways)

Many ISPs provide a device that includes both modem and router functionality. Connecting your Nest Wifi router or primary Google Wifi point to these types of combination gateway devices is okay. But for optimal setup, you may need to adjust settings on the combination device to ensure your Nest Wifi router or Google Wifi point is your network's primary router. Learn more about Double NAT.

It is recommended to turn off the built-in Wi-Fi in your combined modem and router device. If turning off the Wi-Fi functionality isn't possible, change the original Wi-Fi network name to something else. Afterwards, set your Google Wifi or Nest Wifi network name to what you used previously with your old modem and router device. By reusing the network name, you won't have to reconnect devices that were previously on the network.

Don't have a modem?

Some apartment buildings and college dorms don't require a modem for Internet access. You can plug a Google Nest Wifi router or Google Nest Wifi point directly into your wall's Ethernet jack.

WAN vs. LAN

What is WAN?

A Wide Area Network (WAN) is a network that exists over a large-scale geographical area. Your modem sends and receives information to and from the internet through its WAN port.

What is LAN?

A Local Area Network (LAN) is the collection of wired and Wi-Fi connected devices in your home or office. This is your personal network. Your computer, phone, tablet, router, etc. make up your LAN.

Where are the WAN and LAN ports?

The WAN and LAN ports are found on the bottom of your Google Nest router or Google Wifi point. Google Nest Wifi points do not have WAN or LAN ports.

If you have a TP-Link OnHub, twist the outer shell counterclockwise and lift to reveal the ports. If you have an ASUS OnHub, the ports are near the base on the back.

Who's my Internet Service Provider (ISP)?

Your Internet Service Provider (ISP) is the company that provides your internet access.

Examples of ISPs are:

- Comcast
- AT&T
- Time Warner Cable
- CenturyLink
- Charter

- Verizon
- Cox
- Google Fiber

Visit www.whoismyisp.org to look for your ISP.

When should I contact my ISP?

You should contact your ISP if:

- You consistently get slower speeds than you are paying for (Use Network Check or other speed test services to compare).
- Your network loses its internet connection and following the networking help steps does not resolve the problem.
- You want to change your plan.

If you have connection issues, here's what you can ask your ISP:

- Is there an internet service outage in my area?
- Have any internet settings changed (a new PPPoE username/password or static IP)?
- Have there been any other network service changes?

Local IP network changed to 192.168.85.0/24 (Google Wifi)

This happens when you set up a new and separate Google Wifi network connected downstream from an existing Google Wifi network, or when you connect a Google Wifi point to any third-party router that gives out DHCP addresses in the 192.168.86.0/24 IP network range. Both of these scenarios will change your default Google Wifi point's local IP network range to 192.168.85.0/24.

This happens because your WAN port needs a different IP address from your LAN subnet.

What's the difference between WAN and LAN?

Change local IP network back to 192.168.86.0/24

To switch the network back to 192.168.86.0/24, follow these steps:

1. Open the Google Home app .
2. Tap **Wi-Fi** > Settings > **Advanced Networking.**
3. Tap **LAN**.

4. Change the “DHCP Address Pool” to the range you want, and tap **Save**. Example: 192.168.86.20 to 192.168.86.250 is the default range.
5. Go back to **Wi-Fi** > Settings > **Restart network**. This will force reconnection of the clients and new IP addresses to be issued to each of them.

Note: If you only change the WAN IP address or disconnect from the “upstream” Wifi point (the one between your modem and second Wifi point), this will not automatically change the local network back to 192.168.86.0/24.

Where to place your Wifi devices

The placement of your Google Nest Wifi router and points or Google Wifi points is vital for the reliability of your Wi-Fi network throughout your home. But knowing where to put them is an inexact science. The best location for your router and points depends on several different things like:

- Home size
- Home construction type
- Where you regularly use Wi-Fi
- Layout of your home
- Placement of your Wifi points

Place a new Wifi router or add-on point

Note: Nest Wifi Pro (Wi-Fi 6E) can't be combined with Nest Wifi or Google Wifi (Wi-Fi 5) in a mesh network.



Where to set up Nest Wifi Pro routers

Place your Nest Wifi Pro router

Your router needs to be connected to a modem. This could limit where you place it, depending on where your modem is and the length of the Ethernet and power cables.

If possible, place your router off the ground and in plain view, like on a shelf or TV stand. If you can, try to choose a central location in your home that's at eye level.

Add a Nest Wifi Pro router as a point

Each Nest Wifi Pro device you add after the first is considered a mesh point. To provide expanded Wi-Fi coverage, the connection between each point needs to be strong. Make sure the router and points are evenly spread out, but not too far from each other.

1. Start at your router.
2. Now, think about where else you want a strong Wi-Fi signal in your home. Place your point about halfway in that direction, but no more than 2 rooms away from your router or another point. Choose an open area and avoid placing it near other objects that might physically block your signal.
3. Find a nearby wall outlet. Make sure the power adapter is connected to your point, then plug the other end into the outlet. Follow the instructions for setting up your Nest Wifi Pro device.
4. Once you've set up your network, you can perform a mesh test to verify that your connections are strong and readjust the placement of your points as needed. For more Wifi device placement tips, learn how to improve coverage for an existing network.
5. Repeat these steps for any additional points.



Where to set up Nest Wifi devices

Nest Wifi devices include the Google Nest Wifi router and Nest Wifi points with Google Assistant speakers. You can also add Google Wifi points to your Nest Wifi network in the same way you add Nest Wifi points.

Place your Nest Wifi router

Your router needs to be connected to a modem. This may limit where you place it, depending on where your modem is and the length of the Ethernet and power cables.

If possible, place your router off the ground and in plain view, like on a shelf or TV stand. Try to choose a central location at eye level.

Add a Nest Wifi point or Google Wifi point

To provide Wi-Fi coverage to every corner of your home, the connection between each point needs to be strong. Make sure the Nest Wifi router and points are evenly spread out but not too far from each other.

1. Start at your router.
2. Now, think about where else you want a strong Wi-Fi signal in your home. Place your point about halfway in that direction, but no more than 2 rooms away from your router or another point.
    - If you’re setting up a Nest Wifi point, this location will also be where you'll interact with the Google Assistant.

    - Place your point in an open area and avoid placing it near other objects that will physically block your signal.
3. Find a nearby wall outlet. Make sure the power adapter is connected to your point, then plug the other end into the outlet. If you're setting up a Nest Wifi point, the point's light will pulse to indicate that it's powering on.

4. Once you have set up your network, you can perform a mesh test to verify your connections are strong and readjust the placement of your points as needed. For more Wifi device placement tips, learn how to improve coverage for an existing network.

Repeat these steps for any additional points.



Where to set up Google Wifi devices

Google Wifi is made up of Google Wifi points. You can also add Google Nest Wifi points as additional points. The Nest Wifi point cannot be used as a primary point (router).

Place your primary Google Wifi point

Your primary Google Wifi point needs to be connected to a modem. This may limit where you place it, depending on where your modem is and the length of the Ethernet and power cables.

If possible, place your point off the ground and in plain view, like on a shelf or TV stand. Try to choose a central location at eye level.

Add more points

To provide Wi-Fi coverage to every corner of your home, the connection between each point needs to be strong. Make sure the points are evenly spread out but not too far from each other.

1. Start at your primary Google Wifi point.
2. Now think about where else you want a strong Wi-Fi signal in your home. Place your next point about halfway in that direction, but not more than two rooms away from the primary point.
    - If you're setting up a Nest Wifi point, this location will also be where you interact with the Google Assistant.
    - Place your point in an open area and avoid placing it near other objects that will physically block your signal.
3. Find a nearby wall outlet and plug in your point.
4. Once you've set up your network, you can perform a mesh test to verify your connections are strong and adjust the placement of your points as needed. For more Wifi device placement tips, learn how to improve coverage for an existing network.

Repeat these steps for any additional points.

Improve coverage for an existing network

Once you've set up your devices, perform a mesh test to determine if one of your points has a poor connection. To improve the connection, try these recommendations:

Move the Wifi point within the same room

- **Line of sight.** Points perform better when they can see each other. Repositioning points to avoid obstructions like walls, doors, and aquariums can improve performance.
- **Get off the ground.** Placing devices somewhere off the ground, such as on a shelf, can greatly improve coverage.

Move the Wifi point to a different room

- **Stay close**. Points work best when they're no more than two rooms away from each other. For example, if the far end of your house has weak Wi-Fi, don't put a Wifi point in that exact spot. Instead, put it partway in that direction.
- **Consider your overall mesh network.** Points depend on each other to provide great coverage in your home. In order to fix a particular "weak" point, you may need to move a different point in order to fix it.

Check that you have the right number of Wifi points for your home

- If moving your points still leaves coverage issues in certain areas of your home, consider adding 1 or more additional points to provide more coverage. Learn how many Wifi points you need based on the size of your home.
- Nest Wifi and Google Wifi are designed to support up to a total of 5 routers and points per network and aren't intended to be used across multiple dwellings. Using Nest Wifi or Google Wifi in this manner can result in slower Wi-Fi speeds and unreliable connections.

If you do move a point, perform another mesh test to make sure the new location gives you a good connection.

Network insights

Wi-Fi network insights may be available in your Google Home Feed for issues related to this article. When an issue with your network is identified by Nest Wifi or Google Wifi devices, you'll have an insight card in your Google Home feed letting you know there could be a problem and suggesting a solution.

If you received a related network insight, check your insight message below for more information:

"Move [Wifi router or point] to improve signal"

You'll receive this alert if Nest Wifi or Google Wifi detects that a point that is connected to your network has poor Wi-Fi signal strength.

"Your Wifi point is connected, but it has had a poor average signal strength of less than -77dBm (decibel-milliwatts) for the last 24 hours."

Fix: Follow the steps above to improve your network coverage.