

# Troubleshooting Slow Internet—Common Causes

If you are experiencing slow internet this document can answer many of the typical service questions. We recommend you start here.

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## Slow Internet Issues?

Look for the hourglass in this document for quick reference to all of the issues that may be causing a slow internet experience in your home or business and learn easy solutions to improve internet performance.

## Installation Considerations

1. **Power:** There must be an electrical outlet and phone jack available for your Internet Gateway power connection. A surge protector is strongly recommended to protect your Internet Gateway from lightning and electrical power surges.
2. **Wired devices:** Do you have wired devices that need to connect to Internet access? The Internet Gateway may need to be located near your desktop computer or printer.
3. **Wireless devices:** Can all of your Internet access devices connect to a wireless Wi-Fi connection? If not, consider visiting a technology retailer to purchase appropriate wireless adapters for your equipment.

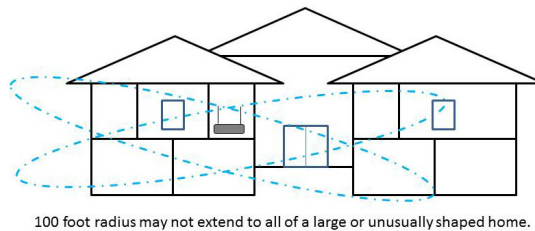
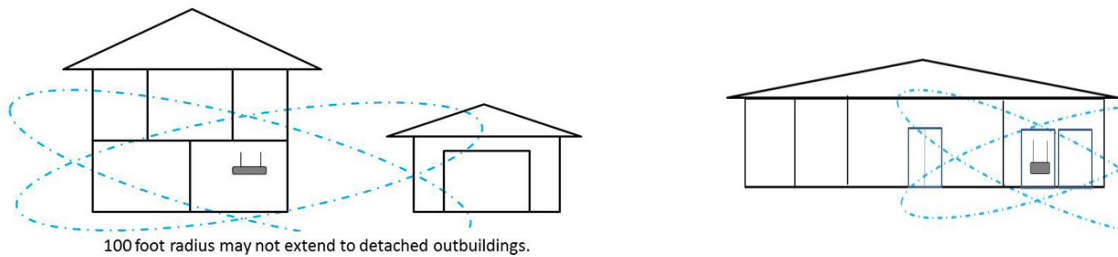


4. **Locating your Internet Gateway for coverage:** Where do you and your family spend the most time on wireless devices? For the best wireless signal results, elevate the Internet Gateway atop furniture (off the floor) and centrally locate to your most-used wireless computing or Internet TV spots in the home. The Wi-Fi signal is robust and can move through walls and objects, but has some limitations.



Here are some important considerations before placement of your Internet Gateway:

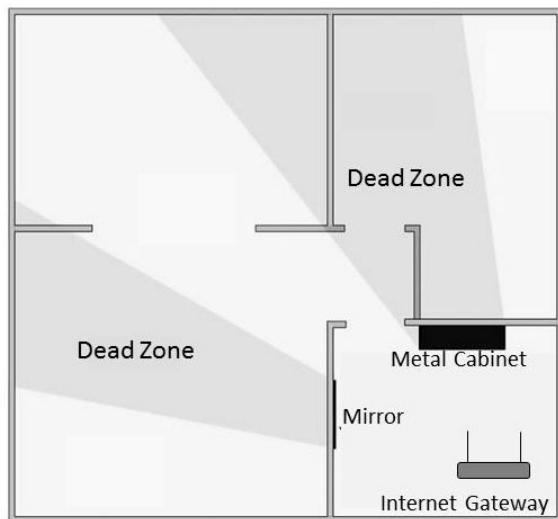
- **The 100 foot radius signal is shaped more like a pancake than a sphere.** If antennae are present on your model, position straight up for best coverage.
- **Unobstructed Wi-Fi signals may extend to 100 feet** in a ring around the Internet Gateway, adequately serving a rectangular 2000 square foot home. The signal gets weaker as it moves away from the source. The Wi-Fi signal is robust and can pass through interior walls and softer obstructions, but the signal can become degraded as it passes through multiple or denser objects. For full Wi-Fi coverage for distances over 100 feet in very large homes, uniquely shaped homes, or detached outbuildings, you may need additional wireless access points which have specialized equipment and installation requirements. Seek a professional home network installer or networking experienced electrician for extending your home network.





## Locate your Internet Gateway to Avoid Wireless Obstructions

Obstructed Wi-Fi signals will result in dead zones or degraded signal strength. Below are common radio frequency obstructions to consider when accessing your Wi-Fi access point. You may need to move to a different location to access the wireless network or, if possible, move the barrier or the Internet Gateway.



Be aware of objects which may block the Wi-Fi signal, and reposition them for better coverage.

LOW
Wood
Synthetic Material
Glass
MEDIUM
Water
Bricks
Marble
HIGH
Plaster
Concrete
Bulletproof Glass
VERY HIGH
Metal
Foil-Covered Insulation

## Troubleshooting Signal Problems after Installation

You've made some smart choices to select the optimal location for your Internet Gateway. What should you do if there are signal problems?

- 5. Position the antennae on your Internet Gateway:** If antennae are present, position them straight-up vertical to start then test the signal by walking around the home with an active device to test for dead zones.
- 6. If you have dead zones or experience a weak signal:** Move the Internet Gateway closer to where you compute, move closer to the Internet Gateway, adjust the antennae slightly or consider repositioning any dense obstructions in your home.
- 7. Managing wireless interference:** This is the most challenging and time-consuming area to troubleshoot as the trouble can be intermittent or you may only notice slower Internet access occasionally. Most people don't realize that they are experiencing interference on their Wi-Fi network because it is still operational.



### Recognize the effects of Wi-Fi interference:

- A decrease in the wireless range between devices
- A decrease in data throughput over Wi-Fi
- Intermittent or complete loss of the wireless connection
- Difficulty pairing during a Bluetooth™ device's discovery phase

**Common sources of interference: Devices operating the 2.4GHz or 5GHz channels\*:**

- Microwave ovens
- Cordless phone
- Wireless speakers
- Baby monitors
- Video senders
- Security cameras
- Garage door openers
- Invisible dog fence and collars
- Bluetooth™ headset and devices

\*Your Internet Gateway operates on 2.4GHz channels. Some devices may not specifically state that they operate in the 2.4 GHz or 5 GHz band. The product's documentation should indicate the bands the device uses to operate. These may be referred to as "Dual Band", "Wi-Fi", or "Wireless" devices.

***Other sources of interference:***

- Satellite TV service: The coax cable and connectors used with certain types of satellite dishes may cause interference. Check the cable for damage and obtain newer cables if you suspect RF leakage issues.
- Certain external electrical sources such as power lines and power stations.
- Certain displays may emit harmonic interference, especially in the 2.4GHz band between channels 11 and 14. This interference may be at its worst if you have a portable computer with the lid closed and an external monitor connected to it. Try changing your access point to use 5 GHz or a lower 2.4 GHz channel.

***To minimize interference between your Wi-Fi and Bluetooth devices, try this:***

1. Change channels on your wireless network. For Wi-Fi base stations (not your ISP's Internet Gateway), reset the base station and it will attempt to use the 2.4 and 5 GHz channels with the least interference when it starts up.
2. Connect to a 5 GHz wireless network (if possible).
3. Minimize the number of active Bluetooth and wireless devices you have connected to the computer or operating in the area.

***To further isolate the wireless device causing interference, try this:***

Turn off all Wi-Fi and Bluetooth™ devices then sequentially turn on each device, looking for symptoms of interference until you can identify the interfering device.



***Software applications can consume your Internet without your knowledge.***

Some software applications you install on a computer run in the background, spontaneously generating network traffic without your knowledge, causing your internet connections to appear slow. These are programs designed to do useful work without your intervention. Cloud sharing services, social networking programs, automatic software updates and security software programs in particular can heavily utilize your computer and network bandwidth causing connections to appear slow. It's easy to forget these applications are running. Always check computers for any programs running in the background when troubleshooting a slow network. Try this: If you don't always need an application available, such as cloud services, turn-off the application when not in use. Try scheduling automatic software updates at a time when your entire family is not at home and online, or set to update manually.



***Does the broadband speed match your household needs?***

Do you have enough speed for your online habits? To improve your connection, power-off any devices which are not in active use, or ask your family to take turns online. Even if you are not using the device, if it is powered on, it may be consuming bandwidth. Use our home Wi-Fi checklist to see how many devices consume bandwidth in your household. Most people are surprised!

**HOME WI-FI DEVICE CHECKLIST**

- |  |  |
|--|--|
| ___ Internet-connected TV                  | ___ Game consoles                              |
| ___ Media box for Internet movies or music | ___ Security system or cameras                 |
| ___ E-book reader                          | ___ Video pet monitor                          |
| ___ Music pods                             | ___ Medical alert system                       |
| ___ Touch pad computers                    | ___ Home networking router                     |
| ___ Laptop computers                       | ___ Visitors with gadgets                      |
| ___ Smart phones                           | ___ Are your neighbors using your Wi-Fi?       |
| ___ Home cell phone tower                  | Always password-protect your Internet Gateway! |
| ___ Other devices                          |  |

### ***Still Experiencing Slow Internet?***

If after checking the possible causes of slow internet in your household listed in this document and you still find your internet experience to be slow, there are a few other causes that can be more challenging to isolate.

### ***Most common causes of slow internet:***



- Peak bandwidth saturation – one or several devices on your home network has utilized all of the available bandwidth for the broadband product you selected.

**Solution** - Upgrade your broadband service to a higher bandwidth or reduce the number of devices simultaneously using your existing service. For speed upgrade options contact support.

- Home networking equipment malfunction - Customer equipment such as routers, switches and security cameras are not configured correctly.

**Solution** – If you have your own router or other networking devices ensure they are configured correctly. The manufacturer may offer support or hire a qualified data networking professional.

- Computer viruses – Often times computer viruses can compromise your computing device which results in poor performance.

**Solution** – If you have anti-virus protection be sure it is always enabled. Many anti-virus softwares offer a scanning function which looks for viruses on your machine. In extreme cases

you may need to take your infected machine to a professional for restoration.

- Internet Gateway malfunction - From time to time the Internet Gateway fails or malfunctions.

**Solution** – If you purchased your Internet Gateway it is under warranty for a period of 1 year from the date of purchase (This excludes equipment damage by lightning; always unplug your gateway during storms). If the Internet Gateway is out of warranty you have the option to purchase a new Internet Gateway.