Managing Your Bandwidth

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On this page:

Overview
Use Your Best Connection Type
Test Your Speed
Minimize Bandwith Bleeding from Your Network
Tips for going faster
See Also
Have questions or still need help?

Overview

There are an ever-increasing number of high-bandwidth consuming activities we do every day. More things we plug into our networks. More applications we've allowed to run in the background. More ways we view, listen to, and collaborate online. All of these take up the limited supply of bandwidth your connection of choice can provide. If you're having trouble doing activities online, it's time to take action to find out what's using your bandwidth and how to free enough up to get back to work (or play).

Use Your Best Connection Type

Not all connections are created equal. Depending on connection speed and equipment, you may not be getting the most you can out of your available connectivity options. Even though your home connection may be 1000Mbps, that does not mean everything it connects to will communicate at 1000Mbps. Actual throughput can also be less than advertised speeds, as a result of many factors, including neighborhood traffic, traffic within your own local network, and the hardware limitations of your network devices. Also, if the remote system only has a 100Mbps connection, the communication speed between the two devices will never be better than the 100Mbps.

In general: **Wired connections** are better than **Wireless connections**, which in turn are better than **Cellular connections**.

Test Your Speed

There are a few reasons you may want to test your network speed when you're having trouble with high bandwidth activities. You can find out how much you have to adjust your behavior to fit. Find out how changes you've made affect your speed. See if you're getting what you expect from your provider.

NEVER run a speed test when connected to the VPN. This will not give an accurate result and will use valuable VPN resources causing other users to experience diminished responsiveness.

- https://www.speedtest.net/
- **Determine your baseline speed**
  It's good to know where you are. You can test your current setup to see what bandwidth you have. Do it at multiple times of the day/night to see if there are time-related differences. These could be caused by cyclical uses of your network or even your neighbors using theirs. Your provider has a limited capacity total, so everybody being on at once certain times of day may overload the capacity. If this is the case, you may want to contact your provider to let them know it's happening.

  Wireless connections are very unlikely to give you an accurate assessment of the full capacity of your local network. Only a direct wired connection to the router will do that.

  - Test the connection you normally use to determine your personal bandwidth.
  - Test with an Ethernet cable connected directly to your router to determine the capacity of your network. Be sure to disconnect other bandwidth-using sources first. The easiest way to do this is to turn off wifi so you're the only one connected.
- **Track your changes**
  After making updates, find out how well they worked by testing again. You want to use as similar conditions as possible for the comparison. Be sure to use the same connection type and time of day to get as accurate a reading as possible. Again, trying multiple times is helpful. You never know when a neighbor may be engaged in a high bandwidth activity that's affecting your results.

If your results indicate you're not getting the performance you expect from your provider, contact their customer support for further assistance.

Minimize Bandwith Bleeding from Your Network

You may not even realize how many people and applications are sharing your network, which reduces the amount of bandwidth left for you. Things you can check:

- Login to your router to **check how many devices are connecting** to it. Smart devices or people you don't know maybe on it using up bandwidth. Kick people and devices off who shouldn't be on it or aren't needed during your activity. Your provider's customer support may be able to help you with this process.
- **Check how your television service works**. It may be a "smart" TV or share the same fiber connection. Don't forget the DVR; even if the TV is off it may be recording multiple shows.
- **Smart devices** (smart speakers, video doorbells, security systems/cameras, etc.) check in with the home office constantly and often send audio and video content. Most can be temporarily paused to free up bandwidth.
- **Other networked devices** may be online and using bandwidth in the background such as tablets, gaming systems, and phones.

Tips for going faster

- For Wireless connections, move closer to the wireless router. This may improve your speed.
- For cellular connections, check how many bars you have in all areas available to you for your activity. Some may offer a better connection than others. CellMapper.net is a crowdsourced cellular tower and coverage mapping service that can help you find what's avilable in your area.
- Mute your microphone in video meetings when you're not speaking. That saves the whole audio stream. For large meetings or events, this can make a big difference.
- Sending high definition (HD) webcam video requires more bandwidth than sending non-HD. Disabling HD video when you don't need it will free up more of your Internet connection.
- Close any applications on your device you don't need during your high-bandwidth activity if your activity uses processing power. The problem may not be bandwidth, but the processing power your application needs to run.
- Don't use applications or start activities that use significant bandwidth. Consider other devices on your network as well.
    - Large uploads/downloads
    - Streaming audio/video (e.g. Netflix, Spotify, Hulu, YouTube)
    - Cloud backups (e.g. Carbonite, Code42)
    - Cloud file synchronizations (e.g. OneDrive, Dropbox)
    - Apps that use bandwidth in the background
    - Smart devices (speakers, doorbells, televisions)
- Do large uploads/downloads at off-peak hours. They'll go faster and won't interrupt your other work.
- For video conferencing, consider calling in with a phone (set to use cellular data) and streaming the video on a computer/tablet (connected to your network).

See Also

- The FCC's Map of broadband severices
- Zoom's Wireless Connection Issues
- Webex's Latency Troubleshooting Best Practices

Have questions or still need help?

- Contact the IS&T Service Desk