

Information Services

Home Network Troubleshooting Guide



The Home Network Troubleshooting Guide can be used to help determine what problems exist on your home network and if there are ways to improve connectivity. Use this guide if you are experiencing intermittent or slow connectivity.

If you **do not have home internet or stable internet access**, you can utilize EDUROAM, if available, at a nearby university, college or public library. Sign into EDUROAM using your full Connecticut College email address (e.g., JCamel@conncoll.edu) and password.

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- I. **Bandwidth** - The first thing you need to determine when troubleshooting your connection is how much bandwidth you are actually getting from your bandwidth provider. You may be paying for more than you're actually getting to your device, which is not unusual. To determine how much bandwidth you are actually getting in your current location try: <http://www.speedtest.net>. You may want to run this test several times as you are going through this process. Below are estimates of minimum rates needed for these applications used by the College community, though the College recommends at least 10Mb/s download and 1 Mb/s upload speeds:
 - A. Minimum for Zoom/WebEx/Meet: 2Mb/s download 2 Mb/s upload
 - B. Minimum for Forticlient (VPN): 5Mb/s download 1 Mb/s upload
 - C. Minimum for Cisco Jabber: 2Mb/s download 1 Mb/s upload

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Keep in mind that there might be other things running on your computer that take up your bandwidth. When experiencing problems make sure other network applications are closed, Especially social media applications like: Facebook, LinkedIn or Youtube.

If you are not getting the bandwidth you expect, contact your internet provider to troubleshoot the problem. There could be a problem with the provider's external wiring, equipment outside of your home or the configuration of your home network.



- II. **Connectivity to your router.** Once you've determined that you have a good internet connection the next thing to check is your home network and components. These speeds differ from your internet connection. The bottleneck is typically the internet connection, but speeds connecting to your router may be dependent on other factors. Typical home routers offer wired (aka ethernet) and wireless connectivity. Wired connections are the fastest and most reliable. They are also dedicated connections, not shared.
 - A. **Wired**

Plugging directly into your home router is the best way to verify the bandwidth you have and eliminate Wifi issues due to interference. This is done by using a Cat 6 ethernet cable (available at Amazon, Walmart, Best Buy) and plugging it directly into the router and then into your computer. If you don't have an ethernet interface on your computer, you may want to acquire an [ethernet dongle](#). Make sure you purchase the appropriate version for your laptop. If you are unsure, reach out to the College IT Service Desk. Wired connections will operate at 100Mbps or 1 Gps, but the connection speed is fixed, not variable like wireless.
 - B. **Wireless**

Below is a table of standards that can assist you in figuring out what type of home router you have. (You can find this by looking at the sticker on the bottom or back of the router.) Keep in mind that these speeds are affected by other wireless devices connecting simultaneously (e.g., another member of your household also connected to the internet) or interference by objects or structural

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components (e.g., concrete between you and the router). This table will also help if you are working with your internet provider to improve your network speed.

Wifi name	Standard	Frequency	Max Speed	Distance
Wi-Fi 3	802.11g	2.4Ghz	54 Mbps	460ft
Wi-Fi 4	802.11n	2.4/5 Ghz	300-900 Mbps	820ft (2.4 Ghz) /460ft (5Ghz)
Wi-Fi 5	802.11ac	5 Ghz	433-1000 Mbps	Up to 820ft
Wi-Fi 6	802.11ax	5 Ghz	1200 Mbps	820ft

Wi-Fi 3 was introduced in 2003 and WiFi 4 2009. If your router is older than ten years you should consider upgrading it. To get the faster speeds you should try to get a device that can accommodate the 5Ghz band, which has more channels, hence less congestion. It's like driving on the freeway vs. driving on back roads in the 2.4 Ghz range. If you have a lot of wireless devices in your home, you might also consider upgrading to a Mesh system which allows you to place wireless routers on multiple floors. Routers for this purpose are available on Amazon and range from \$100 up. Consult with your internet provider for more information on how to configure your home network for maximum bandwidth.

III. Laptops, Desktops, and Mobile Devices

Shutdown applications that are not needed or running in the background. You can reboot your device to sometimes improve connectivity. Also, disconnecting from the College VPN will usually increase bandwidth speed.

Streaming devices and the Internet of Things (IoT) in your home can affect performance. Try turning off any streaming device, e.g., Alexa, smart TVs, etc., for a faster connection.

IV. FAQ Section

Why does my connection work in the morning, but not in the afternoon?

This has a lot to do with your internet service provider of choice. While DSL runs at slower speeds the bandwidth is typically dedicated to your connection. If you are utilizing a broadband

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connection which is typical for cableTV companies, you are using shared bandwidth. What this means is that your neighbors and you are sharing bandwidth. If your neighbors are using a streaming device, it can negatively affect your connection. This may be especially evident later in the afternoon or evening when more people are online.

What if my speed tests are good, but I'm still experiencing issues?

If your bandwidth speed tests are good, try them at different times of the day. You could be suffering from shared bandwidth issues (see above). Check your proximity to the router. If you can, plug directly into the router to eliminate wireless as being the issue. Check for interference from other wireless routers operating in your area. If there is a lot of congestion, upgrade your router to a 5 GHz model.

Finally, if you continue to have problems, don't hesitate to contact the IT Service Desk for assistance at 860.439.4357 (xHELP), enter a WebHelp Desk ticket or email us at help@conncoll.edu.