Network

Sometimes you have to do Network things

- Network Overview
- Internet On Location
- Unifi/Ubiquiti
- Home Network Chaos

Network Overview

Wired is faster than WiFi. Fiber is better than copper. 10/100/1000 means a network device is capable of 1000 Mbps. This is also called “1g” or “1gbe.” 10g(be) is 10x faster than 1g, but it’s not something you encounter very often. I had 6 years of glorious 1g squared fiber and now I’m back to copper and it is… a bummer. If you have fiber in your neighborhood/building, it is the same price as a mediocre high-end cable line. Get the fiber.

In addition to the 1g and 10g flavors, there is also 2.5g, and 5g. You can probably assume what those numbers mean.

5ghz is faster than 2.4ghz, but 2.4ghz has better range. In other words: put all your smart home bullshit on 2.4ghz and all your computers and media devices on the 5ghz (or wired).

> Some things you can do when your internet is bad or not working properly

- Unplug your Gateway and Router(s), wait 5 minutes, plug everything back in
- Don’t use your iSP’s provided wireless router, it is usually complete shit. Just google “best wifi wirecutter” and buy whatever they say to buy.
- For WiFi - check your congestion using a tool like WiFi Explorer.
  - Adjust the channels
  - Adjust the 2.4 vs 5
  - Move it away from other electronic devices
  - Move it to a higher spot
  - Get a better router
  - Get a mesh system
- Run a speedtest to evaluate tx/rx and ping. I use speedtest.net. Not the best, but at least it’s consistent.
- Call your iSP to make sure they are allowing you to use your own network equipment
- Renew your DHCP Lease
- Change your DNS servers to Google’s: 8.8.8.8 and 8.8.4.4 (this is a new one I can’t believe I didn’t know, thanks to Cuttlefish)
- Turn off your VPN

When you’re troubleshooting networks that aren’t yours, you can almost always get into their admin panel and make some fixes (or cause some chaos). Navigate to your computer network settings, find the router address, copy and paste that into a browser. This is the admin panel for the network. The chances that the router’s login is “admin” and the password is “password” is surprisingly high. Also: once you know the router’s iP, you can figure out who the manufacturer is, and then you can google “default admin login x manufacturer. Have fun with that. For the lazy: you can usually type 10.0.0.1 or 192.168.1.1 and that’s the router iP.

I can also recommend buying a compact WAP and keeping it in your kit. I go through phases of doing this, then I sell it to a job and don’t replace it. A WAP of your own means that you can connect to an existing network and use your own settings so you don’t need to think about it much. Sometimes you need to coordinate with venue IT, but more often than not, you can get away with this and no one needs to know.

A good network hack is using Powerline devices. These are fairly affordable network devices that allow you to run LAN over power cables. A good use case is: you need to get a hard line to a different room in a hurry and the two rooms don’t have a clear cable path, but they do share a circuit. Plug the Powerline TX in one room and the RX in another. These are always slower than the real thing and other devices on the same power circuit can cause interference. Never put these on a switchable outlet because the interference at the switch is aggressive. A 1-gig line with a high-end Powerline on a circuit with moderate interference cuts your speeds to ~200 Tx/Rx.

Internet On Location

You’re on location and you need good internet but can’t rely on what’s immediately available? You should rent a bonded-SIM system.

FlypackNY / FeedCentral a company that does it in New York. Haven’t used them, but have used some of their gear (TVU pack was solid when used in Austria w/ 100up/100down). The guy I spoke with there is ANDY. Nice dude. Depending on where you are in the city it’s between 35x35 and 100x100, but mostly around 50x50.

Unifi/Ubiquiti

Unifi devices are kind of like a “prosumer” networking ecosystem. It’s a step up from an unmanaged network, but a step down from a legit network (think Sysco or similar). You can use it for a theater, but your probably shouldn’t use it for DOD. That said, for most things, it works great and the price is right. I'm personally a big fan

Some gotchas:

When you plug in a new network device, like a switch or WAP, you need to adopt it to your head-end (UDM). You can’t do this via the web interface, you have to do it via the iOS or Android app. This is the only dependency on handheld devices for setup. Everything else can be done via the web interface - which is pretty slick.

Home Network Chaos

So you just got a new ISP and they supplied you with a receiver or modem and a router, but their router is garbage and you want to use your own?

If you plug your own router "down the chain" below their supplied router, the speed will almost certainly be gated.

If you remove their router from the chain and replace with yours, the speed will almost certainly be gated (Verizon 5G Home) or the internet might drop regularly (Optimum Cable).

One could call the ISP and ask them to set it up so it's not looking specifically for the MAC address of the supplied router. Calling up Optimum and doing this is pretty simple. Verizon is a little harder.

Solution? Find the MAC address of their router and clone it (or copy and paste it) to your own router. Now that we know this – such an obvious thing to do!

Obviously :

> Proceed at your own risk!

- Find the MAC addresses for both devices and write them down somewhere.
- Unplug the ISP router and remove it from the chain.
- Disconnect your router from the chain, but keep it connected to power.
- From a computer, connect to the router directly via wire and navigate to the admin panel (usually 192.168.1.0 or similar).
- Apply the MAC address from the supplied router to your own router.
- Remove power from the ISP Receiver/Modem.
- Restart your router.
- Power up the ISP Receiver/Modem.
- Wait for it to power up.
- Connect the network cable from the ISP Receiver/Modem to your router
- Congratulations!!!!