



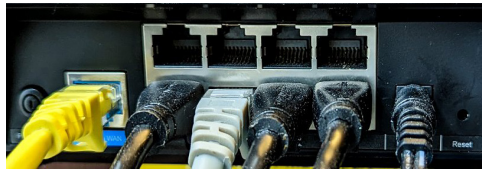
How to Add Ethernet Ports to a Wi-Fi Router

ROUTERS DESIGNED FOR HOMES AND SMALL OFFICES OFTEN PROVIDE FOUR ETHERNET PORTS.

AS NETWORKS BECOME MORE COMPLEX, YOU MAY NEED MORE.

Doorbells and security systems are now on many home networks. Baby monitors and refrigerators have joined printers and media servers. Some of these devices connect via Wi-Fi, but a wired Ethernet connection can provide better operation.

If all the wired ports on the router are in use, what happens when you need to add another wired device?

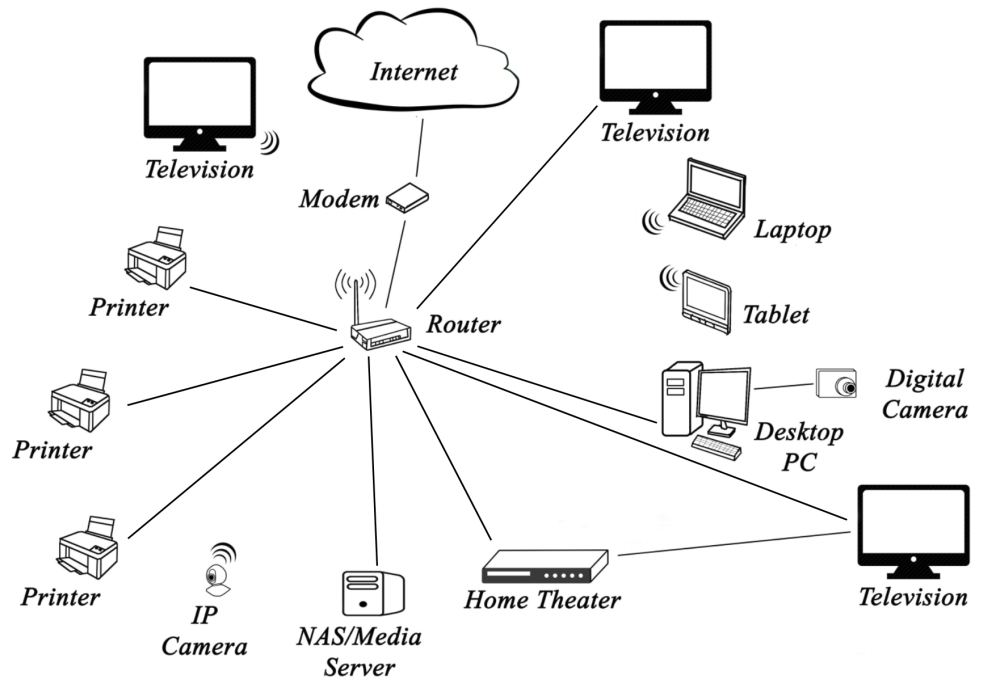


SOME ROUTERS SUCH AS THE TP-LINK AX6000 HAVE EIGHT PORTS, MOST DEVICES INTENDED FOR HOME USE HAVE ONLY FOUR.

When high-speed internet service came to homes, a single Ethernet port on the modem was sufficient because most homes had just a single computer and it was the only device that needed an internet connection.

Now modems from internet service providers often include a Wi-Fi router with four Ethernet ports. Likewise, most standalone Wi-Fi routers have four Ethernet ports. There are exceptions such as the Archer AX6000 from TP Link, which has eight.

The AX6000 was my choice the last time I had to replace a router, more for its other features than the extra Ethernet ports. Most of the time only three ports are in use: One for my computer, one to my wife's office,



ADDING MORE WIRED CONNECTIONS TO A HOME NETWORK TO GAIN IMPROVED PERFORMANCE FOR SOME DEVICES CAN EXHAUST THE NUMBER OF AVAILABLE PORTS ON THE ROUTER.

one for a printer, and a port that has a cable that's usually not attached to any device. Occasionally, I've used the spare connection and once connected a fifth wired device. Clearly more than four ports wasn't an essential feature.

What was more important is that this model supports Wi-Fi 6, the coming standard, so it will be ready for new devices.

Smart televisions and streaming devices often use Wi-Fi connections, but a wired connection could be a better choice. Wi-Fi is adequate for at least 4K streaming if you have a good Wi-Fi router and sufficient bandwidth from your internet provider, but the

system may not be able to keep up if you're in a household with two adults and a few children, all streaming video, music, or games.

Switching to wired connections could exhaust the supply of Ethernet ports.

Take printers. Some can connect via Wi-Fi, but I've always preferred a wired connection. Perhaps you have a monochrome printer and a color printer because most of the documents you print don't need expensive toner or inks. Add a third printer, one intended to be used with special photographic paper, and even eight ports might not be enough.



Seem Familiar?

WE'VE ALREADY SEEN THIS KIND OF PROBLEM WITH USB PORTS. COMPUTERS HAVE JUST A FEW AND IT'S EASY TO RUN OUT OF AVAILABLE PORTS.

The easy answer with USB is to install one or more USB hubs. Connections on my main computer include the usual mouse and keyboard, of course, along with a DVD player, a Blu-ray burner, the audio sound system used for recording and playback, three scanners, external disks, and backup devices. As a result, I've added a 10-port USB hub and a second 4-port hub for a total of 12 additional USB ports and only two are unused.

This is going to be an issue for Ethernet ports and there are three options for adding more. Two are reasonable solutions for most people.

First, and most expensive, you could add a second router that's connected to your primary router by wire. Besides providing more Ethernet ports, this option offers stronger signals in areas of the house that might not be well served by the main router. But those extra Ethernet ports would be wherever the second router is. If you need better coverage throughout a house, add access points or install a mesh system instead.

To add more Ethernet ports, use a hub or a switch. Hubs and switches are similar on the outside. The differences are what happens inside the case.

Hubs are the least expensive choice and offer the lowest performance.

Switches cost only a bit more and perform much better.

Both allow users to connect multiple devices to a single Ethernet port on the router, but hubs lack the intelligence to pass traffic to specific devices. All data on a hub will flow to every device that's connected to the hub. That can lead to network congestion.



THE TP-LINK TL-SG105 CAN ADD 3 ETHERNET PORTS TO YOUR ROUTER. THE NUMBER OF ADDED PORTS IS 3 INSTEAD OF 4 BECAUSE THE SWITCH WILL CONSUME ONE PORT ON THE ROUTER.

Hubs with five to eight ports are priced around \$20, but switches cost just \$30 to \$50 — and some are just a dollar or two more expensive than hubs. The Niveo NRS5GP 4-Port Uplink PoE Gigabit Network Switch is a high-end device that sells for more than \$150 and includes power over Ethernet (PoE). A more basic Netgear 8-Port Gigabit Ethernet Switch sells for just \$22. Choosing a switch is my recommendation if you need more ports.

Both hubs and switches are easy to install. Let's assume you're using a switch.

Connect the switch to a power source, move one device's connection from the router to the switch,

THE ISSUES WE'VE SEEN WITH AN INCREASING NUMBER OF USB DEVICES PRESAGES WHAT WE WILL ENCOUNTER WITH WIRED NETWORK PORTS. A LOW-COST SWITCH SOLVES THE PROBLEM AS EASILY AS A USB HUB SOLVED THE EARLIER OVERCROWDING ISSUE.

and connect the input cable from the switch to the newly freed socket on the router. The input on the switch is usually labeled "link" or "uplink". It will be the one socket on the switch that is unlike the others.

That's all there is to it. No configuration is needed. Once you've connected the hub or switch, you'll have the extra Ethernet ports you need.

If you need a lot of extra wired connections, take a look at the TP-Link TL-SG1016 switch with 16 ports (\$70) or the TL-SG1024 with 24 ports (\$90).

Change is the only constant may well be a silly aphorism, but that makes it no less true.

Wi-Fi Acceleration Tips

WI-FI IS ADEQUATE FOR MOST CONNECTIONS. IF YOU'RE SEEING SUBSTANDARD PERFORMANCE, INVESTIGATE BEFORE SPENDING MONEY.

Wi-Fi runs in two frequency bands, 2.4GHz and 5GHz. More are coming, starting with the 6GHz band.

The 2.4GHz band is slower, but works better over longer distances. The 5GHz signal can be faster, but if a device is far from the router, try switching to the 2.4GHz band first to see if that improves performance.

For 2.4GHz signals, check to see which channel your router is using. There are 13 channels, but only channels 1, 6, and 11 should be used. There's a long, convoluted explanation for this that I don't have space for here. It deals with channel overlap and interference. Just take my word for it or use a search engine to find an article about why those three channels are the only ones to use.

Any time spent waiting for a computer is wasted, so it's important to identify the ways to improve connections. Ω