



CONNECTING WITHOUT WIRES: 4G, WI-FI, AND BLUETOOTH

Last month, we explained how a router connects the local area network inside your home to the Internet over a coax cable provided by your Internet/TV service provider. But if you're away from home, walking around Princeton (or any place else in the world) how do you connect your mobile gadgets to the Internet? That's what this article is all about: Connecting without wires.

4G

You've probably heard about 4G and its predecessors 3G, 2G (you get the point). These are wireless Internet services for smartphones (and a few tablets) that you purchase **from your cell phone provider**, such as Verizon, Sprint, AT&T. With 4G service, you can read your E-mail, watch a YouTube video, or search the Web as long as you're within your provider's service area. Most 4G providers offer service plans that charge for the amount of data you use. A typical plan may allow you to use up to, say, 2 gigabytes of data each month for \$30. (That's enough for one feature-length movie, or 400 camera pictures that you want to share, or lots of Web searches, or thousands of emails.) The more data you want each month, the more it costs.



Cell phone tower.

Virtually all smart phones use 4G. Some tablets are available with 4G connectivity, but most use only Wi-Fi.

Wi-Fi

Wi-Fi is a short-range wireless technology that connects your mobile devices to a **local area network (LAN)** and the **Internet**. The Wi-Fi radio signal is broadcast by a wireless router that usually covers a radius of 100 feet or less—an area also called a “hot spot.” If you have Internet service in your home, you probably have a Wi-Fi router. Unlike 4G service, you don't pay for the amount of data you use with Wi-Fi, but rather for the speed of your Internet service, which is measured in megabits per second. Therefore, when you're home, you should enable Wi-Fi service on your smart phone in addition to your tablet and laptop so you're not using (and paying for) your cell phone provider's data service.



Wi-Fi router.

Free public Wi-Fi hot spots abound. Every Starbucks has one, as do many restaurants, schools, and, of course, PSRC.

But there's a downside to public Wi-Fi hot spots: Unlike your home Wi-Fi, public Wi-Fi usually doesn't require a passcode. This means public Wi-Fi is *unsecured*, which means the data connection between your mobile device and the public Wi-Fi router *isn't encrypted*. That's OK for run-of-the-mill Web surfing, non-confidential E-mails, and watching kittens on YouTube, but not for on-line banking, file transfers, or other sensitive communications.

Bluetooth

Bluetooth connects *devices* to each other, such as cell phones, wireless earphones, or keyboards, mice, and speakers to your computer or tablet. Bluetooth signals usually cover no more than 30 feet or less. They're not encrypted, which isn't a problem because they typically don't carry sensitive data, but must usually be *paired* with the device(s) they connect to.



Bluetooth earphone.

The PSRC computer lab team is always glad to help you with your various wireless connection questions.