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Tips for setting up a home WIRELESS NETWORK

Tech Tip 98
- By Chris Capelle

After the decision has been made to invest in a [wireless \(WiFi\) network](#), it's time to run through a few vital issues specific to maximizing productivity. Before madly buying and trying to configure, here are some tips – some obvious, some not.

The three products needed are a [WAP](#) (Wireless Access Point), a router, and a wireless-enabled computer. WAPs (define) are typically combined into one unit with routers, usually referred to as "[wireless routers](#)" because they have wireless capability. Virtually every new laptop has built-in wireless capability, and legacy laptops can accept wireless PCMCIA cards. PCI cards or USB wireless adapters can be installed on most desktop computers.



It is important to note that because the network is connected to the Internet, the router has to be hard-

wired to the Internet connection via either the DSL modem or cable modem. If Internet service activation in your area includes the installation of a dedicated wall jack for the modem, have the jack placed in a centralized location to maximize coverage area.

Take note that the operating range of WiFi networks can vary, from 300 feet to as far as



11 miles (unobstructed), and is subject to at least a dozen variables. Certain things can weaken the signal – large appliances (SubZero refrigerators are notorious culprits), chimneys, older homes with plaster walls, and of course long distances between the router and the computer. Solutions to weak signal blues are discussed further on in this article.

Once a location has been chosen for the router, it's time to configure it. Though most of the default settings don't need to be changed, there are some that definitely should be. Within the controls of the router (usually accessed using any browser software), there are options that should be taken advantage of:

- First off, change the default password for access to the router so others cannot gain access to your router.
- Give the network a name and don't make

it too personal. Remember, other people are going to see it even if they can't access it.

- Enable the option that makes the router a DHCP server and then be sure to configure each device's network settings to "use DHCP."
- Last but not least, enable wireless security, preferably WPA (Wireless Protected Access), if your router supports it, and create a password that is not too obvious. WEP (Wired Equivalent Privacy) can be used if WPA is not available however WEP can be easily hacked therefore WPA is the preferred security method for the home wireless network.

A Few More Important Tips

- Most printers aren't wireless, and those that are can be tough to configure. Best to skip the wireless printer and hard-wire one to the router or to one of the networked computers, then enable its ability to share the printer.
- If a laptop hasn't been shut down since being connected to a different WiFi network, Internet-mandatory processes (browsing, email) may not work. Reboot, and confirm that the proper network is being accessed. Power outages and other random problems occasionally disable wireless networks. A quick and dirty fix is to power down the computer, router, and broadband modem. Then, power them up in this order: modem, router, computer (waiting 45 seconds apart between each step.)
- Make sure the right network is being accessed, and not a neighbor's. A neighbor's connection may allow access to the Internet for e-mail and surfing, but other activity such as printing and file sharing will not be allowed.
- Even if every computer on the network is wireless, keep an Ethernet cable handy in the event that the router needs to be reconfigured and you are unable to

connect wirelessly.

- Password protecting the network is mentioned again because it is not an option. There are people who hack into networks and access personal data on computers, or use the internet connection for criminal means (such as [sending spam e-mail.](#))

Weak Signal Blues



OK, so now the network works, but it is in a REALLY big house, and the wireless signal just isn't robust enough to get to the back room on the third floor. It cuts in and out, and inhibits productivity. The 2.4 GHz radio band is extremely crowded these days with cordless phones, RF remotes, microwaves and other

appliances that can cause interference with a WiFi signal. Now what?

One solution is to buy a [range-extending antenna](#) for the computer's WiFi card or router, or a [wireless range extender](#). A few of these strategically located in a large house can dramatically extend range and increase signal strength to remote corners of the house. Be forewarned though - the more complex a network is, the more it costs to install, and the tougher it is to troubleshoot problems.

Frequently Asked Questions

- What is [802.11](#) and what do the "a", "b", "g" and "n" mean?

Wireless modulation technology and standards have evolved over time. Beginning with 802.11(legacy) to 802.11n (still not ratified at the time of this writing), they operate in the 2.4 and 5 GHz frequencies. The only difference that the home user really needs to know is

that “n” is (or will be) the fastest, “g” is next fastest, then “a” (typically not used by consumers), then “b”. Not sure which protocol applies? Buy a router that allows a “mixed” network commonly 802.11b/g or 802.11a/b/g.

- Does it matter what brand of router is used?

All wireless routers work on the same principles, no matter what brand they are. Some probably work better in certain situations than others do, but none of this information is brand-specific, with the exception of Apple’s Airport routers. Apple’s routers are not configurable using a web browser because they use proprietary setup software that will only run on Apple machines. If you are going to use an Apple router, you will need to configure it with the Airport Apple software on an Apple computer and then add any non-Apple devices to it after. Some popular router companies include [D-Link](#), [Netgear](#) and [Linksys](#). These companies (as well as others) also offer faster and better connections within the 802.11g band, however you usually need to buy a matched set of products. For example, a D-Link Wireless Router with Enhanced Wireless G and a D-Link Enhanced Wireless G card on the PC or notebook would be required to get the enhanced benefits of speed and/or range. Mixing and matching is generally ok with no problems to still get the best default setting between computer and router.

- Can a computer or printer be hard-wired to the network?

Yes, computers and printers can be wired to a WiFi network. Don’t be shy about connecting computers, printers, or even storage directly to the wireless router (most typically have four hardwired ports.) Sometimes, it’s easier and makes more sense.

In Conclusion

Even though signal and security issues need to be addressed, setting up a WiFi network at home can solve a multitude of problems. But, what can be done when traveling? Part three of this series will take a closer look at accessing the Internet away from home.

Geeks Humor

Two antennas met in a closet, fell in love and got married.

The ceremony wasn’t much, but the reception was excellent!

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