

## Networking Basics (4/2/18)

Most people with a home computer today have high-speed Internet in their house - in AZ that would likely be from Cox (cable) or Century Link (DSL). Besides the MODEM (MOdulator/DEModulator), you may have a router. Sometimes the router and modem are housed in the same physical box. The purposes of the router are primarily:

- Share the Internet connection between several computers (wired or wireless)
- Provide wireless capability for the Internet by broadcasting a signal with a name (SSID)
- Assign addresses (IP - Internet Protocol) address to all devices - computers, printers, tablets, phones, TVs - connected to it.

A router is the device that provides the hub or switching center. Routers come in three "flavors" today - G, N and AC. For home use an N router is usually more than adequate. The primary difference is that an N router typically has a greater range for wireless access and preserves the highest speed than a G. You need a wireless router to broadcast the Internet signal throughout your house. Older desktop computer are typically not automatically wireless capable (but can be modified so they are) and laptops are already configured for wireless capability. Desktops purchased since about 2012 are also wireless capable.

Manufacturers of routers include (but are not limited to) Linksys (Cisco Corp), Belkin, Netgear, D-Link, Medialink and Air Link. Price range can vary from a G unit for \$30 up to a "super" AC router for over \$200. More expensive ones typically have better antennas for greater range. If you are running a network in an average sized, single story home, the inexpensive G may do the job just fine but an N would be preferable.

"Hot Spots" are areas that have Internet access, often for free. Examples of public hot spots are the PebbleCreek Clubhouses, most Starbucks, McDonalds, Sky Harbor Airport and most hotels and motels. Homes with wireless access are hot spots. Most home networks have a password or pass phrase required for you to sign on.

If you are at a hot spot, you must turn on the (sometimes physical) switch that seeks wireless connections. This is very important since without this turned on you cannot receive wireless signals. An icon can be found in the Control Panel under Network and Sharing Center that does this. This is like turning on the radio. When this is on you use the application - depending on the version of Windows - to view and then connect to your desired network. This list will also give you the name being broadcast. Choose one - this is like tuning in to a single radio station. The SSID (Service Set Identifier) is shown in this window to identify the router. After you choose to connect, a secure network will ask for a "Web Key or WiFi Key" that allows you to tune in. If broadcast is NOT secure it may warn you about that. When you connect an IP address will be assigned and you should be online.

Windows 7, 8 and 10 use an icon in the System Tray (the extreme right end of the task bar) to indicate that the wireless is turned on. Be sure you are not in "airplane mode" because this prevents signal access. A yellow exclamation point or asterisk on the wireless icon means no network has been found. No symbol in front of the icon means there is a connection. In Win 7 and 8 the icon looks like a staircase ascending from left to right. In Wind 10 it appears as a quarter circle with arcs showing the strength.

### Wireless Printers

Most printers today have wireless capability. This means they get an address assigned to them by the router and can put anywhere within the router's range. This can be very convenient because you can have a printer across the room from the computer, in the laundry room or on the floor of a closet. By far the easiest way to put a wireless printer in your home is to use the disk that came with it and follow the instructions step by step. The computer and the printer have to "get acquainted". If the printer sits right next to the computer, a wired connection may be more stable.

Sometimes when a printer is wireless it can lose its connection to the computer. Reinstallation can fix it, or it can be done manually. On most wireless printers there is a light (often blue) that glows steadily when the printer is connected to a router. If the computer isn't printing to a given device and the light is on and steady, you can usually find the IP address in the small window on the printer. Then through the Devices and Printers entry on the Control Panel, you can verify that the printer is being "seen" by the computer.

If the printer has e-print capability, it too, emits a signal just like the router. The name being broadcast here will be the model number of the printer. This signal can be picked up by a tablet or smart phone and used to print.