

laptops are coming with better AC radios, but you can only take advantage of the improved range and speed with an AC router. And don't worry, AC routers are also backwards compatible with 802.11a/b/g/n devices.

But not all AC routers are created equal.

They are classified by their maximum throughput, measured in megabits per second. An AC1200 router, for instance, has a throughput of 1200 Mbps, spread across two bands, while an AC3200 router has a throughput of 3200 Mbps, spread across three bands. (More on multiple bands below.) Because maximum bandwidth requires laboratory-perfect conditions, you'll never actually see that kind of throughput at home, but it is how these companies signify which model is faster than another.

Tim Higgins, managing editor of *SmallNetBuilder*, says AC1900 is the sweet spot right now in terms of performance for the price.

N600, N900, etc. - The same nomenclature is used for 802.11n routers. N is followed by a three-digit number indicating the maximum throughput, again in megabits per second.

USB Ports - Many router makers brag about the number of USB 2.0 or 3.0 ports on the router. Why would you care if a router has any USB port, let alone several? These are for putting an external hard drive and/or printer onto your wireless network, so you can access them anywhere.

It's actually a useful feature. During my router testing, I found it very easy to turn my USB 3.0 Western Digital hard drive into wireless storage by just plugging it into a router's USB port, then using the respective router's app to locate and manage it.

Guest Access - One of the selling points of newer routers is the ability to set up a "guest" network—a separate name and password for friends, family, visiting colleagues, etc. This is basically only useful for people you simply don't trust using your regular password (or pattering around on your family's secure network), but there are some neat features: From the router settings menu, you can see who is on your network, set an expiration time for their access and change the guest password. Some routers even let you boot people off if they've stuck around too long.

Dual-Band - This denotes a router that's capable of broadcasting two separate networks simultaneously—one 2.4GHz network and one 5GHz network. The 2.4GHz network can get crowded and slow down because of the many devices (other routers, microwaves, even baby monitors, etc.) that use frequencies in and around that radio band. A 5GHz network can be less congested but it's shorter in range. Newer phones, tablets and laptops have support for both network bands, but older devices run on 2.4GHz alone.

Tri-Band - This means the router is capable of broadcasting three distinct networks simultaneously—one 2.4GHz network and two 5GHz networks. Tri-band routers, such as the D-Link AC3200 Ultra, have "Smart Connect" technology that can automatically assign a device to the appropriate Wi-Fi band, so people don't have to choose for themselves.

Beamforming - AC router specs may mention "beamforming." This refers to a feature in most AC routers that smartly directs wireless signal to specific devices. Instead of blasting Wi-Fi in all directions, beamforming allows the router to identify where devices are and feed them signal more efficiently.

WPA/WPA2 Security - This is a spec you should keep in mind when buying a router and when setting it up. It is a type of encryption used to keep people outside of your network from snooping on your radio transmissions. You do not want a router that has anything less than WPA2 encryption, and you definitely do not want WEP security, an older, weaker protocol that sounds confusingly similar. According to the Wi-Fi Alliance, most routers have WPA2 encryption, but it doesn't hurt to check.

Gigabit Ethernet - This is a reference to the wired Ethernet ports on the back of a router—not anything to do with wireless speed. You want to make sure your router is gigabit rated—which means it can support 1000 Mbps—if you intend to plug in any gigabit-Ethernet-capable devices, like a smart TV or a game system. If all you're doing is connecting things wirelessly, the speed of the Ethernet ports won't matter.

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