Your First Router

by Joe Stoddard

I bet you need a router. Not the 20,000-rpm D-handled kind, though — the bits you'll chuck through this router will be digital, not carbide. A network router (a.k.a. "residential gateway" or "proxy server") is a device you plug in between your computers and the Internet. Depending on what features you buy, it will let you create or supplement a small network, either wired or wireless. That will allow everyone to access the Internet, share a printer, and even safely access the files and folders on your office PC from outside your office — from a job site, for example. For under $200 (basic models start at $65), today's all-in-one routers let you create a setup that just a couple of years ago would have taken an army of geeks and a wheelbarrow full of separate components to pull off.

Router Features and Functions

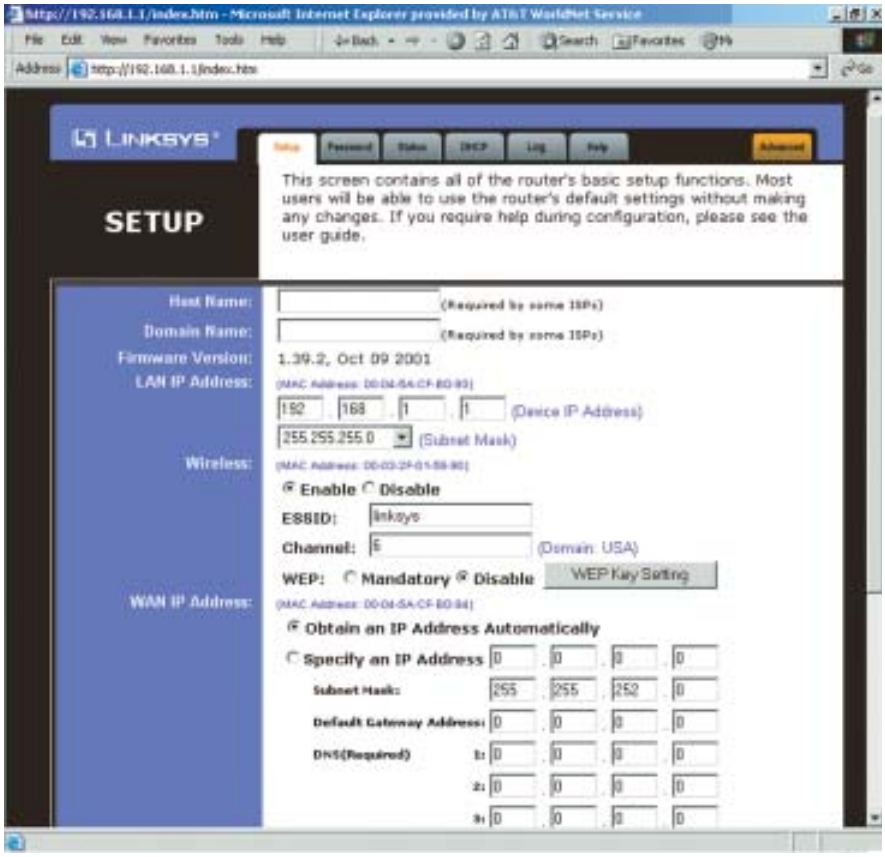
Router jargon can be more confusing than the latest building code, so here's an attempt to make sense of the alphabet soup. You won't find all these features on all models, but it's a good bet someone is making a unit that will fit your situation. A good strategy is to decide on the three or four core features you need and then find a device that incorporates those. If you need extra capability down the road, no problem — you can always add single-purpose devices to your network later.

NAT, or Network Address Translation

NAT is at the heart of all routers, providing both Internet connection sharing and a good dose of security for your network. Every computer connected to the Internet needs to have a valid, Internet-routable IP (Internet protocol) address in order to view websites and download files and e-mail. Your ISP (Internet service provider) typically assigns the IP address to your computer when you connect. The problem is, any valid IP address can be "seen" by anyone on the Internet who's smart enough to look, making you a sitting duck for hackers, particularly if you have an "always-on" Cable/DSL connection. When a router is present on your network, it takes the place of your computer and is assigned the "real" IP address. The router in turn creates a "fake" (or private) IP address for each computer connected to it, using a method called DHCP (dynamic host control protocol). Using NAT, the router plays traffic cop, managing requests and forwarding data from the Internet to the computer on your network that requested it. Because only the router has the "real" IP address, the rest of your network is "cloaked" from prying eyes — a great first step in protecting your data.

Built-In Firewall

NAT provides a good measure of security for your network, but it's not a complete solution. To be completely safe you also need a true "firewall," which actively monitors and manages traffic in and out of your network. While you could install and maintain firewall software on every computer in



Setting up your router is as easy as accessing a configuration page using your web browser.

your organization, a simpler approach is to do it all at the router. Although some manufacturers call their NAT router a firewall, it's technically not one unless the manufacturer specifically offers "stateful packet inspection" and "intrusion detection" in addition to NAT.

Built-In Hub or Switch

A basic router will have only single ports to connect it between your Internet connection and your existing network. But what if you're setting up the network for the first time? Some models let you kill two birds with one stone by including several switched ethernet or phone line networking (HomePNA, or Home Phone Network Association) ports. If you have just a few computers and don't want to mess with a separate hub, it's a nice feature.

WiFi – 802.11B

Wireless is the hottest thing going right now. Believe me, it's great to be able to e-mail a contract from your porch rocker or locate a PC where there is no network wiring. To that end, many routers include a built-in wireless "access point." The popular Linksys BEFW11S4 ($130 street) features a two-antenna wireless access point along with a wired four-port switch/hub, letting you connect both wired and wireless devices, with no additional hardware required.

Virtual Private Networking

Virtual private networking (VPN) allows you to log on to the Internet from outside your office (for instance, from a job site) and securely "tunnel" into your private company network to access files and folders. Be sure to check specs carefully if you need this capability — configurations can be tricky. Some routers allow only outgoing VPN connections, meaning the router will connect with another VPN-enabled router but won't accept incoming traffic from a single user. If you want to connect to your own network from outside, look for models that have "VPN endpoint" capability, meaning they'll accept incoming connections as well. A good example is the Netgear FVS318 ($135).

Built-In Print Server

A built-in print server lets you connect a parallel port printer directly to the router and then access it from any computer on the network. If that sounds good, be sure the model you're considering will support the printer you want to use — not all printers are supported by all print servers.

Special Connections

While most routers are designed for use with cable/DSL broadband connections, there are a few units available for special situations. No broadband? No problem. The Netgear RM356 ($275 street) lets up to four PCs share a single analog dial-up connection, and ISDN models are available as well. One of the most unusual devices on the market is the Matrox i-Switch 8, which can combine up to four analog dial-up lines, ideal for job-site offices or any situation where you need better performance than a single dial-up but can't get a broadband connection.

Setting It Up

Once you get your router home and connected to your network, you'll need to configure it. To do that, plug your computer into the LAN (local area network) port and type the router's built-in IP address (typically 192.168.1.1) into your web browser. A configuration screen lets you modify any settings as necessary. Don't waste time calling your ISP — it probably won't help you set up a router and definitely won't offer any support (they'd rather sell you five separate accounts instead). Luckily, the router manufacturers have taken the lead in creating a database of settings from nearly every ISP and will help get you up and running quickly, either by telephone support or with information from their websites. I've had particularly good luck with both Netgear and Linksys technical support and would tend to use their products over the others listed for that reason alone.

Joe Stoddard *is a technology consultant to the building industry and a contributing editor at* The Journal of Light Construction. *You can reach him at jstoddard@mountainconsulting.com.*