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(Looking for instructions on how to share files and printers between Windows 7, Vista, XP, and even a Mac? Read our new How To Set Up Your Home Network, Windows 7 Edition.) If you have more than one computer in your home, you quickly discover what a hassle it is to be shoved aside when someone else needs the printer—which happens to be attached to your PC. You're also probably tired of running up and down the stairs to transfer files using floppy disks. And no one likes fighting over the only computer with Internet access. No wonder you're interested in home networking. But aside from family unity, there's also the little matter of comfort. Where would you rather answer important e-mail in your home office, hunched over your desk, or in the living room, with your feet on the ottoman? Better yet, how about out on the veranda? There was a time when this flexibility was a luxury reserved for the brave souls who threaded cables behind their walls to set up an ethernet network—and had mastered the arcane secrets of networking kung fu. But over the past few years, a variety of home networking packages have appeared on the scene, and they're relatively easy to use. You can use your home's existing wiring—or in some cases, no wires at all. I cover three different options here, based on the three established home networking standards: HomePNA 2.0 (Home Phoneline Networking Alliance), which centers on your home's phone line system; HomePlug, which uses your existing power lines; and the 802.11b (Wi-Fi) standard, which lets you go wireless. (There's also the more recent Wi-Fi5, also known as 802.11a, Wi-Fi's speedier successor.) For shopping advice, product info, and details about how each technology works, read "How to Buy Home Networking Products." And if you're interested in finding out how the different technologies performed in PC World lab testing, go to "How Fast Are They Really?" Be Prepared Setting up a home network will go much more smoothly if you prepare a few things beforehand, no matter which option you choose. Although all networking kits come with adapters and the other components you need, such as phone line cables or USB cables, you'll still want to have a few other things worked out before you plug anything in. Visit the home networking company's Web site and make sure you have the most current drivers for your operating systems. You might have Windows Me on your PCs at home, for instance, and you may not get the right drivers for Me on the CD bundled with the networking kit. Have your Windows installation CDs handy for each PC to be networked; you may need to install Windows' own network drivers while setting up your home network. Choose a name for your network (also referred to as a workgroup). Something descriptive is usually best, such as your family name or the name of your small business. Wireless networks will also need another name (a network identification code or SSID, which stands for Service Set Identifier). It doesn't matter if the workgroup name and SSID are the same. Decide on unique names for each computer. Although you can use literal, descriptive names like "Office" or "Games," you might as well be creative. I once named a dozen computers after famous comedians from the 1940s and 1950s. Consider the Configuration You'll also want to plan how your network will be configured. At the bare minimum, a home network lets you print from any computer and access files from other computers without leaving your chair. Remember: Most, but not all, printers can be shared. To find out if your printer can be shared, open Control Panel and select Printers. Right-click your printer icon, and choose Properties. If there's a Shared tab in the dialog box that appears, click the tab and make sure the share option is selected. You're ready to share the printer. You can also share an Internet connection, but methods vary: Every version of Windows from Windows 98 on includes Microsoft's built-in Internet Connection Sharing, and some home network packages have their own software. The only problem with this setup is that the computer connected to the Internet (the server or host) has to be turned on to share its connection with the other computers (the clients). If this is inconvenient, there is a solution: You can use a gateway with a built-in router—a piece of hardware that handles Internet traffic a little like a switchboard. This device is commonly referred to simply as a router. You should also consider encryption. Any determined person can gain access to an unencrypted network without too much trouble. With a HomePlug network, for example, someone could get access by tapping into the power line in a shared wall in an apartment building or hotel. Encryption scrambles data so that only your network understands what its computers are saying to each other. The process involves creating your own encryption key—a series of letters and numbers, like a password—according to the encryption software instructions. Wireless networks and HomePlug have encryption built into the standard; HomePNA does not. For HomePNA, you'll have to install another form of protection, such as a firewall program. With a wireless network, it's imperative that you set up encryption—remember, there's no physical barrier. Be aware, though, that the wireless security protocol is widely regarded as inadequate—you should think about adding another layer of defense, like firewall software. Check out PC World's review of the latest personal firewall packages in "Protect Your PC." Finally, there's the issue of dynamic versus static (or "fixed") IP addresses. An IP address is a numeric identifier—four sets of up to three digits separated by dots (such as 123.456.7.89) assigned to a device on a network. In many cases, the network you're connecting to issues your PC a temporary IP address when you log in, which you keep for the duration of your session. This is a dynamic IP address, and it suits most people just fine. But if you're more ambitious and want to set up a Web site, or a printer or other device that can be accessed over the Internet, you'll need a static IP address, one that never changes. Your Internet service provider has to give you a static IP address for the Net—and this usually costs extra. In addition, many ISPs don't allow home users to run servers. Telephone Tag: HomePNA 2.0 Companies such as Netgear, Linksys, and Proxim offer HomePNA packages. What's good about HomePNA? It uses your household's existing telephone circuitry as its network wiring, and it is the easiest of the three standards to install and use. HomePNA uses a distinct frequency on your phone line, so someone can talk on the phone or use a fax machine without interfering with your multiplayer game of Quake. What's bad about HomePNA? Your computers all have to be near phone jacks. If you have more than one phone line, make sure all the jacks you plan to use are for the same phone number. How to Set Up a HomePNA Network HomePNA adapters come in three flavors: USB or PCI (for desktop computers), and PC Card (for notebooks). If you plan to share a high-speed Internet connection, you'll also need an ethernet bridge (\$180 and up)-like a gateway-on the system that uses the broadband modem, instead of an adapter. The ethernet bridge is hooked up to the PC that is connected to the broadband modem; no adapter is required for this PC. Repeat the following steps for each computer: Turn off the computer and install the manufacturer's adapter. If you're putting a PCI card into a desktop computer, you'll have to open the case to do so. Plug the adapter into a phone jack. If a telephone or fax machine is already using the jack, plug the phone or fax into the adapter first. If you're short on phone jacks, you may want to use a two-way splitter to share the jack. Turn the computer on. Windows will detect the adapter and prompt you to install the driver from the included CD-ROM. Follow the on-screen instructions. Depending on the package you're using, you might also be prompted for the computer's name. (Remember what I said about being prepared?) Restart the computer. If you plan to share an Internet connection and don't have a router, install the Internet-sharing software (if included by the manufacturer) or use the Internet Connection Sharing software in Windows 98 Second Edition and Millennium Edition. Designate the computer that will connect directly to the Internet as the server; the others are clients. Remember to install firewall software on the server to protect all the PCs on your network. Now you can invite your friends over for Quake III tournaments. Power to the People: HomePlug Companies including Linksys, GigaFast, and Asoka USA make HomePlug products. What's good about HomePlug? Like HomePNA, HomePlug is easy to get rolling. Just plug one end of the adapter into a computer's USB port and the other end into a power outlet. And the odds are that you've got more power outlets than phone jacks. What's bad about HomePlug? Being tethered to a power outlet can still be limiting; you also have to make sure you don't plug a HomePlug adapter into a surge suppressor or line conditioner—your signal will likely be wiped out. And if you're using a notebook with a USB port, you'll still have to carry around a big, bulky HomePlug adapter. There are no PC Card HomePlug adapters. How to Set Up a HomePlug Network With a HomePlug network, you simply attach one end of a brick-shaped adapter to your machine's USB or ethernet port, and use a cable to plug the other end into an electrical outlet. If you plan to use HomePlug to share a high-speed Internet connection over power lines, you'll need to use a HomePlug ethernet bridge (\$180 and up) and a router. You can use just a bridge if your PCs already have ethernet adapters installed—you connect the adapters to the ethernet port of your cable or DSL modem. Or, if your PC doesn't have an ethernet adapter but does have a USB port, you can use a power-line USB adapter to share the PC's Internet connection. You also need Internet Connection Sharing software to share an Internet connection. Install the bridge on the computer that connects to the Internet. To do this, you might have to install a second ethernet card. (If you already have a high-speed modem, which uses its own ethernet connection, you'll need a second ethernet card to install the bridge.) Then, plug the bridge's RJ-45 cable into this second ethernet card. Then plug the bridge into an electrical outlet. If you have a router, connect the bridge to the ethernet port on the router. Install the network configuration software from the CD that came with the HomePlug kit. You will be prompted for a network password. Install the Internet Connection Sharing software, making sure to identify this PC as the server. Then, on every other computer, install the HomePlug USB adapters. Or, on PCs that have ethernet ports, you can use an ethernet bridge as an adapter. The benefit? The ethernet bridge tends to be slightly faster than a USB adapter. Install the network configuration software. You will be prompted for a network password. Enter the same one you used for the bridge. Install the adapter by plugging it into the computer's USB port. Windows will detect the adapter and prompt you to install the driver. You'll find that on the CD-ROM in the HomePlug package. Restart your PC. You're now ready to surf from the living room, or wherever you have a PC. The Wireless World: 802.11b (Wi-Fi) Netgear, Intel, D-Link, Proxim, and Linksys all offer both 802.11b (Wi-Fi) and 802.11a (Wi-Fi5) products. What's good about wireless? Small, lightweight radio antennas give you the freedom to move around within their range. Hotels, airports, and even some coffee shops are setting up 802.11b access points for easy public wireless Internet access. What's bad about wireless? Speeds drop off with distance, or if there are too many obstacles between two computers. There may also be interference problems between 802.11b antennas and other 2.4-GHz devices, such as cordless phones and microwaves. Note: At this point, you can't use 802.11b and 802.11a products on the same network. The basic form of wireless network is the ad hoc network; each computer communicates directly with the other, and the Internet connection is shared from one computer with a modem. An infrastructure network, on the other hand, uses an access point or wireless gateway (or router), so your adapters communicate with the access point, which works like a central transmitter/receiver. An access point is a wireless hardware device that allows a wireless network to connect to a wired network. Many access points come with a built-in gateway that connects to the Internet. Installing an access point is much like installing an adapter, except that you must also duplicate information from your modem's network configuration, such as your user name and password for your ISP. Check the manufacturer's documentation for specific instructions. When it comes to adapters, you can find PCI and PC Cards for both 802.11b and 802.11a, plus USB 1.1 adapters for 802.11b. (You won't find any USB 1.1 adapters for 802.11a because they're too slow for the newer standard.) How to Set Up a Wireless Network Follow this procedure on each computer: Install the adapter according to the manufacturer's instructions. (If you are using a PCI adapter, you'll have to turn off the computer, open the casing, insert the adapter into a free PCI slot, and restart the computer.) Windows will detect the adapter and prompt you to install the driver on the included CD-ROM. Install the network software that usually comes with the hardware. You will be prompted for the computer's name, and asked if the current computer is meant to be the server or client for Internet access. Restart the computer. Now you have to create a profile—the collection of settings that let you use the network. You can have several different profiles, so that if you take your laptop to the office or the local networked coffee house, you have only to switch profiles to instantly connect to their network. To create a profile, run the configuration program that's part of the network software. Set the mode to ad hoc (the mode may be set as peer-to-peer) if you're not using an access point, or infrastructure if you are. Enter the network name. If you're using an ad hoc network, set the channel (a number from 1 to 11). All adapters on a network must use the same channel. (With an infrastructure network, the client automatically configures itself to the channel with the strongest signal.) Enter your encryption key—a series of letters and numbers, like a password—according to the vendor's instructions. What are you waiting for? Grab your notebook, head out to the veranda, and check your e-mail.

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