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# FIXING

# Windows XP Annoyances™

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# Fixing Windows XP Annoyances™

## How to Fix the Most Annoying Things About the Windows OS

by David A. Karp

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# Wireless and Networking

# 5

A network connects two or more computers, allowing users to exchange files, collaborate on projects, share printers, share an Internet connection, and more. All you need to set up a network is a broadband connection (for the Internet part), one or two hundred dollars' worth of equipment, and a little patience. But wait... it gets better. You don't even have to rip apart the walls to lay cable. If you're ready to cut the proverbial cord, you can build a wireless network (or expand your existing wired setup with wireless technology) and surf the Internet from your back porch.

That's the good news. The bad news is that while setting up home networks isn't too difficult, you'll likely face a whole slew of annoyances as you attempt to share your Internet connection, printers, drives, and folders. Of course, you'll also need to tackle knotty logon, password, and security issues with your network. Ready? Let's dig in....

## SHARING AND SECURITY

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### Network Two Computers

**THE ANNOYANCE:** I want to set up a home network, but I can't figure out what I need to make it work. I thought *Gosford Park* was confusing, but this is ridiculous!

**THE FIX:** Well, to start with you need at least two computers, and a way to connect them. If you're assembling a wired Ethernet network, you're in luck: almost every PC manufactured after 1998 or so has a built-in Ethernet Network Interface Card (NIC). (Many newer PCs—and nearly all laptops produced after 2003—also include wireless cards.)

For the most part, network cables have gone the way of the dinosaur, because of the convenience offered by wireless networking. But cables still offer a fast, hassle-free connection that's susceptible to neither interference (see "Increase Range and Improve Reception") nor intruders (see "Surf Safely at the Coffee Shop"). If you decide to go the cable route, you'll need category-5 *patch* cables to connect each PC to your router. (If you're setting up a wireless network, you'll also need one of these cables to connect the wireless router to your DSL or cable modem, as discussed later in this chapter.) Or, for a quick-and-dirty two-PC network without a router, a single category-5 *crossover* cable will do in a pinch.

Of course, you'll also need a router, which serves as a hub for the aforementioned cables. (If you want to connect any computers wirelessly, you'll need to get a wireless router that includes a built-in access point.) Routers let you share an Internet connection among any number of computers, and even offer protection from the outside world by way of a built-in firewall (for more on firewalls, see "Set Up a Wireless Network").

After you've properly installed the drivers for your network adapters (wireless or otherwise), Windows should do the rest without much help from you—but unfortunately, it doesn't always work out that way. (If you run into trouble installing the network adapters or other hardware, turn to Chapter 6.)

You can fix most simple configuration problems by completing the cumbersome Network Setup Wizard on all PCs in your network. Open the Network Connections control panel, and click the "Set up a home or small office network" link on the left side. (Or, if you don't see the Network Tasks pane, double-click the Network Setup Wizard icon.) Click the Next button on the first few pages, and then answer the questions as follows:

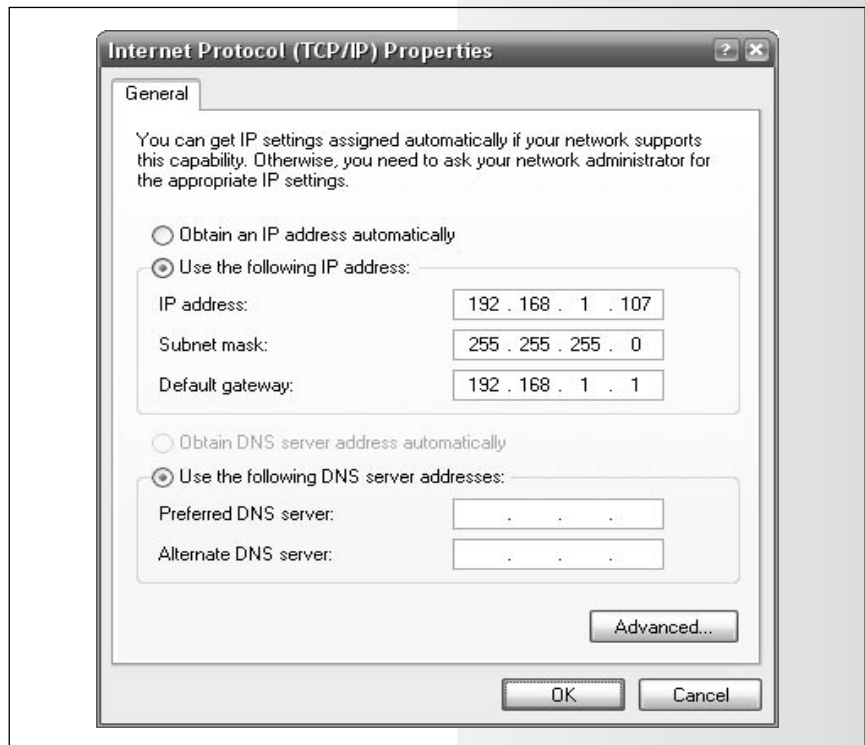
- If you're asked about disconnected network hardware, place a checkmark next to the "Ignore disconnected network hardware" option, and click the Next button.

- On the “Select a connection method” page, choose Other, and click the Next button.
- On the “Other Internet connection methods” page, choose the “This computer connects to the Internet directly...” option, and then click the Next button.
- When asked for a computer name, choose a unique, one-word name for your PC (each computer must have a different name), leave the description field blank, and click the Next button.
- On the “Name your network” page, Windows will automatically name your network “MSHOME,” even if you’ve previously typed a different network name. Type a new name if you want, but make sure all the other PCs on your network share the same network name. Click the Next button.
- On the “File and printer sharing” page, choose the “Turn on file and printer sharing” option if you want to exchange files over your network (see “Share Files with Other Computers”), and then click the Next button.

Proceed through the following (mostly pointless) screens by clicking the Next button, and when you arrive at the “You’re almost done” page, choose “Just finish the wizard.” Click the Next button, and then click the Finish button. Whew!

Back in the Network Connections window, select View→Details to show the pertinent information. Right-click the “LAN or High-Speed Internet” connection you’re using, and select Properties. Then, select Internet Protocol (TCP/IP) from the list and click the Properties button to show the Internet Protocol (TCP/IP) Properties dialog box (see Figure 5-1).

**Figure 5-1.** You may have to manually configure TCP/IP properties to get your PC noticed on your network.



In most cases, selecting the “Obtain an IP address automatically” and “Obtain DNS server address automatically” options will suffice. If, however, you can’t get your network to work with automatic addressing, try the following settings:

1. Choose the “Use the following IP address” option.
2. In the IP address field, type 192.168.1.100. (When you configure the second PC on your network, type 192.168.1.101 in the IP address box. For the third PC, type 192.168.1.102, and so on.)

**NOTE**

*Often, networks don’t work because Windows and your router fail to negotiate the correct addresses automatically. The first three numbers in each PC’s IP address (e.g., 192.168.1.) must exactly match the first three numbers in the IP address of your router—usually 192.168.1.1 or 192.168.0.1—which you can get from your router’s documentation. Only the last number (e.g., 100, 101, 102) must be different for each PC.*

3. In the Subnet mask field, type 255.255.255.0.
4. In the Default gateway field, type the IP address of your router (usually 192.168.1.1 or 192.168.0.1).
5. In the “Preferred DNS server” and “Alternate DNS server” fields, type the IP addresses of your ISP’s primary and secondary DNS servers, respectively. Contact your ISP or visit your ISP’s web site for this information.
6. Click OK in both boxes when you’re done.

These “static IP” numbers will help ensure that all the PCs on your network can communicate reliably with each other. For best results, set static IP addresses on all the PCs on your network.

Return to the Network Connections window when you’re done. The Status column shows whether or not a connection has been established (e.g., “Connected” or “Network cable unplugged”).

If it says “Acquiring network address,” it means Windows is in the process of establishing a connection; if you see this for more than, say, 10 seconds, it means your router isn’t automatically assigning your PC a proper IP address. If you’re connecting wirelessly, this error typically appears when you haven’t supplied the necessary WPA or WEP security key (see “Connect to a Wireless Network”). For wired networks, this error could indicate a problem with the router, the cabling, or the NIC and its drivers. If the “Obtain an IP address automatically” option is selected in the TCP/IP Properties dialog box for your network connection, try specifying a static IP address, as described earlier, to fix this problem.

**NOTE**

*The addresses you type for the subnet mask, gateway, and DNS servers should be the same for all PCs on your network.*

If the status column says “Limited or no connectivity,” it usually means a connection has been established but your IP address is incorrect; make sure that the first three numbers in your PC’s IP address match the first three numbers in your router’s IP address, and that the fourth is different from any other PC on your network.

## Share Files with Other Computers

**THE ANNOYANCE:** I need to access a bunch of documents on my office desktop PC from my laptop. I want to open the files over the network and avoid the whole CD/floppy/USB drive shuffle, but I can’t get it to work.

**THE FIX:** There are a handful of steps you need to take to configure your PCs before you can exchange files between them on your network:

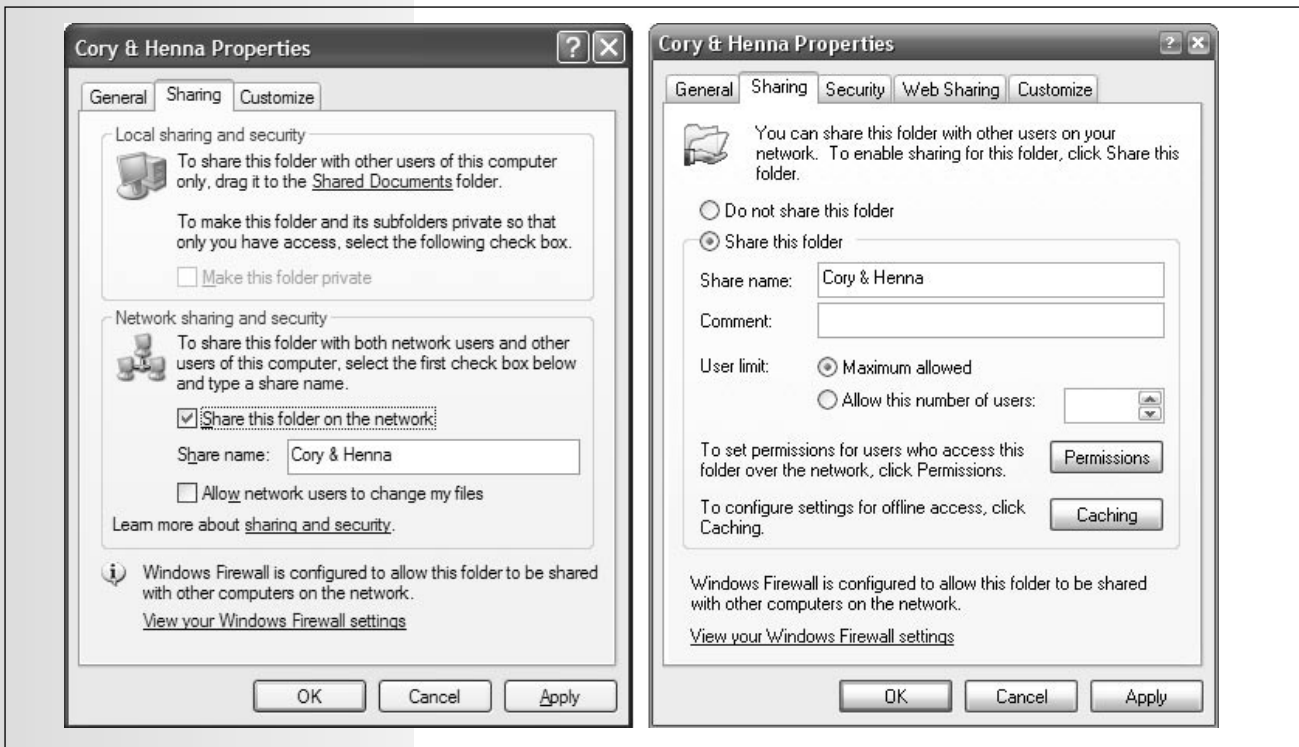
1. Complete the Network Setup Wizard on each PC on your network (see “Network Two Computers”), and make sure you enable file sharing when prompted.
2. If you’re using Windows XP Professional or Windows XP Media Center Edition, open Windows Explorer, select Tools→Folder Options, and choose the View tab. Remove the checkmark next to the “Use simple file sharing (Recommended)” option, and click OK. (This option is not available in Windows XP Home Edition.)
3. The next step is to formally *share* the appropriate folder on the main PC. Open Windows Explorer and navigate to the folder containing the files you want to open remotely. Right-click the folder, select Properties, and choose the Sharing tab.

In Windows XP Home, check the “Share this folder on the network” box. In Windows XP Professional and Media Center Edition, select the “Share this folder” option (see Figure 5-2). (If Windows asks whether you understand the “risks,” confirm that you indeed wish to enable file sharing.)

Enter a descriptive name in the “Share name” field. This is the name used for your folder when you view it over the network.

### NOTE

*If you’re using Windows XP Home Edition and the “Share this folder on the network” option is grayed out, remove the checkmark next to the “Make this folder private” option. If that option is grayed out as well, click the “another folder” link at the bottom of the window, remove the checkmark next to the “Make this folder private” option on the window that appears, and click OK. Then return to the folder you want to share and try again.*



**Figure 5-2.** To allow the exchange of files over a network, use the “Share this folder on the network” option in XP Home Edition (left) or the “Share this folder” option in XP Professional/MCE (right).

#### NOTE

If you're using Windows XP Professional and you want to share the entire drive (not just the folder), see “Share an Entire Drive,” later in this chapter.

- If you want to be able to remotely modify, delete, or create new files in this folder, you must set the permissions accordingly. In XP Home, just place a checkmark next to the “Allow network users to change my files” option. In XP Professional, click the Permissions button and follow the steps in “Protect Shared Files,”
- When you're done, click OK. A little hand icon will appear over the yellow folder icon to identify it as shared.

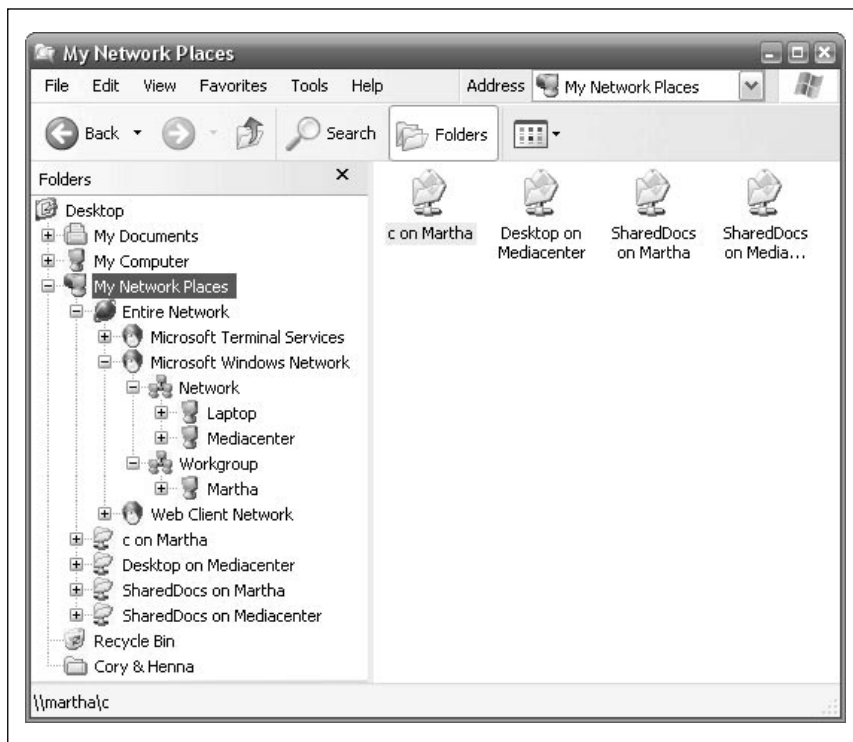
But you're not finished yet! For the sake of security, the desktop computer holding the files you want to share must have a password associated with the owner of the files, as described in “Protect Shared Files.” (By default, user accounts don't have passwords in Windows XP.) What's more, users trying to access those files remotely must be able to provide the same username and password. This user validation may be transparent or may require a login, depending on who owns the files:

- When you first connect to the PC with the shared files, Windows will check to see if the usernames of the owner of the shared files and the one using the remote PC are the same. If the usernames are different, Windows will ask for a username and password. For example, if “Jane” on one computer tries to read the files on a computer belonging to “Rutiger,” Jane will be required to type Rutiger as well as Rutiger's password in order to access the shared files.

- If the username is the same on both PCs, the passwords must match. For example, if “Rutiger,” while logged into one computer, tries to access files belonging to “Rutiger” on another computer, and each Rutiger account has precisely the same password, Windows will grant access to the files without any prompt at all. But if the passwords on both accounts don’t match exactly, Windows may not let you in, even if you type the correct username/password combination into the login box. The solution: just change one of the passwords so they match.

Once you have the user accounts and passwords straightened out on all your PCs, open Windows Explorer on the remote computer—the one accessing the files on that desktop PC—and navigate to the *My Network Places* folder, shown in Figure 5-3.

**NOTE**  
Once you choose a password, Windows will ask you for it every time you power up your PC. To skip this step, see “Log in Automatically.”



**Figure 5-3.** Use the *My Network Places* folder to access shared folders on other PCs.

You may see several familiar-looking folders in *My Network Places*, such as *My Documents on Laptop* or *C on Desktop*. Windows Explorer automatically creates these folder shortcuts to provide easy access to frequently accessed shares. If you don’t see the folder you want here, don’t panic; just open the *Entire Network* folder, then *Microsoft Windows Network*, then the name of your workgroup (e.g., *MSHOME*), and finally the name of the PC with the files you want (e.g., *Desktop*).

**NOTE**

Want to share bits of data without hassling with files? The Copycat utility, free from <http://www.r2.com.au>, automatically transfers the contents of your clipboard (used to hold data that you cut or copy) to all the PCs on your network. Just highlight some text on one machine, and press Ctrl-C; then, on another PC, press Ctrl-V to paste it anywhere you like!

**NOTE**

If you don't see the other PC in your workgroup, see "Find Missing Computers in My Network Places." If you get an "Access is denied" error at any point, it means the owner of the files on the other computer has set permissions to keep you from messing with his data. If you have control over the other PC, see "Protect Shared Files" for help.

Inside the folder, you'll find a listing of the folders, printers, and (for some reason) scheduled tasks shared on that PC. Open any shared folder to access the files therein as though they were stored on your own hard disk: copy or move via drag and drop, rename, delete, or just double-click to open the files in place.

## Find Missing Computers in My Network Places

**THE ANNOYANCE:** I'm trying to open a file on another PC on my network, but it doesn't show up in My Network Places. This is driving me crazy!

**THE FIX:** This is a really common problem, and one that is not always easily solved.

First, a remote computer may not appear in My Network Places if it doesn't have any files or printers shared. See "Share Files with Other Computers" to set up file sharing or "List All Your Shared Folders" to see what's being shared on any PC.

Shared folders on remote PCs can show up in two places in the My Network Places folder: shortcuts to previously accessed folders sometimes appear right in the My Network Places folder itself, but for a complete list, navigate to \Entire Network\Microsoft Windows Network, open your network (e.g., MSHOME), and then open any PC to show its shared folders and printers.

Also, you may or may not see a PC that is in another workgroup in the Microsoft Windows Network folder in My Network Places. If you don't see the other workgroup, and you have control over the other PC, change its workgroup name to match the rest of the PCs on your network. Open the System control panel (or right-click My Computer and select Properties), and then choose the Computer Name tab. The name of your PC, as well as the workgroup to which it belongs, is shown here (see Figure 5-4); click the Change button to rename the PC or join a different workgroup. All the PCs on your network should belong to the same workgroup, but no two PCs should share the same computer name.



Figure 5-4. Use System Properties to change your PC's computer name and workgroup.

If the workgroup matches but the PC still doesn't show up, one trick that often works is to type the name of the PC directly into Windows Explorer's address bar. (If you don't see the address bar, select View→Toolbars→Address Bar.) Erase the text in the address bar, and type two backslashes followed by the missing PC's name, like this:

```
\\misterx
```

where *misterx* is the name of the remote PC. Press Enter, and with luck—and about 5–10 seconds of patience—Windows should list the shared folders on the remote computer.

If you still can't see the PC, make sure the network is functioning on both the remote computer and the local PC (the one you're sitting in front of). If they're both connected to a router that provides a shared Internet connection, for instance, open a web browser on each PC to test the connection. If you can load a web site, the network is working.

Often, you can force stubborn computers to show up by setting a static IP address for each PC on your network, as described in “Network Two Computers.” Then use the ping command to test connectivity. Select Start→Run, type `cmd`, and click OK to open a Command Prompt window, and then type:

```
ping 192.168.1.107
```

In this example, 192.168.1.107 is the IP address of the remote PC; replace this with the appropriate address. If you get a reply like the following from the remote machine, it means your computer can see and successfully communicate with that machine on your network:

```
Reply from 192.168.1.107: bytes=32 time=3ms TTL=64
```

If, on the other hand, you see a timeout message like this, the connection is broken:

```
Request timed out.
```

File sharing will not work as long as ping returns this error, so your best bet is to check your hardware and IP address settings instead of toiling with the *My Network Places* folder.

If the network checks out but you still can't see the remote PC, try restarting both computers and resetting your router (refer to your router's instructions for the reset procedure).

If one of the PCs is running an older operating system (particularly Windows 95 or 98), see “Connect to a Windows 9X/Me PC.”

If all else fails, it's likely a problem with the hardware. Try replacing the cables if you have a wired network, or see “Increase Range and Improve Reception,” later in this chapter, if you have a wireless network. For help with updating drivers, replacing network adapters, and resolving hardware conflicts, see Chapter 6.

## What About Encryption?

Windows XP Professional also has some built-in data encryption features, but encryption offers no more protection than restrictive permissions when using shared folders. Rather, encryption is designed to protect your data from those who use your PC directly, either by sitting in front of it or by remote control using Terminal Services (a.k.a. Remote Desktop). For more information about the ins and outs of encryption, as well as Remote Desktop, see O'Reilly's *Windows XP Annoyances for Geeks, Second Edition*, by David A. Karp .

## Protect Shared Files

**THE ANNOYANCE:** I want to share a bunch of files with other PCs on my network, but I'm worried that doing so will allow anyone to see them. How do I protect my data?

**THE FIX:** Any computer connected to your PC over a network—including the several billion machines on the Internet—may be able to access the files in your shared folders. Thus, the best way to protect your data is to not share it in the first place. If you need to share files, exclude folders that contain particularly sensitive data. See “List All Your Shared Folders” for a comprehensive list of shared folders on your PC, and then take advantage of XP's security features, such as they are, to protect the rest of your files.

The first thing you need to do is set a password for your user account. Open the User Accounts control panel, select your account from the list, and then click “Create a password.” Type your password twice, followed by a clue to act as a reminder down the road (you may well need it), and then click the Create Password button when you're done. Thereafter, anyone wanting to access your files from another computer on your network will have to supply the password (with some exceptions for Windows XP Professional).

Now, unless you employ some sort of firewall anyone outside your local network—namely, everyone on the Internet—can access your data (and yes, no matter how uninteresting you may think the contents of your PC are, this *can* happen to you). Windows XP comes with the “Windows Firewall,” a feeble software-based solution, but nothing beats a hardware firewall placed between you and the rest of the world. If you don't have one already, get yourself a router for this purpose, as described in “Set Up a Wireless Network.”

### WARNING

*If you're using a wireless network, anyone within range may be able to join your network and access your files, unless you follow the steps in “Surf Safely at the Coffee Shop.”*

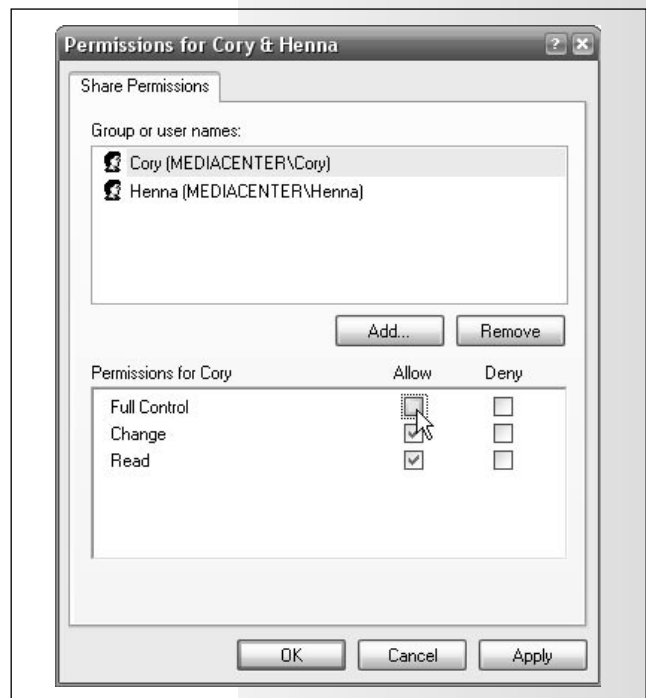
For any more protection, you'll need to use *permissions*, which are special settings that control precisely who can do what to your files. Permissions are available only in Windows XP Professional (and Media Center Edition); if you're using Windows XP Home, your ability to protect your data effectively stops here.

On an XP Pro system, every file, folder, and drive has two sets of permissions you can set: permissions for local users (other people sitting at your PC), and permissions for anyone accessing your files through a shared folder. To set the permissions for a shared folder, right-click the folder, select Properties, choose the Sharing tab, and then click the Permissions button.

The Share Permissions window, shown in Figure 5-5, shows a list of configured users in the top list, and the specific things the selected user is allowed to do down below.

First, make sure your own username appears in the upper list; if it doesn't, or if it merely shows "Everyone" (like the one in Figure 5-5), click the Add button. Type your username—or the username of the person you want to be able to access your stuff—in the "Enter the object names to select" field, and then click the Check Names button. If Windows underlines what you've typed, the username is okay; otherwise, you'll get a "Name not Found" message. Click OK when you're done adding names.

Next, highlight your username in the "Group or user names" list, and place checkmarks in the boxes in the Allow column below as you see fit. Want others to be able to read the files in this folder but not change any of them? Put a checkmark in the Read box, but not in the Full Control or Change boxes.



**Figure 5-5.** Set sharing permissions to protect your data from intruders (or just to keep the kids from accidentally messing up your stuff).

#### NOTE

*In most cases, you won't have to bother with the checkboxes in the Deny column unless you start messing with "groups" of users. Permission to carry out a given action is implicitly denied as long as there's no checkmark in the corresponding Allow box.*

If you want to deny any user access to your files—particularly the self-explanatory "Everyone"—highlight the username, and click the Remove button. Now, any user who is not expressly listed here (or included in any groups listed here) will not have access to your shared files.

When you're done, click OK. The changes take effect immediately and apply to the selected folder share, as well as to all subfolders and files contained therein.

## Share an Entire Drive

**THE ANNOYANCE:** I looked at the Sharing tab for my C: drive, and the "Share this folder" option is selected, meaning the drive is currently being shared. However, I don't see it in *My Network Places*. What's going on?

**THE FIX:** In Windows XP Professional (and Media Center Edition), all drives are shared automatically. For instance, the Sharing tab for drive C: on your PC probably looks like the one shown in Figure 5-6. (None of this applies to Windows XP Home.)

#### NOTE

*By adding someone else's username to the Permissions window, you can protect your data without handing over your username and password. If your PC is part of an NT domain (typical in a corporate environment), you can add users from your domain or even another domain by clicking the Locations button to change the scope of the user validation. But on a home network, you'll need to create a new user account on your PC (using the User Accounts control panel) before you can type it into the Permissions window.*

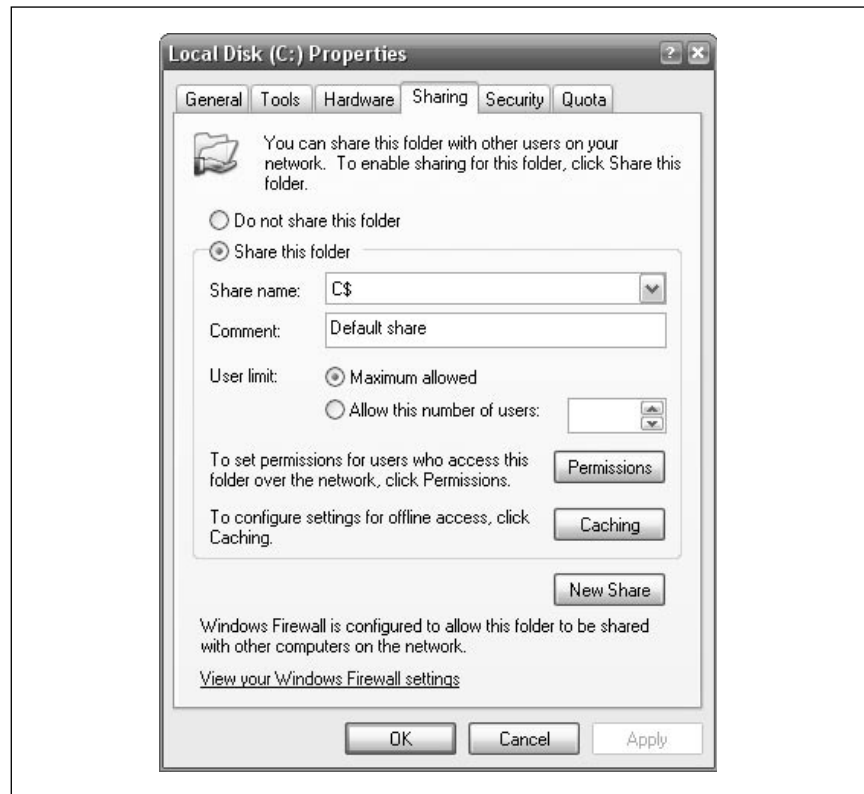


Figure 5-6. Each hard disk on your PC may already be shared.

Microsoft calls this an *administrative share*, and it's enabled by default so that tools such as the Computer Management utility (accessed by going to Start→Run and typing `compmgmt.msc`) running on a remote computer can operate on your PC. The dollar sign at the end of the share name (e.g., `C$`) identifies it as a hidden share, which means it won't ever show up in *My Network Places*. All it takes to view a hidden share is to type the share name into Windows Explorer's address bar, like this:

```
\\mycomp\C$
```

In this example, *mycomp* is the name of your computer. Provided there aren't any password or permission restrictions (see "Protect Shared Files"), anyone can access the files in this shared folder as readily as any non-hidden share. (For more on hidden shares, see "List All Your Shared Folders.")

#### WARNING

Yes, administrative shares indeed constitute a potential security risk, as they allow access to any files on your hard disk, whether they're in folders you've specifically shared or not. If you want to remove administrative shares for good, see "Turn Off Administrative Shares."

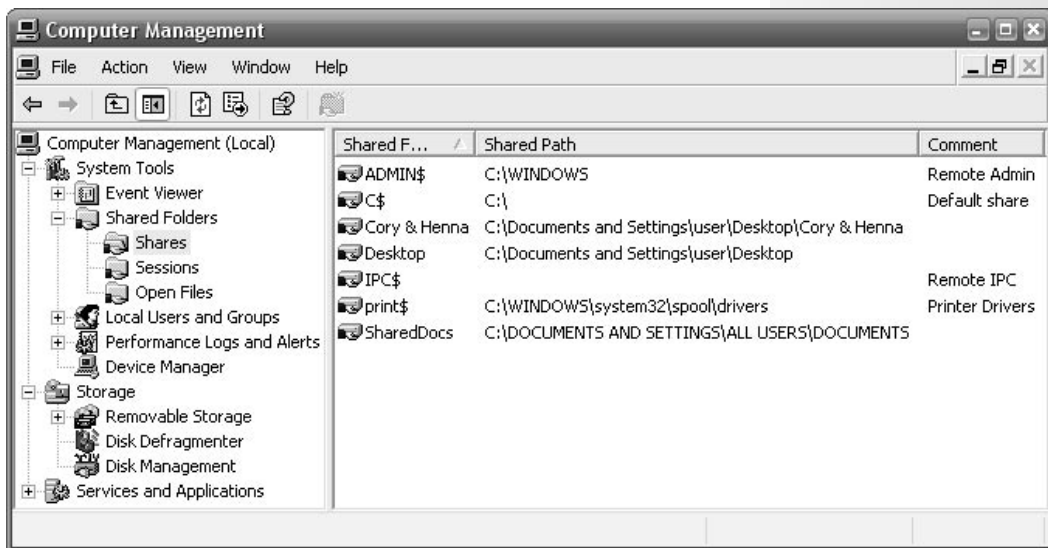
Now, you can use these administrative shares to access your drives remotely, as explained earlier, but if you want to share your drive so that it shows up in *My Network Places*, just click the New Share button at the bottom of the window. In the New Share dialog box, type a share name (e.g., C), set any permissions, and click OK.

## List All Your Shared Folders

**THE ANNOYANCE:** I know a folder is being shared when I see that little hand icon on top of the yellow folder icon. But all it takes is one forgotten share to leave my private files open to prying eyes. Can I get a comprehensive, reliable list of everything being shared on my PC?

**THE FIX:** You can simply open the *My Network Places* folder in Windows Explorer and navigate through *Entire Network* to find your PC and a list of all its shared resources, but this listing doesn't necessarily show *everything* that's being shared. Specifically, any *hidden* shares are, well, hidden.

To view all your network shares—including the hidden ones—select Start→Run, type `compmgmt.msc`, and click OK to open the Computer Management tool. In the System Tools branch on the left, click the [+] icon next to *Shared Folders* to expand it, and then highlight the *Shares* folder, as shown in Figure 5-7.



Any share with a dollar sign at the end of its name (e.g., C\$) is hidden. While hidden shares don't show up in *My Network Places*, you can access them just as readily as non-hidden shares, as explained in "Share an Entire Drive."

**Figure 5-7.** The Computer Management tool lists all the shared folders on your PC, including hidden ones you probably didn't even know existed.

From here, you can right-click any share and select Stop Sharing to turn it off, making this window a very convenient place to quickly tighten up security on your system. If you add or remove any shares in Windows Explorer, press the F5 key or click the Refresh button on the toolbar to update the list.

Although you can stop sharing any hidden share (such as C\$) in this window, Windows will recreate all administrative shares the next time you start your computer, in effect sharing every file on your PC whether you want it to or not. To stop this from happening, see “Turn Off Administrative Shares.”

## Turn Off Administrative Shares

**THE ANNOYANCE:** Windows insists on sharing my entire hard disk, despite the fact that I’ve only elected to share specific folders. What are administrative shares, and why can’t I turn them off?

**THE FIX:** Hmm... it’s almost as though Microsoft cares more about corporate strategy than the personal security of their customers. Funny, that.

If you’re using Windows XP Professional (or Media Center Edition), your entire hard disk is indeed being shared on your network whether you like it or not (see “Share an Entire Drive” for details). If you open Windows Explorer, right-click drive C:, and select Sharing and Security, you’ll see that the drive is already shared as C\$. This is called an *administrative share*, and although the \$ suffix makes it hidden in *My Network Places*, users on your network can still browse the share—thereby gaining access to all the files on your drive—by typing the following path into Windows Explorer’s address bar:

```
\\mycomp\c$
```

where *mycomp* is the name of your PC. Combine this with the fact that user accounts don’t have passwords by default, and you’ll see how insecure Windows XP can be. (See “Protect Shared Files” for further steps you should take to secure your system.)

Administrative shares allow network administrators to install software, run Disk Defragmenter, or perform other maintenance on your PC remotely. But unless you’re in a corporate environment, you have nothing to gain by leaving this back door open... and everything to lose.

To patch this hole, open the Registry Editor (go to Start→Run and type `regedit`), and navigate to `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\lanmanserver\parameters`. In the right pane, double-click the `AutoShareServer` value, type 0 in the “Value data” field, and click OK. Then double-click the `AutoShareWks` value, type 0 in the “Value data” field, and click OK. Close the Registry Editor when you’re done.

Next, go to Start→Run, type `compmgmt.msc`, and click OK to open the Computer Management tool. In the System Tools branch on the left, click the [+] icon next to Shared Folders to expand it, and then highlight the *Shares* folder (see Figure 5-7 in “List All Your Shared Folders”). To manually remove the administrative shares, right-click each one (e.g., *C\$*, *D\$*, *E\$*) and select Stop Sharing. Go ahead and remove any hidden share (anything with a dollar sign in the name), with the following three exceptions:

- *IPC\$*, which stands for Inter-Process Communication, is used for remote administration of your computer, something very few people need outside of a corporate environment. Although it has been proven that the *IPC\$* share can be exploited, the only way to disable it permanently is to turn off file sharing altogether. You can stop sharing *IPC\$* temporarily, but Windows will recreate the share the next time you restart.
- *print\$* is used to exchange printer driver files when you share a printer. You should leave this share intact.
- *wwwroot\$* will be present if Microsoft’s Internet Information Server (IIS) software is installed. Leave this share intact if you want to use your computer as a web server or a web software development platform.

When you’re done, restart your computer, and then reopen the Computer Management tool to check your work.

## Speed Up Network Browsing

**THE ANNOYANCE:** It seems to take forever to browse the folders on the other PCs on my network. How can I speed things up?

**THE FIX:** The *Scheduled Tasks* folder, which appears in *My Network Places* along with your shared folders and printers, is responsible for much of the slowdown. Since the shared *Scheduled Tasks* folder takes so long to load, and has very little value to most Windows users, you can just turn off the share to speed things up.

Open the Registry Editor (select Start→Run and type `regedit`), and navigate to `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Explorer\RemoteComputer\NameSpace`. Inside the *NameSpace* key, you may see one or several subkeys, each responsible for a special shared folder. To see what any one of these subkeys does, select it and look at the (*Default*) value in the right pane.

To stop sharing *Scheduled Tasks*, just delete the `{D6277990-4C6A-11CF-8D87-00AA0060F5BF}` key.

While you’re here, you can further improve performance by turning off the *Printers and Faxes* share. If you don’t plan on sharing any printers, delete the `{2227A280-3AEA-1069-A2DE-08002B30309D}` key.

Close the Registry Editor when you're done. The change should take effect immediately.

**NOTE**

*If, for some reason, you want to re-enable the Scheduled Tasks share, just re-create the subkey. Select Edit→New→Key and type {D6277990-4C6A-11CF-8D87-00AA0060F5BF} for its name.*

## Connect to a Windows 9X/Me PC

**THE ANNOYANCE:** I have an old Windows 98 system I need to network with my Windows XP machine, but I can't seem to get the two PCs to communicate.

**THE FIX:** Getting XP to happily communicate with Windows 9x machines over a network can be a bit of a chore. Fortunately, there are two tactics that usually solve the problem.

First, assign a static IP address to each PC on your network, regardless of the Windows version being used; see “Network Two Computers” for instructions.

Second, Windows 95 and Windows 98 (and occasionally Windows Me) install a driver called NetBEUI by default. NetBEUI is not compatible with Windows NT-based systems (such as Windows XP and 2000), and it can cause problems if installed on any system on your network. To remove NetBEUI from a Windows 95/98/Me system, open the Network control panel and choose the Configuration tab. If you see NetBEUI in the list, highlight it, and click the Remove button. Remove all instances of NetBEUI from this window, and then click OK when you're done. You'll probably have to restart your PC.

## Find Missing Remote Printers

**THE ANNOYANCE:** I need to print to a printer that's physically connected to another PC on my network, but when I browse for the printer in the Add Printer Wizard, it never shows up. I also tried typing the printer's network address into the wizard without any luck, and the printer manufacturer is absolutely no help.

**THE FIX:** The traditional way to use a printer installed—and shared—on another PC is to open the Printers and Faxes control panel and then click Add Printer. On the “Local or Network Printer” page, choose “A network printer, or a printer attached to another computer,” and on the next page, choose “Browse for a printer.” Unfortunately, a variety of problems can cause the printer to be absent from this screen.

First, make sure the PC to which the printer is connected is turned on, the network is working for all PCs involved, and the printer is indeed shared. On the remote PC (the one with the printer), open the Printers and Faxes control panel. Right-click the printer you'd like to share, select Properties, and then choose the Sharing tab. Select the "Share this printer" option, and then click OK.

If the printer is shared, and you're sure its driver supports network sharing, there's a quick workaround that usually works (although it won't solve the underlying problem, whatever that might be). Open Windows Explorer on a PC not directly connected to the printer, and click the *My Network Places* folder. Open *Entire Network*, then *Microsoft Windows Network*, then your workgroup (e.g., *MSHOME*), and then the PC to which the printer is attached. Inside, you'll find a *Printers and Faxes* folder, and inside that, you'll see all the printers shared on that PC. Right-click the printer you want to use, and select Connect.

If all goes well, the printer will show up in the Printers and Faxes dialog in 10–20 seconds, and you should be able to print to it immediately thereafter.

## PC Slows When Accessed over the Network

**THE ANNOYANCE:** My PC slows to a crawl when someone reads a shared file on my hard disk over the network. I need to keep those shared folders active, but the performance slowdown interferes with my work. What can I do?

**THE FIX:** Although heavy network traffic can bog down a PC, it may indeed be nothing more than a hardware problem. Specifically, your network adapter may conflict with another hardware device in your system.

If you're using a desktop PC, shut down Windows, unplug the power cable, and crack open the case. Locate your network adapter—the card into which you plug your network cable—remove the screw, pull out the card, and pop it into a different slot. Reassemble and turn on your PC and see if the problem goes away.

If, on the other hand, your NIC is integrated on the motherboard, it probably shares an IRQ with one of the PCI slots, and thus the PCI card in that slot may be causing the problem. Remove all nonessential PCI cards from your system, and start up Windows. If the problem persists, you may have to shuffle the remaining, essential PCI cards until you resolve the problem. If, on the other hand, the problem vanishes after you remove the PCI cards, shut down your PC and reinsert the cards one by one, reassembling and restarting your system after each insertion, until you find the culprit. If the culprit is a troublesome PCI slot, cover it with a piece of masking tape to remind yourself to keep it unoccupied.

### NOTE

*Note that some printers can't be shared (this problem may come up if the manufacturer sells a more expensive "network-ready" printer that they'd rather have you buy). Review your printer's documentation and check the manufacturer's web site for driver updates if you can't get sharing to work. Typically, printers suffering from this limitation do show up in the "Browse for a printer" list but display an error when you try to install the drivers or print remotely.*

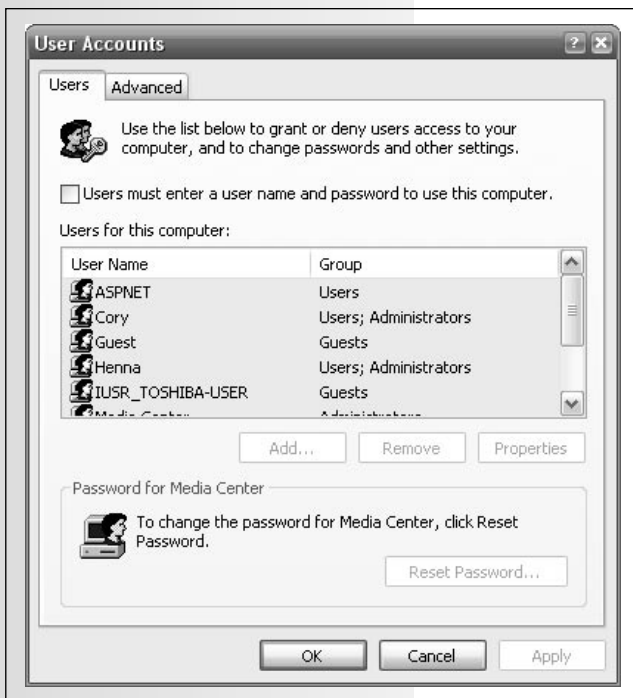
If you're still stuck, you may need to update your network drivers or even replace your network hardware (see Chapter 6 for other hardware annoyances).

## Log in Automatically

**THE ANNOYANCE:** I added a password to my Windows user account to protect my shared data, but now I have to type it every time I turn on my PC. Isn't there a way to skip this step?

**THE FIX:** It may seem ironic to create a password for your PC and then immediately override it with an automatic logon, but it's a perfect solution for a single-user PC on a home network. As described in "Protect Shared Files," your user account needs a password if you want to share files with other PCs on your network, particularly if you want to protect your data from intruders. But unless those intruders routinely walk by your computer, you can forgo having to type that password every time you start Windows.

To do this, go to Start→Run, type `control userpasswords2`, and then click OK to open the alternate User Accounts window shown in Figure 5-8. (The standard User Accounts window in the Control Panel isn't sufficient for this task.)



**Figure 5-8.** Use the alternate User Accounts window to do things you can't do with the standard User Accounts window.

Remove the checkmark next to the "Users must enter a user name and password to use this computer" option, and click OK. In the Automatically Log On dialog box, type your username, enter your password twice, and click OK. The next time Windows starts, you'll skip the Welcome screen and go straight to your desktop.

## Use the Administrator Account

**THE ANNOYANCE:** When I installed Windows, I had to choose an Administrator password and then create a separate user account for myself. Can I delete the superfluous account and simply use the Administrator account as my primary login?

**THE FIX:** You can, but only in Windows XP Professional and Media Center Edition. (Note: in MCE, the Administrator account is named "Media Center" by default.) In Windows XP Home, the Administrator account is restricted and can be used only when you start your PC in Safe Mode.

To log in as the Administrator, go to Start→Log Off, and click the Log Off button. Once you see the Welcome screen, press Ctrl-Alt-Del twice to show the old-fashioned “Log On to Windows” dialog box. Type Administrator for the username, enter the Administrator password below, and click OK.

Once you’ve logged on as the Administrator, you can delete the superfluous user account from the User Accounts control panel. Of course, you’ll lose all the settings from that account, so it may not be worth it if you’ve been using the account for some time.

To show the Administrator account on the Welcome screen, open the Registry Editor (go to Start→Run and type regedit), navigate to `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\WindowsNT\CurrentVersion\Winlogon\SpecialAccounts\UserList`, select Edit→New→DWORD Value, and type Administrator for the name of the new value. Double-click the new Administrator value in the right pane and type 1 in the “Value data” field. When you’re done, close the Registry Editor and restart Windows for the change to take effect.

## INTERNET CONNECTIONS

### Get Your PC Online

**THE ANNOYANCE:** I just signed up for a broadband Internet connection in my home. Everything seems to be plugged in correctly, but I can’t get to any web sites.

**THE FIX:** Modern broadband connections are pretty simple, until they stop working. Most of the time, the solution involves nothing more than unplugging your cable or DSL modem (and router, if you have one), leaving the devices unplugged for at least two full minutes, and then plugging them back in. If that doesn’t work, you’ll have to do a little digging.

#### NOTE

*If you don’t yet have a router, consider getting one as part of the solution to this problem. As described in “Set Up a Wireless Network,” routers offer better firewall protection than Windows can; they also take care of a lot of the problems that commonly plague broadband connections, such as finicky dialers.*

Examine your DSL or cable modem’s port lights, which will tell you whether or not a particular service is working. One should be lit (green, usually) when your PC is connected, and another should be lit when your broadband is connected. These lights typically flash to indicate that data is being transferred. If they’re off, or perhaps red or orange, something is wrong with your modem or your connection, and no amount of wrangling in Windows will fix it. To see if your modem is to blame, reset it (see your modem’s documentation for details) and try again; replace your modem if

#### NOTE

*Don’t know the Administrator password? Provided you’re logged in as a user with administrator privileges (not the same as the Administrator account), you can choose a new password for the Administrator account in the alternate User Accounts window (go to Start→Run and type control userpasswords2). Just highlight any user in the list other than Administrator, and then click the Reset Password button.*

## Troubleshoot Your Dialer

If you're still using the software that came with your router, see "Get Rid of Third-Party Dialers" for an alternative that may work.

Whether you use a router, XP's own Point-to-Point over Ethernet (PPPoE) dialer, or your ISP's dialing software to connect, the way your dialer behaves when you try to connect should tell you what's wrong. If it tells you that your login is incorrect, either your username or your password is wrong. The most common mistake involves the username, which often resembles an email address (e.g., *username@myisp.net*) instead of just a bare name. Check your documentation for details, or call your ISP to have them reset your password.

If you have to wait a long time before the dialer gives you any error at all, your IP settings may be incorrect; see "Network Two Computers" for the fix. If, on the other hand, you get an error right away, it's probably a configuration problem with your dialer software, such as the wrong network adapter selected.

If your dialer indicates that there was no response from the server (or something similar), it usually means your service is down. Check your cables, and contact your ISP for status.

it won't respond even after a reset. If your modem checks out, your connection might be down; give your ISP an hour or two to bring your service back up, and contact them if it takes any longer.

Does your broadband connection require special dialer software? See the "Troubleshoot Your Dialer" sidebar for dialer-specific help. Otherwise, you likely have an always-on connection, one that uses either a dynamic (randomly assigned) IP address or a static (always the same) IP address. In this case, refer to the paperwork that came with your broadband connection, and change Windows's TCP/IP settings accordingly, as described in "Network Two Computers." Specifically, choose the "Obtain an IP address automatically" option if you're using a dynamic address, or the "Use the following IP address" option for a static address.

## Get Rid of Third-Party Dialers

**THE ANNOYANCE:** My ISP gave me this CD when I signed up for Internet service. Not knowing any better, I installed it, and now my PC is littered with ads and junk software. Do I need any of this stuff?

**THE FIX:** In most cases, the software that comes with broadband service is unnecessary, providing little more than branded web software and links to your ISP's various marketing partners. The exception is the "dialer" program required by certain types of broadband connections, which is used to send your username and password to your ISP in order to connect to the Internet. Such software is typically flaky and the cause of all sorts of Internet connection problems. Fortunately, you can usually dump your ISP's proprietary software in favor of either Windows XP's built-in dialer or the auto-connect capabilities of a router.

### NOTE

*There are a few exceptions. If you're using a USB modem, such as the SpeedTouch 330, it may require special drivers in order to work. If you have one of these, you may be better off replacing it with a combination modem and wireless router, such as the SpeedTouch 580, than trying to get it to work with anything other than the software that comes with it. Another exception is a wholly proprietary Internet connection provider such as AOL, which isn't compatible with anything other than the provided connection software.*

First, remove the superfluous software provided by your ISP: in the Add or Remove Programs control panel, highlight your ISP's software, and click the Remove button. If your ISP installed more than one software package, you may have to uninstall several entries from this list.

The best alternative to a software-based dialer is a wireless router, which will dial your connection automatically, keep you online all the time, protect your PC with its built-in firewall, and even provide wireless access to boot (see “Set Up a Wireless Network” for details).

Although routers are hard to beat, you can use Windows’s built-in PPPoE dialer to connect to the Internet without any added hardware. Open the Network Connections control panel and click the “Set up a home or small office network” link on the left (or double-click the Network Connection Wizard icon). Answer the questions as follows:

1. Click the Next button to skip the introductory page, choose the “Connect to the Internet” option, and then click Next again.
2. Choose the “Set up my connection manually” option, and click Next.
3. Choose the “Connect using a broadband connection that requires a user name and password” option, and click Next.
4. Type a name for this connection, and click Next. A good choice is the name of your ISP, or just “DSL” or “cable.”
5. Enter your username and password (see Figure 5-9), choose the desired options underneath (if you’re not sure, turn them all on), and click Next.
6. Click the Finish button to complete the wizard.



The screenshot shows the 'New Connection Wizard' dialog box. The title bar reads 'New Connection Wizard'. The main heading is 'Internet Account Information'. Below the heading, it says 'You will need an account name and password to sign in to your Internet account.' There is a small icon of a modem. Below this, it says 'Type an ISP account name and password, then write down this information and store it in a safe place. (If you have forgotten an existing account name or password, contact your ISP.)' There are three input fields: 'User name:' with the text 'Rutiger', 'Password:' with a masked field of dots, and 'Confirm password:' with a masked field of dots. Below the input fields are two checked checkboxes: 'Use this account name and password when anyone connects to the Internet from this computer' and 'Make this the default Internet connection'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a dashed border.

**Figure 5-9.** Use the Network Connection Wizard to set up a PPPoE dialer and replace the dialer that came with your broadband modem.

To initiate the connection, double-click the icon you just created in the *Network Connections* folder. If you elected to create a desktop shortcut in the wizard, you can also double-click the new desktop icon. By default, a Connect dialog will appear, at which point you can click the Connect button to dial and connect your PC to the Internet.

Normally, you'll have to dial this connection before you can go online. To have Windows connect automatically, first right-click the connection icon and select "Set as Default Connection." Next, open the Internet Options control panel, choose the Connections tab, and select the "Always dial my default connection" option.

To skip the Connect dialog, right-click the new connection and select Properties (or click the Properties button in the Connect dialog box). Choose the Options tab, and remove the checkmark next to the "Prompt for name and password, certificate, etc." option. This is particularly useful if you want Windows to connect automatically when you first start your computer; just drag the PPPoE connection icon from the *Network Connections* folder into your *Startup* folder in your Start menu.

## Share an Internet Connection

**THE ANNOYANCE:** I have three PCs in my house, but only one Internet connection. How can I access the Web from all three PCs at the same time?

**THE FIX:** There are several approaches, but the best solution is to use a router (preferably one with wireless support). Essentially, you take the cable that goes from your modem to your PC, unplug it from your PC, and plug it into the back of the router. Then you connect all your PCs to your router, either wirelessly or with cables, and then configure your router, as described in "Set Up a Wireless Network." The router also protects the PCs on your network with its built-in firewall, a must-have in an era of viruses, spyware, and bored teenage hackers.

The alternative to a router, useful only if you need a quick-and-dirty solution or can't use a router for some reason, is to use Windows XP's built-in Internet Connection Sharing (ICS) feature. The trick, basically, is to connect one PC (called the "host") simultaneously to the Net and to your local network. Then you set up your other PCs to piggyback, so to speak, on the host PC's Internet connection. Since the host PC needs two network cards, (one for the local network and one for connecting to the Internet), this approach likely won't save you any money—or time, for that matter—over using an inexpensive router.

To set up ICS on the host PC, open the Network Connections control panel and select View→Details. You should have at least two connections listed: one for your Internet connection and one for your workgroup. If not, your network is not ready.

Find your connection for the Internet. In most cases, this connection will be the network adapter connected to your DSL or cable modem. (For connections that require a username and password, use the PPPoE broadband connection you set up in “Get Rid of Third-Party Dialers.”) Right-click the connection icon, select Properties, and choose the Advanced tab. Check the “Allow other network users to connect through this computer’s Internet connection” box, and click OK. Back in the *Network Connections* folder, it should now say “Enabled, Shared” in the Type column.

The next step is to configure each of the other computers on your network to use the shared connection. On each of the other “client” PCs, open the Network Connections control panel, right-click the connection icon corresponding to the network adapter plugged into your workgroup, and select Properties. Choose the General tab, highlight the “Internet Protocol (TCP/IP)” entry in the list, and click the Properties button. In most cases, you’ll want to select the “Obtain an IP address automatically” option. If, however, you need static IP addresses, choose the “Use the following IP address” option, and fill out the fields as instructed in “Network Two Computers”. For the “Default gateway,” type the IP address of the PC hosting the shared Internet connection.

That’s it! Test your connection on each PC by loading a web page. Of course, for this to work, the host computer must be turned on and connected to the Internet—a requirement that makes the router a much better choice for the long haul.

## Measure Your Internet Connection Speed

**THE ANNOYANCE:** I’m not sure I’m getting the best speed from my Internet connection, but the Connection Status window in Windows XP doesn’t give me any useful information. And while I’m at it, are the ads I’ve seen for “faster” Internet connections mostly hype, or is there something I can do to improve my connection speed without spending any extra cash?

**THE FIX:** *Throughput* is the practical measurement of bandwidth: the quantity of data you can transmit over a connection in a given period of time. The simplest way to measure your throughput is to visit one of the many bandwidth-measuring web sites, such as Broadbandreports.com (<http://www.dslreports.com/stest/>) or Bandwidth Place (<http://bandwidthplace.com/speedtest/>).

For the most accurate results, make sure you close all superfluous programs before running the test. In addition to calculating your bandwidth and reporting the results, these services typically ask for your Zip Code and connection type to compile statistics on typical connection speeds in your area. The results should look something like Figure 5-10.

**BROADBAND Reports.com** Register or Login

Speed Interpretation

Search for:   search words or ZIP code

2005-10-05 15:48:49 EST: **1267 / 312**  
 Your **download** speed : 1297845 bps, or **1267 kbps**.  
 A 158.4 KB/sec transfer rate.  
 Your **upload** speed : 320156 bps, or **312 kbps**.

Welcome to BBR!  
 · Home Page  
 · **More tests!**  
 · Discussion forums

**Your Result vs Common benchmarks**

kbps	256	512	768	1024	1280	1536	1792
bearable							
ok							
ok							
ok							
ok							
ok							
ok							
broadband							
broadband							
<b>Yours</b>							
	«312 up						
	(2mbit barrier not shown)						
	(3mbit barrier not shown)						
	(5mbit barrier not shown)						

=Your data speed = estimated TCP overhead [popup more info](#)

**add your result to 'The Fastest Broadband' table**

Country:  (us,ca,jp,uk,il,fr,dk etc...)  
 Zip/postal code:  (so others can find your entry)  
 ISP:  (or .. enter name of ISP):  (DNS says pacbell.net)  
 My ISP claims my line is:  down /  up kbps  
 (eg 640 / 90 or 608 / 128 or 3000 / 300)  
 Your comment:

Privacy concerns? *this information is only used to create "The Fastest Broadband" table!*

Figure 5-10. Use Broadband Reports’s speed test page to measure the speed of your Internet connection.

Now, according to the results in Figure 5-10, the download speed is a respectable 1267 kbps (kilobits per second), which means, in practical terms, that it should take about 6.5 seconds to download a 1-MB file under ideal conditions.

However, ideal conditions are rare; real-life transfers are often much slower, due to overburdened servers and busy networks. Since your connection speed (or lack thereof) is most noticeable during file downloads (compared with web surfing or emailing), you can overcome some of these conditions by using a download manager, as described in “Faster Downloads Without the Hassle” in Chapter 4.

So what do you do if your connection seems too slow? First, close all open windows, and turn off all background programs (such as the ones that show up in the System Tray in the lower-right corner of the screen, near the clock). Do the same for any other PCs using your Internet connection. Next,

examine the lights on your router or broadband modem; if they're flashing, it means that some program is still running on your PC, possibly consuming bandwidth. This is a possible sign that a virus, worm, Trojan horse, or some sort of spyware has made its way onto your PC (see "Put an End to Pop-ups" in Chapter 4), but see the "Overcome a Bandwidth Limit in SP2" sidebar for another possibility.

#### NOTE

*For real-time monitoring of your connection's throughput, try a desktop bandwidth monitor. The slickest tools are widgets, fancy plug-ins for the free Kapsules script engine (<http://www.kwidgets.com>) For instance, Bandwidth Watcher, Simple Bandwidth Monitor, Mr. Network, and KapMule, all available at <http://www.kwidgets.com/forge.aspx>, provide pretty graphical displays and up-to-the-second measurements of the amount of data being transferred via your Internet connection.*

Of course, it's also possible that you're hitting the upper limit of your broadband connection. But whether or not an upgrade from your ISP is worth the money depends on the bandwidth you're getting now and the amount of cash your ISP is demanding for the faster service. If your connection measures more than one megabit per second (1024 kbps), it's unlikely you'll notice a huge difference in real-world speed with a faster connection. On the other hand, more expensive connections sometimes offer substantially higher *upload* speeds, which may be worth the added cost if you spend a lot of time sending files to web servers, or even if you want to host a web site on your PC.

#### NOTE

*If you're using a router, visit the manufacturer's web site for a possible firmware update that might fix some performance problems and may even add new features to your router.*

## Make Peer-to-Peer File Sharing Work

**THE ANNOYANCE:** My peer-to-peer (P2P) file-sharing program stopped working when I installed Service Pack 2. Is Microsoft trying to put an end to P2P, or can I fix this?

**THE FIX:** Most large companies would like to see P2P disappear, mostly because nobody has found a respectable way to make money off it. But the problem you're experiencing is almost certainly caused by the new Windows Firewall software built into SP2, which is blocking your file-sharing program from establishing a connection to its server.

### Overcome a Bandwidth Limit in SP2

There's a little-known change in Service Pack 2 that limits the number of concurrent open TCP/IP connection attempts to 10. This may adversely affect programs that use multiple TCP/IP connections, such as some download managers, port scanners, and P2P software (and, by design, viruses).

To see if this is happening on your system, open the Event Viewer (select Start → Run and type `eventvwr.msc`), and highlight the System entry in the left pane. In the right pane, click the Event column header to sort the list by event code, scroll through the list, and look for 4226 errors. If you see any 4226 events, you can fix the problem by downloading a patch for your `tcpip.sys` file (sorry, no Registry change here) by going to <http://www.lvllord.de/?url=tools#4226patch>. Note that only advanced users should attempt this.

**NOTE**

Microsoft frequently releases updates and bug fixes for its firewall. If you decide to use the Windows Firewall, make sure you download all available updates using the Windows Update feature.

A *firewall* is a layer of protection that permits or denies network communication based on a predefined set of rules. These rules restrict communication so that only certain applications are permitted to use your network connection. This effectively closes back doors to your computer that viruses, hackers, and other malicious parties or applications might otherwise exploit. The Windows Firewall (see Figure 5-11) replaces the nearly worthless Internet Connection Firewall (ICF) found in earlier versions of Windows XP. While it's better than its predecessor, it also acts more aggressively and closes more back doors by default. (See "Set Up a Wireless Network" for more information about firewalls.)



**Figure 5-11.** The Windows Firewall, which is turned on by default in Windows XP Service Pack 2, is known to cause problems.

**NOTE**

If you're using a router with a built-in firewall and you don't need to protect your PC from the other computers in your local network, you can safely turn off the Windows Firewall for good.

To see if the Windows Firewall is to blame, disable it temporarily. Open the Security Center control panel, click Windows Firewall, select the “Off (not recommended)” option, and click OK.

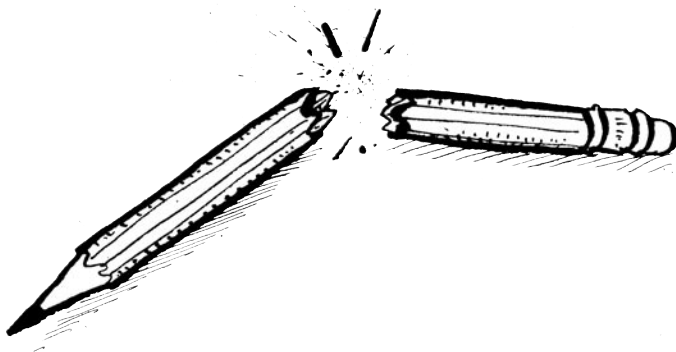
If your P2P software now works, the firewall software is clearly the culprit. (If it still doesn’t work, the problem lies elsewhere; consult your P2P software documentation for details.) Go ahead and return to the Windows Firewall window, and select the “On (recommended)” option to re-enable it. Next, choose the Exceptions tab, click the Add Program button, and find your P2P application in the list (if you don’t see it, click Browse to locate the .exe file on your hard disk). Highlight the program and click OK in both boxes. The Windows firewall should now let your P2P program do its thing without interference—the change will take effect immediately. (If you’re using a third-party firewall program, check the software’s documentation for help creating exceptions.)

If creating this exception doesn’t work, return to the Exceptions tab of the Windows Firewall window and create another exception. This time, instead of basing the exception on the program filename, configure the firewall to allow all communication over the port used by your software. Click the Add Port button, type a name for the exception (for example, P2P), and type the port number (e.g., 6699). If you don’t know the port number used by your P2P software, consult the software documentation. Click OK in both boxes, and give it a whirl.

## Use MSN Messenger Behind a Firewall

**THE ANNOYANCE:** I want to use MSN Messenger at work, but my company’s firewall blocks instant-messenger software. How can I get around this?

**THE FIX:** The last thing you should be forced to do when you’re at work is your job. To that end, several web-based versions of popular IM programs have been designed that can sneak through firewalls quite easily. (Such programs operate over TCP port 80, and are thus indistinguishable from web sites in the eyes of the firewall.) In the case of MSN Messenger, just go to <http://webmessenger.msn.com> and click “Start MSN Web Messenger” to log in.



## WIRELESS CONNECTIONS

### Set Up a Wireless Network

**THE ANNOYANCE:** I can't get my wireless network off the ground. I want to use the Internet, share files, and so on, but none of it seems to work. I thought this was going to be easy!

**THE FIX:** Wireless networking *is* easy! (Unless it's not.)

Wireless networking can be extremely convenient when it works but an absolute headache when it doesn't. The good news is that if you take the time to set up your router correctly, update your firmware, and install Service Pack 2, most wireless problems will disappear.

A router lets you connect your PC (or all the PCs in your workgroup) to the Internet, as well as connect multiple PCs to each other. Routers also include built-in firewalls, offering much better protection than software-based firewalls such as the Windows Firewall built into Service Pack 2. But most importantly, a wireless router acts as an access point, a central hub to which all wireless devices in your home or office can connect. To set up a wireless network, you'll need a wireless router (preferably one that supports the 802.11g standard), and at least one PC with a wireless network adapter.

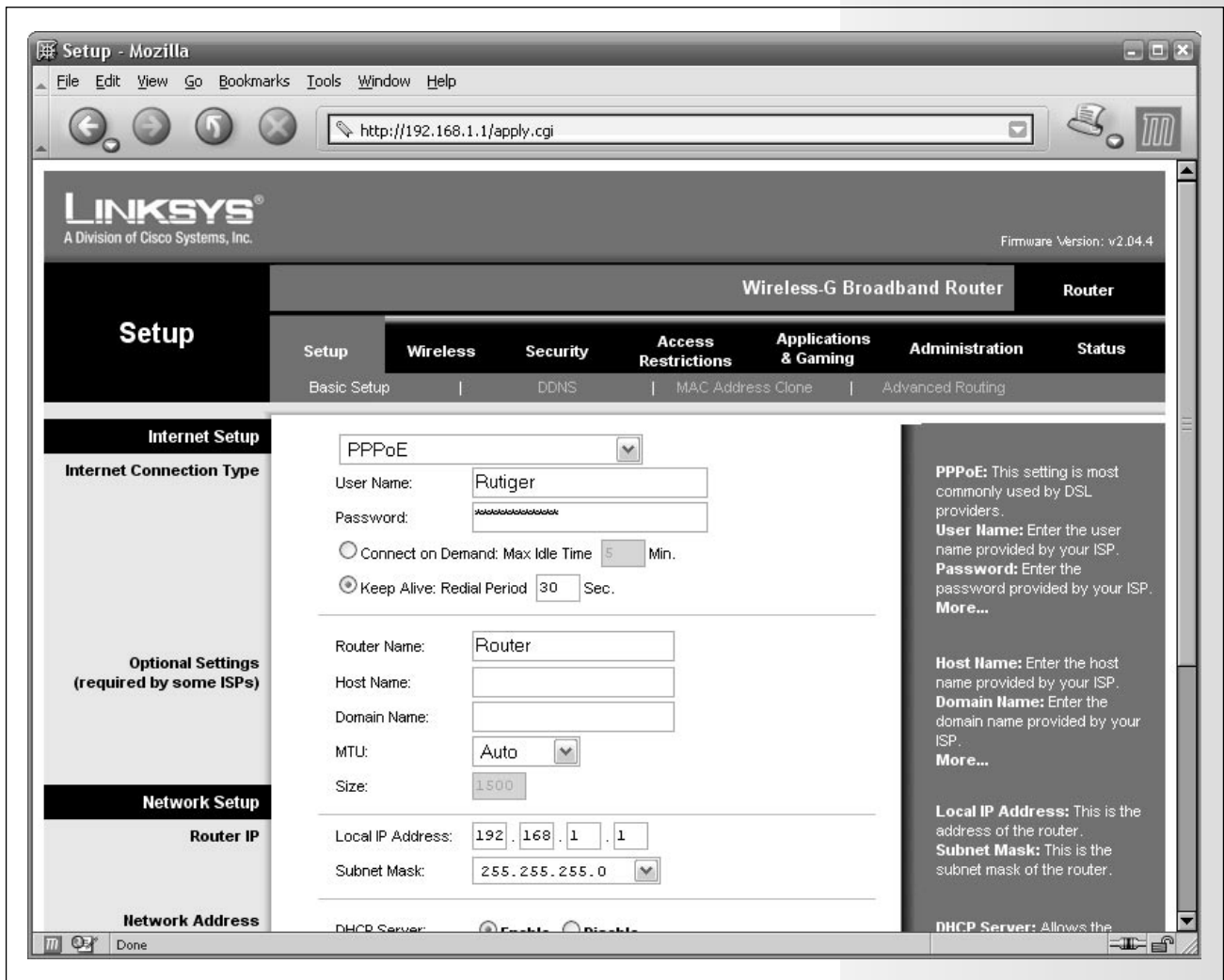
Connect your PC directly to your wireless router with a cable; that's right, a cable! You'll need to communicate with your router to set it up properly for wireless access—something you won't be able to do wirelessly throughout the whole process. Connect one end of a category-5 patch cable to your PC's Ethernet port, and the other end to one of the numbered LAN ports on the back of the router. Then plug in the router's power cable.

Your router probably came with setup software on a CD; in most cases, you don't need this and can use the router's more flexible web-based setup instead. Open a web browser on your PC, and type the router's IP address (usually 192.168.1.1, but check the router's manual) into the address bar. The router's built-in web server should show you a setup page like the one in Figure 5-12.

If you can't connect to your router, your computer is probably not on the same subnet as the router. The first three numbers of your computer's IP address must match the first three numbers of your router's IP address, but the fourth number must be different. For instance, if your router's address is 192.168.0.1, you may not be able to connect to it until you manually change your PC's address to 192.168.0.xxx, where xxx is any number between 2 and 255 (see "Network Two Computers" for further instructions). If all else fails, reset the router, following the instructions in the documentation, and try again.

#### NOTE

If you don't have Service Pack 2 yet, use the Windows Update feature now to get it (open Internet Explorer and select Tools→Windows Update). See Chapter 6 for more information about SP2 and Windows Update.



**Figure 5-12.** Configure your router via its web-based setup page.

On the setup page, choose your Internet connection type from the list. If your Internet connection requires a username and password, select PPPoE. If your ISP has provided an IP address for your connection, select Static IP. Otherwise, choose Automatic Configuration - DHCP. (Naturally, the options for your router may be slightly different.)

Click the Apply or Save Settings button at the bottom of the page when you're done. Within a few seconds, you should have Internet access; go ahead and test it by opening a second browser window (press Ctrl-N) and visiting any web site.

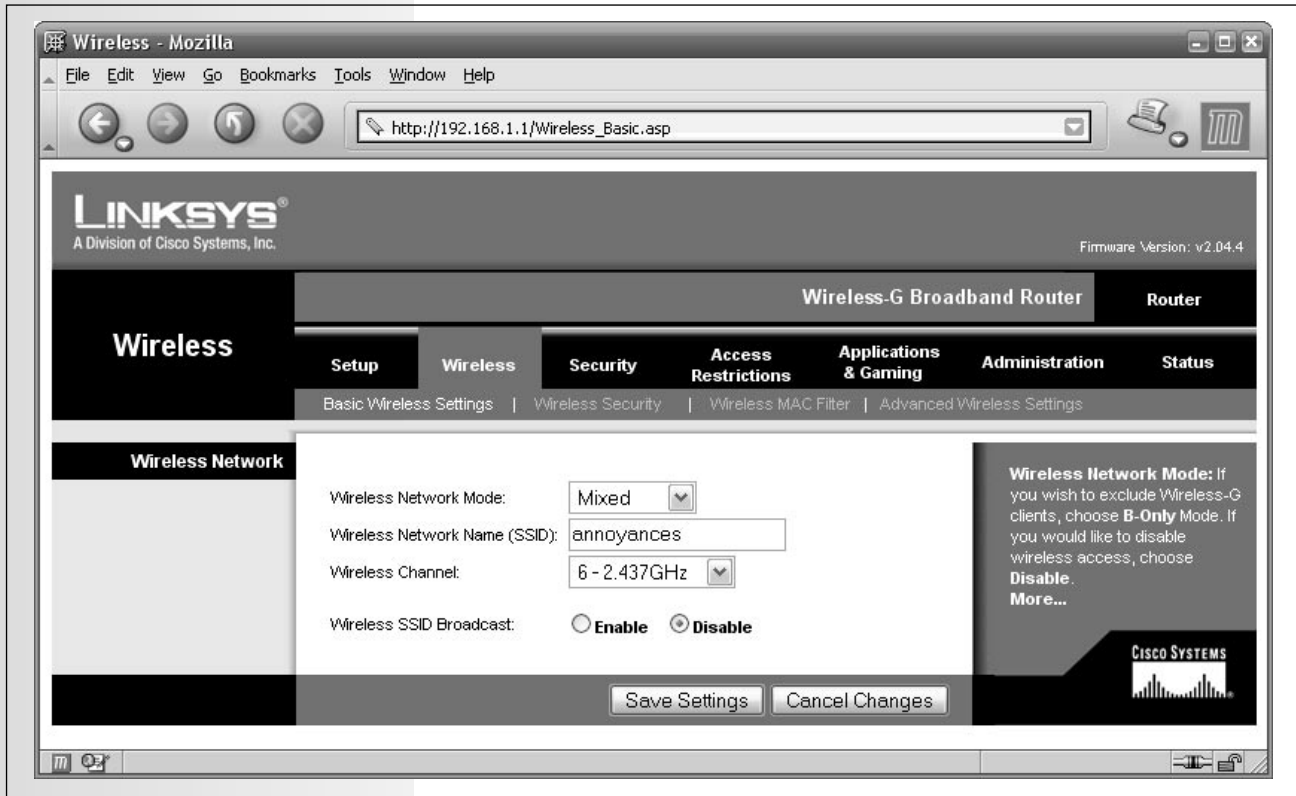
Once your Internet connection is working, visit the router manufacturer's web site and download any available firmware updates. (You can usually find your router's current firmware version on the Status page in the router's

#### NOTE

If you select PPPoE, the router should prompt you for a login. Type the username and password for your broadband connection, not your login for Windows, your email account, or anything else. If you choose Static IP, enter the IP addresses of your ISP's DNS servers. Your ISP should provide this information to you.

web-based setup.) Firmware updates include essential bug fixes, performance enhancements, security patches, and occasionally new features. Consult your router's documentation for firmware update instructions.

Next, go to your router's wireless setup page (see Figure 5-13): this is either a link in the main menu or a tab across the top of the page. Choose a new SSID (the name for your wireless network), and turn off the Wireless SSID Broadcast option to keep your wireless network private (see the sidebar "The Evils of SSID Broadcast" for details). Click the Apply or Save Settings button at the bottom of the page when you're done.



**Figure 5-13.** Choose a private SSID in your router's wireless setup page.

#### NOTE

*If you're using a Wireless-G router (a faster sibling of the 802.11b standard, capable of 54 Mbps), avoid the temptation to select the "G only" option on the wireless setup page. This feature prevents slower Wireless-B devices from joining your WiFi network—a fact you'll likely have forgotten when a visiting relative tries to connect to your home network to check her email a few months from now.*

You should also enable encryption for the best wireless security. This setting will be accessible either through a button on the current page, or on a separate tab entitled WEP, WPA, Encryption, or simply Wireless Security, like the one in Figure 5-14. WEP, the Wireless Encryption Protocol, prevents anyone without your secret WEP key from connecting to or spying on your wireless network. Some routers also support WPA, or WiFi Protected Access, which provides a slightly higher level of security.

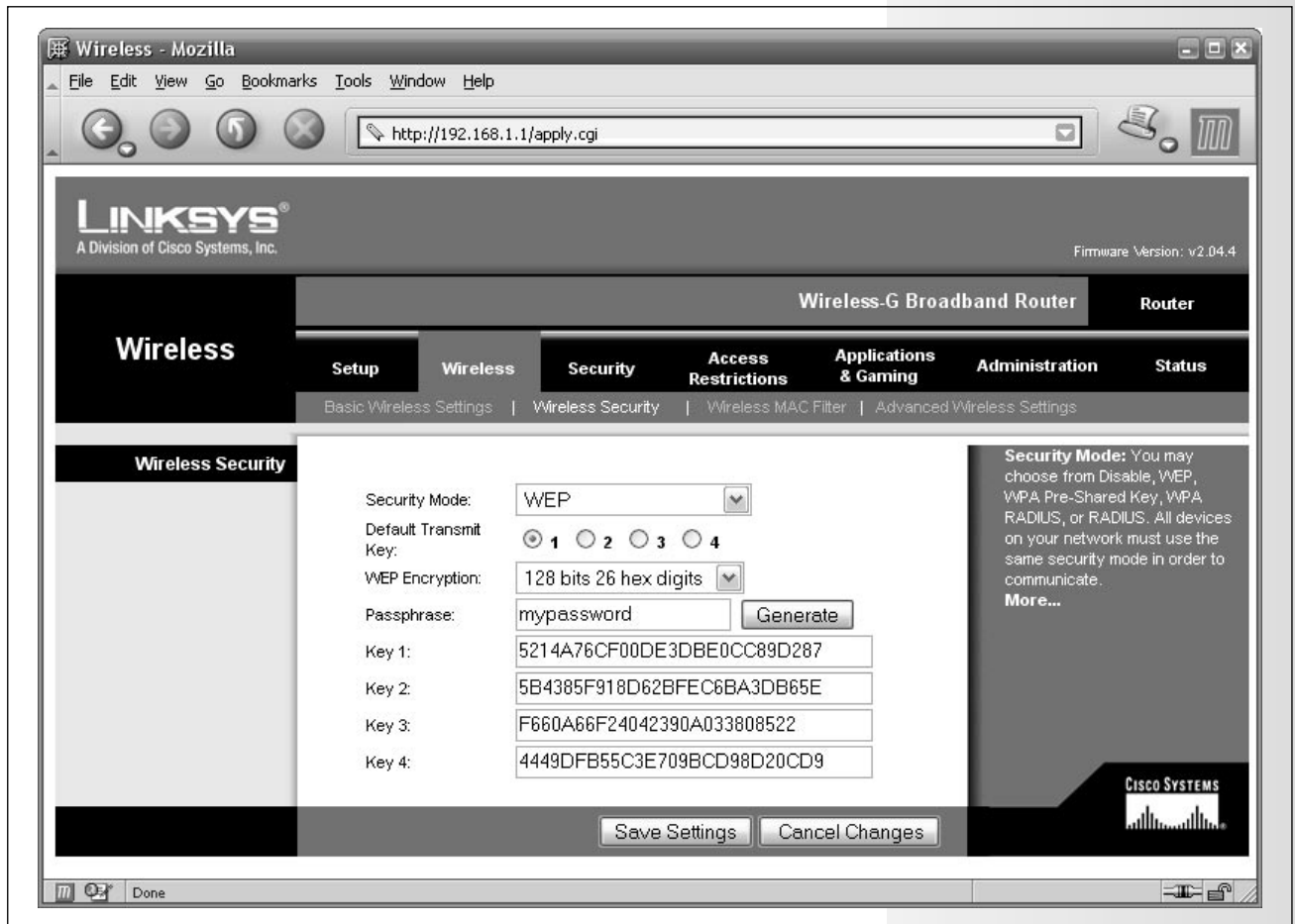


Figure 5-14. Enable encryption for the best wireless security.

On your router's encryption page, enable WEP, and then choose the highest WEP encryption level supported by your router (in this example, 128-bit). Higher levels provide better protection, but also mean longer (and harder to type) WEP keys.

Some routers have you choose a *passphrase*, which is a word your router uses to generate the WEP keys. In the example shown in Figure 5-14, I typed the word “annoyances” and clicked the Generate button to create four 26-digit WEP keys (the first one, Key 1, is the only one that is used). Generally, all of the computers on your wireless network will have to use the same key.

## The Evils of SSID Broadcast

Your SSID is the back door into your wireless network. If you broadcast your SSID, anyone with an SSID sniffer will be able to find it in a matter of seconds, connect to your network, and use your Internet connection (or even snoop around your shared folders).

The same danger exists if you continue to use your router's default SSID; probably a million people around the globe are using "linksys," which makes it a good guess for anyone trying to gain access to your network. Choose an SSID like you'd choose a password, and your wireless network will stand a better chance of remaining private.

The only time you'll likely want to enable SSID broadcast, other than for testing purposes, is if you're setting up a public WiFi access point, say in a coffee shop or bed and breakfast, and you want to make it easy for your patrons to connect.

**Figure 5-15.** The Wireless Network Connection dialog shows all WiFi access points within range (except the hidden ones).

### NOTE

*Before you save your changes, take this opportunity to record your key in a file to simplify the subsequent setup of your PCs. Highlight the first key (Key 1), and press Ctrl-C to copy it. Then open your favorite text editor (e.g., Notepad), and press Ctrl-V to paste it into a new, empty document. Save the file on your desktop.*

When you're done, click the Apply or Save Settings button at the bottom of the page, and then remove the cable connecting your PC to your router.

The next step is to enter one of the keys into each computer connected to your wireless network, as described in "Connect to a Wireless Network."

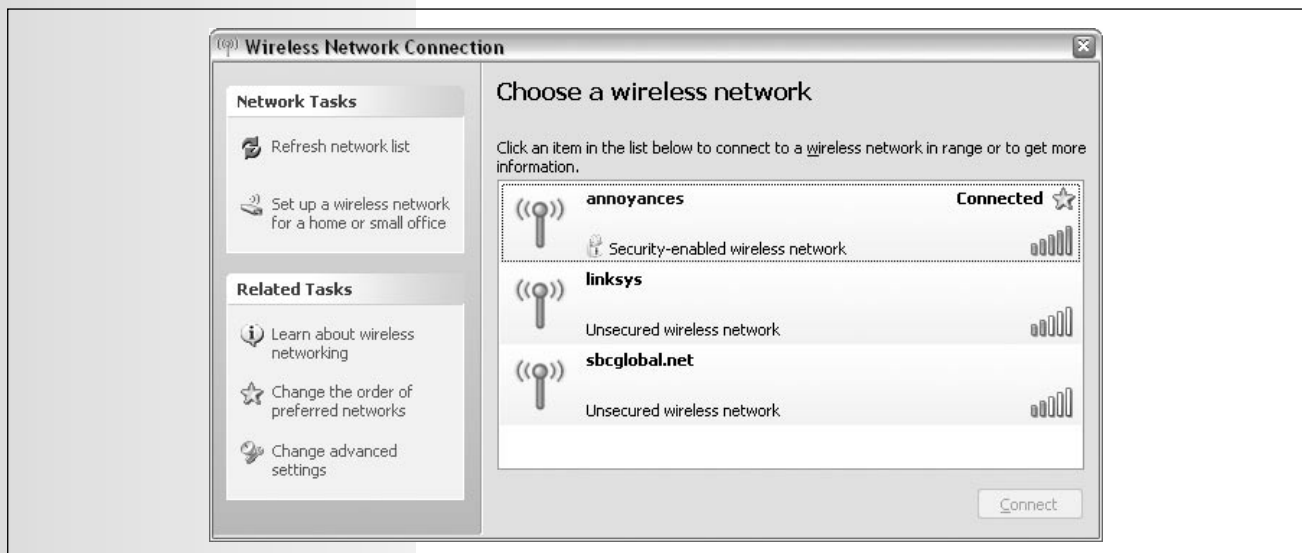
If you have trouble connecting to the router wirelessly, you probably entered the WEP key incorrectly. To fix the problem, either reconnect using a cable and change the settings or, as a final resort, reset the router as described in your router's documentation.

## Connect to a Wireless Network

**THE ANNOYANCE:** I think I set up my wireless router correctly, but my PC doesn't see it.

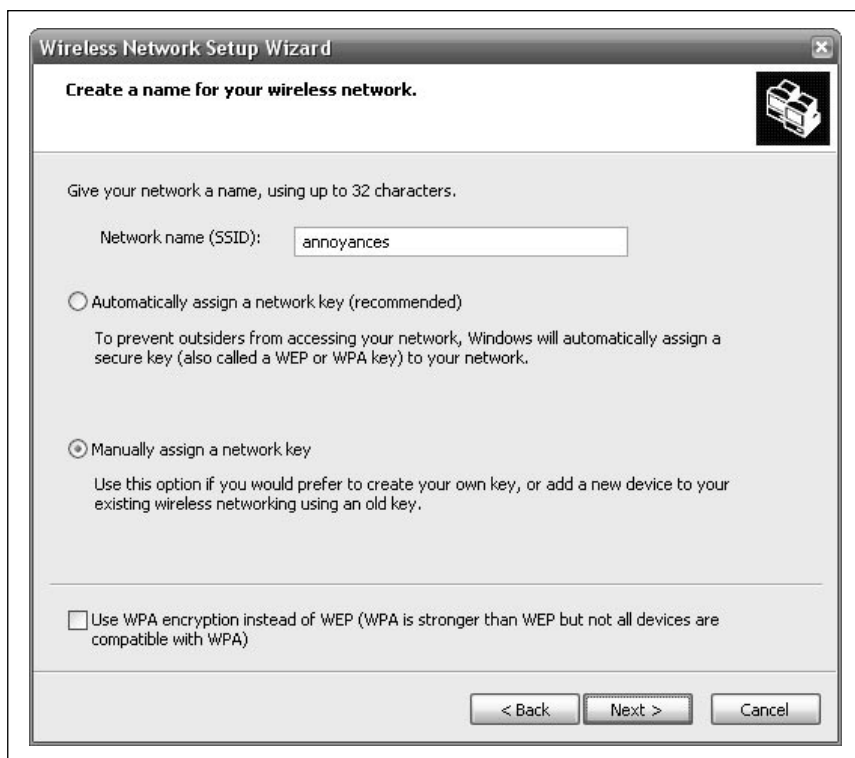
**THE FIX:** You probably turned off your router's SSID broadcast feature, as instructed in "Set Up a Wireless Network." While this means that strangers using WiFi sniffers (described below) won't "discover" your network, it also means that your network won't show up when *you* scan for it, either.

To test this, open the Network Connections control panel and double-click your unconnected wireless connection to open the "Choose a wireless network" dialog box shown in Figure 5-15.



(You can also right-click the wireless connection icon in your System Tray or in the Network Connections window and select View Available Wireless Networks.) This window, Windows XP's built-in “sniffer,” scans for WiFi access points within range and displays the results, typically in less than five seconds. (See the “Drive-by Sniffing” sidebar for more uses for this window.)

To connect to any visible network in the list, highlight it and click the Connect button. If your wireless network doesn't show up, simply click the “Set up a wireless network for a home or small office” link on the left to start the Wireless Network Setup Wizard (also accessible directly in the My Network Places folder). Click the Next button on the first page. On the “Create a name for your wireless network” screen, type your wireless network's SSID in the “Network name (SSID)” field (see Figure 5-16). If you've enabled WEP or WPA encryption for your router, select the “Manually assign a network key” option. If you selected WPA encryption in your router's setup, place a checkmark by the “Use WPA encryption” option; otherwise, for WEP, leave it unchecked. Then click Next.



**Figure 5-16.** To connect to a hidden wireless network, type its SSID into the Wireless Network Setup Wizard.

On the next page, turn off the “Hide characters as I type” option to make the text fields here easier to deal with. Now, if you've saved your WEP key from the router setup page (see “Set Up a Wireless Network”), you can open

## The Ethics of WiFi

Thanks to Windows XP's built-in WiFi sniffer, it's easy to detect and connect to any unsecured wireless network—including the network of an unsuspecting neighbor, which raises the thorny issue of ethics.

There are countless personal wireless networks around the globe, and most of them, you'll find, are unsecured. This means that if you walk down the street in a populated area, you'll probably find a working wireless Internet connection before you reach the end of the block. Some will have been left open intentionally, but most will be unsecured merely because their owners don't have the benefit of the advice in this chapter.

Now, just because you can connect to these networks, does it mean you should? Are you taking advantage of someone else's ignorance by breaking into their private network, or are you simply making use of a public resource that you'd be equally eager to share?

I'm not about to try to solve this dilemma in these short pages; I only wish to raise the question, and to suggest that if you do ever decide to utilize someone else's wireless network, you make sure to do no harm. Think about your impact, both on the bandwidth of the foreign network and the privacy of those who operate it. And then tread lightly.

—From *Windows XP Annoyances for Geeks, 2nd Edition*

the file, highlight the key, press Ctrl-C to copy the text, and then click in the “Network key” field and press Ctrl-V to paste in the text. Otherwise, you’ll have to type in the key from your router setup page manually. Unless you feel like typing this long key twice, just copy and paste it into the second field, and then click the Next button.

Finally, the wizard gives you the opportunity to save your settings to a USB flash drive, theoretically making subsequent setups easier (why no option exists to save settings to a CD writer, floppy drive, or simply a file on your desktop is a mystery). If you don’t have a USB flash drive handy, or if you don’t need to set up any more computers, choose the “Set up a network manually” option. Click Next and then Finish when you’re done.

From now on, your wireless network will show up in the “Choose a wireless network” list on this PC (as long as it’s in range), even if you’ve chosen not to broadcast your SSID. You probably won’t see it right away, though; just wait a few seconds and then click the “Refresh network list” link on the left. Your network should appear at the top of the list, proudly signifying that it has established a connection. You can now open a web browser and test your new wireless connection.

If you don’t see the network, you either mistyped the SSID, or your wireless router isn’t properly set up. If the network shows up but Windows can’t connect, you likely mistyped the encryption key. If, after repeated attempts, you can’t connect, disable encryption in your router and try again. You can usually fix such problems by updating the firmware in your router, as well as the firmware and drivers for the wireless card in your PC.

## Surf Safely at the Coffee Shop

**THE ANNOYANCE:** I like to sit at my local coffee shop with my wireless laptop, sip a double decaf soy latte, and read my email. Is this safe?

**THE FIX:** Good question, and not one that occurs to a lot of people. Soy lattes can be risky if you don’t take proper precautions.

Now, when you connect to the WiFi hotspot at the coffee shop (or on some random street corner downtown), you’re connecting to a public, unsecured workgroup. This may not seem like a problem until you consider the other PCs that also may be connected, any of which may share a virus or two with you, or merely serve as a conduit for an intruder hacking into your system.

To improve your security, first turn off any and all shared folders (see “List All Your Shared Folders”). And if you haven’t done so already, set up a password for your user account, as described in “Protect Shared Files.” This will go a long way toward protecting your data from casual intrusions, but you shouldn’t stop there.

To be on the safe side, enable the Windows Firewall (see “Make Peer-to-Peer File Sharing Work”) or install more competent third-party firewall software, such as ZoneAlarm Pro (\$49.95, <http://www.zonelabs.com>). The best solutions allow you to easily switch between a relaxed state, permitting all your programs to work while you’re safely behind your router’s firewall at home, and a heightened state of security when you’re on the road.

Of course, mind what you do on the Net while you’re at that coffee shop, too. As long as you’re using someone else’s network, nothing you do should be considered private. Although secure SSL-protected web sites do provide better privacy than insecure sites, you’re probably better off visiting financial web sites only when you’re at home.

## Increase Range and Improve Reception

**THE ANNOYANCE:** My laptop connects to the Internet without any problem as long as I’m in the same room as my wireless router. But once I change rooms or move too far away from my router, the connection drops in and out. What’s the deal?

**THE FIX:** Interference is the name of the game. The tiny WiFi transceiver in your PC should be capable of picking up any wireless network within about 300 feet under ideal conditions—namely, outdoors with a clear line of sight. Indoors, the range can be quite a bit lower; typically, the signal won’t go through more than two or three walls, and perhaps one floor or ceiling.

### Drive-by Sniffing

Every WiFi-equipped PC is capable of WiFi sniffing: scanning the area immediately surrounding it and listing any hotspots (wireless network access points) it finds. Of course, only those networks that are broadcasting their SSIDs will show up, which is why you’ll probably want to turn off SSID broadcast on your own router (see the “The Evils of SSID Broadcast” sidebar).

The “Choose a wireless network” dialog box is Windows XP’s built-in WiFi sniffer, and it is particularly handy when you’re trying to find an Internet connection away from home. Whether you’re in a coffee shop, in a hotel, or just driving through some residential neighborhood, you can use the sniffer to list any available WiFi networks within range. The closest networks (or rather, the ones with the strongest signals) are listed first, followed by the weaker, more distant hotspots.

A yellow padlock icon indicates secure hotspots—wireless networks requiring WEP or WPA security keys—so highlight the unsecured network with the strongest signal, and click the Connect button. With any luck, Windows should connect to the network in 10–15 seconds, and you should be able to start surfing normally soon thereafter.

If you’re concerned about your own privacy when using someone else’s hotspot, see “Surf Safely at the Coffee Shop.”

The placement of your wireless router and the arrangement of nearby obstacles will have a significant effect on the strength and range of your WiFi signal. Of course, your router will need to be within spitting distance of your DSL or cable modem, but with a sufficiently long cable, you should have some leeway with the router’s placement. Use the signal strength indicator in the “Choose a wireless network” window (right-click the wireless connection icon in the System Tray or Network Connections window and choose View Available Wireless Networks) to test various configurations (see Figure 5-15 in “Connect to a Wireless Network”).

#### NOTE

*Place your wireless router out in the open; don’t put it under your desk, in a drawer, or behind a metal file cabinet. If you’re feeding several PCs, place your router in a central location. Consider cabling any stationary computers to optimize the placement of the router for your portable (wireless) ones.*

Now, other technology in your home or office may also interfere with your wireless network, limiting its range, speed, and reliability. Both the popular 802.11b and newer 802.11g standards operate over the 2.4-GHz band, which is also inhabited by many cordless phones and all microwave ovens. (The black sheep of the family, 802.11a, solves this problem by using the 5-GHz band, but its short range and limited compatibility make it an unpopular choice.) This means that you’ll get better results if you move the router away from any cordless phone base stations, televisions, radios, security systems, or TV dinners. (Better yet, replace your aging 2.4-GHz portable phone with a WiFi-friendly 5.8-GHz cordless phone.)

If, after adjusting the placement of your router, you still need more range, consider either a repeater (range extender) or an aftermarket antenna (provided your router has an antenna port to accommodate one). If you need a lot more distance (possibly at the expense of some versatility)—and you fancy yourself a tinkerer—a Pringles “cantenna” (<http://www.oreillynet.com/pub/wlg/448>) can extend your wireless range by a mile or more!

#### NOTE

*Like to stay mobile? Keep an eye on your wireless reception with the free Wireless Strength widget (<http://www.widgetforge.com/?w=58>), a graphical signal strength meter that sits on your desktop. (This tool requires the Kapsules scripting engine, freely available from <http://www.kwidgets.com>.)*

## Turn Off “Not Connected” Messages

**THE ANNOYANCE:** Every time I turn on my PC, a little yellow balloon pops up in the lower-right corner of my screen and says that my network cable is unplugged. I’m not using a network cable at all, and my wireless connection works fine. Does this error mean anything?

**THE FIX:** Not really. It’s kind of like the flight attendant who wakes you up during a long flight to ask if you want a pillow (no offense intended to flight attendants... or pillows).

Windows XP is designed to notify you whenever one of your network connections isn’t connected, even when another connection is working fine. Common sense would tell you to open the Network Connections control

panel, right-click the connection in question, choose Properties, and uncheck the “Notify me when this connection has limited or no connectivity” box. However, this seemingly apt option has no effect on this error.

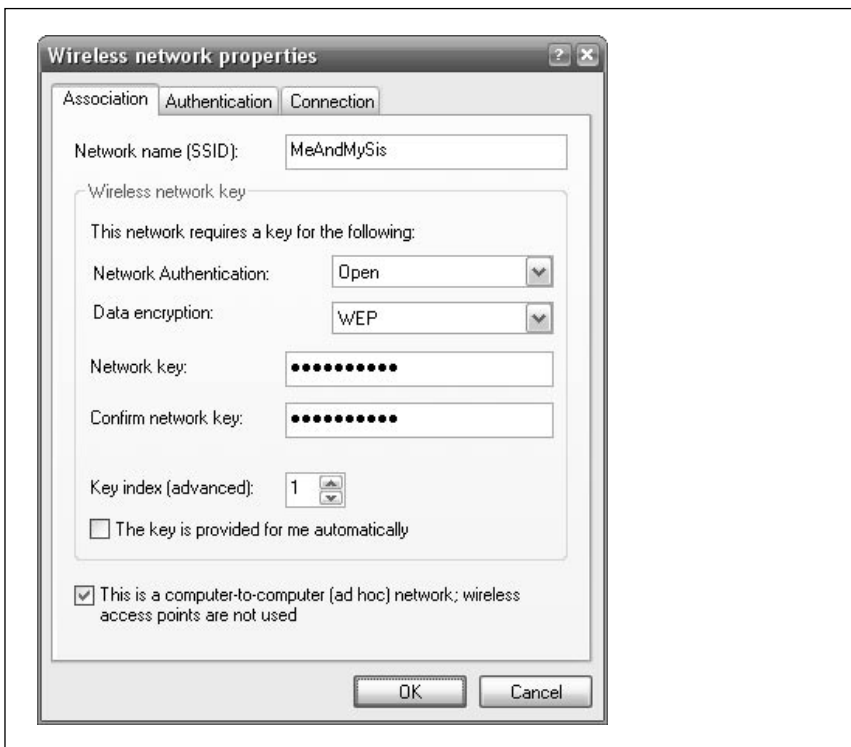
Unfortunately, the only way to permanently do away with this useless message is to disable the offending connection entirely. Open the Network Connections control panel, right-click the connection, and select Disable. You’ll notice that both the message and the icon in your Tray disappear, never to be seen again (unless you re-enable the connection).

## Connect PCs Wirelessly Without a Router

**THE ANNOYANCE:** My sister and I both have wireless laptops, but we’re traveling and nowhere near a wireless router. Can we connect to each other anyway?

**THE FIX:** Yes you can, using something called an *ad-hoc* wireless network, a little-known feature specifically designed to connect two PCs to one another wirelessly.

On one of the PCs, open the Network Connections control panel, right-click your wireless connection, and select Properties. Choose the Wireless Networks tab, and click the Add button to display the Wireless Network Properties dialog box shown in Figure 5-17.



**Figure 5-17.** Create an ad-hoc network to connect two PCs wirelessly without a router or nearby WiFi hotspot.

Type a name for your ad-hoc network in the “Network name (SSID)” field. From the Network Authentication drop-down list, choose Open, and from the Data encryption list, choose WEP.

Next, remove the checkmark next to the “The key is provided for me automatically” option, and then make up a key to type into both the “Network key” and “Confirm network key” fields. The key can be any combination of numbers and letters from A–F; for the sake of simplicity, use a 10-character (64-bit) key.

Finally, place a checkmark next to the “This is a computer-to-computer (ad hoc) network; wireless access points are not used” option at the bottom of the window, and then click OK. The new network should show up in the “Preferred networks” list, along with the word “(Automatic),” signifying that Windows will connect to this network automatically when it is in range.

Now, repeat these steps on the other PC, and then open the “Choose a wireless network” dialog box on both PCs (see “Connect to a Wireless Network”). With any luck, and a few clicks of the “Refresh network list” link, the two PCs should connect and form a private workgroup. To set it up so you can exchange files between the two PCs, see “Share Files with Other Computers.”

