CHAPTER 1

Upgrading to Windows XP

In this chapter you'll find the answers to the following questions:

- How can I make sure my documents and applications aren't lost when I upgrade to Windows XP?
- Can I use Windows Backup in my current version of Windows in Windows XP?
- Is there an easy way to copy e-mail accounts and other program settings to Windows XP from my old system?
- I don't have a network. How do I move settings and documents between my old computer and my new one?
- How do I make sure my computer is compatible with Windows XP before installing it?
- How do I ensure that my hardware will work with Windows XP?
- Do I update my applications before or after I install Windows XP?
- What's the different between a "clean install" and an upgrade?
- What is Windows XP's Product Activation?

Installing Windows XP is generally an easy process. If you've purchased a new system it's likely that Windows XP is already installed and ready to run. This is particularly true if you purchased a Media Center PC, Tablet PC, or computer from a retail store.

Maybe you are building a new system for yourself, upgrading to Windows XP from a different version of Windows, or just wanting to reinstall Windows XP and start from scratch. Whatever the reason, I'll help you navigate the pitfalls you might face when installing Windows XP in different situations. Let's start with making sure your documents and customized application settings are safely backed up.

NOTE *Backing up your application settings and data is most important when performing a clean installation of Windows XP or reformatting your hard disk when reinstalling Windows XP. If you are performing an upgrade from a previous version of Windows, in most cases your application settings and documents will come through unscathed. Even so, it's a good idea to back up beforehand.*

Backing Up Application Settings and Data

Going through a system reinstall or an upgrade and coming out the other side to find that either your data or your application settings are gone is incredibly frustrating. Fortunately, avoiding the problem is easy provided you plan ahead and do a little work beforehand. In this section I'll explain how you can easily back up your data as well as application settings and make sure both are available after installing or upgrading to Windows XP.

Is Windows Backup an Option?

All versions of Windows include a Backup program that you can use to back up and restore files. You might be tempted to use Backup to back up your application files, documents, and other files prior to installing Windows XP. Unless you are reinstalling Windows XP over an existing Windows XP installation, I don't recommend using Windows Backup. The reason is that the Windows XP version of Backup can't read the backup sets created by Windows 9*x* and Windows Millennium Edition (Me). This means you won't be able to restore the files from these backup sets after you install Windows XP. So, copying the files to another local hard disk, CD-R/CD-RW, or network drive is often the best solution.

Backing Up and Restoring Office Settings with the Office Resource Kit

Microsoft Office is by far the most popular productivity application in use today, and it's a safe bet that you use at least one Microsoft Office application. All of the Office applications give you the capability to customize toolbars and menus and configure a host of settings that change the way the program looks and functions. Many of the applications store customized data in additional files in your user profile (the set of folders that store your user-specific data). For example, Microsoft Outlook stores nicknames in the file <profile>.nk2, where <profile> is the name of your Outlook profile. Nicknames are shortcut names for AutoComplete, which enables you to type a few characters and have an e-mail address filled in automatically in the To, Cc, or Bcc fields. Another example is Microsoft Word, which stores many of your customized Word settings in the template file Normal.dot. If you don't back up these additional Microsoft Office files, your customized settings can be lost when you install Windows XP.

The Microsoft Office Resource Kit, available for Office 2003 by download from http://www.microsoft.com/office/ork/2003/default.htm, includes a tool called the Profile Wizard that enables you to easily back up your entire Microsoft Office configuration, complete with these additional folders and files. You'll find Resource Kits for other versions of Office at http://office.microsoft.com/officeupdate/default.aspx?CTT=98, and Microsoft Press offers print versions that include documentation and technical articles and the Resource Kit tools on CD.

Tip *The Profile Wizard is also useful for deploying the same Microsoft Office application settings to a group of users. Install Microsoft Office, customize the applications as needed, and then run the wizard to create a standard OPS file that you restore on each user's computer. Note that you can also use group policy to control Office application settings if the computers reside in a Windows 2000 Server or Windows Server 2003 domain. See my book,* Outlook 2003 Inside Out *(Microsoft Press, 2003) for details on how to deploy and manage Office with group policies.*

The Profile Wizard is easy to use thanks to a simple interface. Here's how to back up your settings:

1. After you install the Resource Kit, start the wizard by choosing Start, Programs (or All Programs on Windows XP), Microsoft Office, Microsoft Office Tools, Microsoft Office 2003 Resource Kit, Profile Wizard. Click Next in the introductory dialog box to view the Save or Restore Settings page shown in Figure 1-1.
2. Choose the Save the Settings from This Machine option.
3. Place a check beside each application whose settings you want to back up. All of the applications are selected by default.
4. If the path specified in the Settings File doesn't suit your needs, type a new path and filename or click Browse to choose a location. The OPS file is the file in which the Profile Wizard will store all of your settings.
5. Click Finish.

The result of the Profile Wizard at this point is an OPS file containing all of your Microsoft Office application settings. What should you do with this file? Back it up, of course! Copy the OPS file you created with the Wizard to a network server, other hard disk, or removable media such as a CD-R/CD-RW or DVD-RW disc, or ZIP disk. Choose a location that will be safe when you run Setup to install Windows XP.

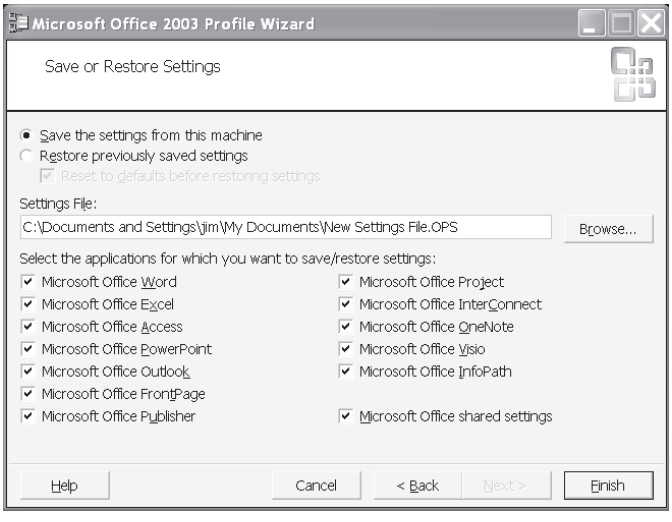

FIGURE 1-1 Use the Microsoft Office 2003 Profile Wizard to back up all of your Microsoft Office customized settings.

TIP *Be careful about where you put your backup files. My main system includes four disks, three that are part of a hardware-based small computer system interface (SCSI) Redundant Array of Independent Disks (RAID) array and a fourth Integrated Development Environment (IDE) drive, which I use for backups. During a reinstall of Windows XP some time ago, I didn't notice that the BIOS had changed the drive configuration when I ran Setup. I reformatted drive C without looking closely at the disk configuration, thinking that it was the drive where Windows XP was installed. It turned out to be the drive where my backups lived! It was an unhappy experience. Putting your backups on an external disk or network server is the best course of action to ensure that your files are safe if you need to reformat your computer's hard disk. Make sure you know exactly where your backups are located and which disk you are reformatting if you choose that route.*

In most cases, your application settings will come through an upgrade without any problems. If you choose to reinstall Windows XP or perform a clean installation rather than upgrade from a previous Windows version, however, your settings will not be transferred to your new user profile. Fortunately, you can use the Profile Wizard to restore your Microsoft Office settings from your backup OPS file:

1. After you install Windows XP, install Microsoft Office and the Microsoft Office Resource Kit.
2. Make sure no Microsoft Office applications are running.
3. Start the Profile Wizard and choose Restore Previously Saved Settings.
4. If you want the Profile Wizard to reset all Office application settings to their default values before applying your saved settings, choose the option Reset to Defaults Before Restoring Settings.
5. Choose the OPS file you created prior to installing Windows XP.
6. Place a check beside all of the applications whose settings you want the wizard to restore from your backup.
7. Click Finish.

TIP *In most cases you can use the Profile Wizard without changing the way it works. However, you can customize the wizard to add other folders or files in the backup, or exclude folders or files. See http://www.microsoft.com/office/ork/2003/ref/refA07.htm to learn how to customize the wizard and use startup switches to control the way it works. See the documentation for other Resource Kit versions for startup switches for other Office versions.*

Backing Up Other Application Settings

If you use applications other than those in the Microsoft Office suite, you should also consider backing up those applications' settings before installing Windows XP. Unfortunately, most applications don't offer a backup tool like the Profile Wizard so you'll likely have to back up files manually for these applications. Check with the application developer's web site or technical support staff to determine if there is a backup utility, and if not, how you can back up your application settings and custom files.

The same caution applies when backing up these applications as for Microsoft Office: make sure you place the backups in a backup location that is safe and will be accessible after you install Windows XP.

Backing Up Documents and Other Data

When your application settings are safely backed up, turn your attention to your documents and other data. Where your documents are stored now depends on a couple of factors, including which operating system you are using and whether you are using a nonstandard location for your documents. Windows 98 and later all provide a My Documents folder that you can use to store your documents. The benefit of using My Documents as your main document storage location is that the folder is tightly integrated with Windows. For example, the standard Open and Save dialog boxes use My Documents as the default file storage location. This makes your documents readily available when you need them.

There is little to prevent you from storing your documents in almost any location. The exception is NT File System (NTFS) permissions on a Windows 2000 or Windows XP system, which prevent you from storing files in a folder for which you do not have the necessary permissions. So, you should carefully examine your existing system to make sure you know where all of your documents and other data are stored so you can back them up.

TIP *See the section "Using the Files and Settings Transfer Wizard" to learn how to easily back up your Windows settings and data.*

Restoring from Windows 2000 Backup Sets

As I mentioned earlier in this chapter, the Windows Backup utility is often not the best choice for backing up your documents if you are upgrading from Windows 9x or Windows Me because the backup sets created by these versions of Windows Backup are not compatible with the Windows XP version. However, backups made with the Windows 2000 version of Backup are fully compatible with the Windows XP version. To open a Windows 2000 backup set in Windows XP backup (or a Windows XP backup made with another installation of Windows XP), follow these steps:

1. Open Windows Backup in Windows XP.
2. Click the Restore and Manage Media tab, then choose Tools, and go to Catalog a Backup File.
3. You Catalog a Backup File from the Tools menu.
4. In the Open Backup File dialog box, type or browse to the location where the BKF file is located, then click OK.
5. After cataloging the backup file, you can restore from it as you would from a backup file created with Windows XP Backup.

Using the Files and Settings Transfer Wizard

Windows XP includes a very handy tool called the Files and Settings Transfer Wizard that makes it easy to move common Window settings and your data from one computer to another. The wizard is useful whether you are moving from one computer to another, upgrading your existing computer from a previous version of Windows, or installing a clean copy of Windows XP on your existing system.

NOTE *See the section "Upgrade Versus Clean Install" later in this chapter for a discussion of the benefits of these two approaches—performing an upgrade or a clean install—when installing Windows XP.*

The Files and Settings Transfer Wizard copies a wide range of information from your old computer to your new one:

- **Windows settings** The Wizard transfers a wide range of settings for Windows' appearance (desktop, sounds, taskbar, etc.); environment settings such as key repeat rate and mouse settings; Internet settings such as home page, favorites and bookmarks, cookies, Web security settings, dial-up connections, and proxy settings; and mail settings and data for Microsoft Outlook and Outlook Express including accounts, messages, contacts, rules, and so on.
- **Application settings** The Wizard transfers settings for Microsoft Office applications, but I recommend that you also run the Profile Wizard from the Microsoft Office Resource Kit to ensure that everything gets transferred. The Wizard can also transfer settings for other applications. However, it doesn't transfer applications themselves, just their settings.
- **Files** The Wizard transfers several types of common document files in its default configuration. You can direct it to copy other types of files, as well.

TIP *The Files and Settings Transfer Wizard is installed by default when you install Windows XP, making it readily accessible on your new computer. You can run the Wizard from the Windows XP CD on your existing computer, or use the Wizard to create a diskette for your existing computer.*

The Files and Settings Transfer Wizard offers four ways to copy information:

- **Direct Cable Connection (DCC)** This option enables two computers to be networked through serial (COM), parallel (LPT), and infrared ports. The serial and parallel port options require special cables. The Files and Settings Transfer Wizard only supports DCC with serial connections, however.
- **Home or small office network** This option transfers your files across a network to the new computer.
- **Floppy drive or other removable media** With this option, a high-capacity removable disk such as a ZIP disk might work, but it's unlikely that floppy disks will serve your needs because of the amount of data to be transferred.

- **Other** This option saves the data to a local folder, removable drive, or network share.

The Files and Settings Transfer Wizard copies a large number of files, particularly if you have Microsoft Office installed on the original computer. In almost every case, a network connection between the two computers, a network share on a file server, or a high-capacity removable drive (such as an external hard disk) works best. So, your first consideration is how you will transfer the data from the old system to the new one. The following sections explore the available options.

NOTE *If you are upgrading an existing system to Windows XP, most (if not all) of your applications and settings will transfer, eliminating the need to use the Wizard. If you are performing a clean install of Windows XP on your existing computer, however, you can use the Wizard to transfer settings from the old computer to the new one. You can also use the Wizard if you are moving your settings and data from your old computer to a new one.*

There are a handful of different paths to take to use the Files and Settings Transfer Wizard. The next section explains how to start the wizard. Following sections take you through the remaining steps to complete the wizard.

Starting the Wizard

You can either run the Files and Settings Transfer Wizard from the Windows XP CD or from a diskette created with the wizard. Follow these steps to create a diskette:

1. On the computer where Windows XP is already installed, click Start, All Programs, Accessories, System Tools, Files and Settings Transfer Wizard, and then click Next.
2. Choose New Computer and click Next.
3. Place a blank, formatted diskette in your new computer's floppy disk drive.
4. Choose the option I Want to Ceate a Wizard Disk in the following drive (Figure 1-2), choose your floppy disk drive, and click Next, then click OK. The wizard creates the disk.
5. When the wizard has finished creating the disk, place it in your old computer and click Start, then Run, and enter **A:Fastwiz.exe** to start the Wizard.
6. See the following sections to complete the process depending on which transfer method you are using.

To run the wizard from the Windows XP CD on your old computer, follow these steps:

1. Boot your computer and insert the Windows XP CD in the CD-ROM drive. If the CD does not automatically run, open My Computer, double-click the CD-ROM drive, and double-click Setup.exe.
2. When the Welcome to Microsoft Windows XP screen appears, click Perform Additional Tasks.
3. Click Transfer Files and Settings, then click Next after the wizard starts. If you are running the wizard under an operating system other than Windows XP, the wizard does not prompt you to specify whether this is the old computer or the new one.

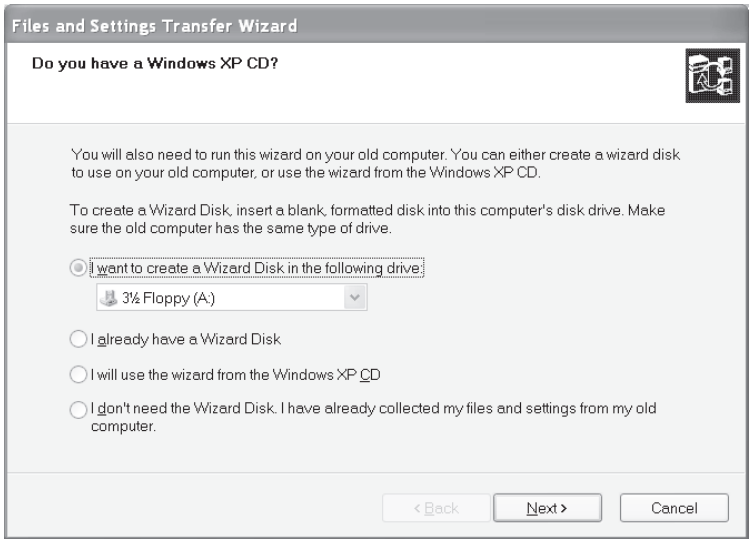

FIGURE 1-2 Choose the floppy drive in which the Wizard will create the disk.

Which method should you choose to start the Wizard? In reality, it doesn't matter. The main reason to run it from a diskette rather than the CD is if your old computer doesn't include a CD-ROM drive. Otherwise, running from the CD saves you the extra step of creating the diskette.

Now that you have the Wizard running, the following sections explore the different ways you can transfer data to your new Windows XP installation.

Direct Cable Connection

Direct Cable Connection (DCC) is a Windows feature that enables systems to be networked through their serial, parallel, or infrared ports. DCC requires a special cable for the serial or parallel port options. Check at your local computer retailer for the right cable according to which port option you will use. Using the parallel port should provide slightly better performance than the serial option, but null-modem cables for a serial connection are often more readily available.

DCC normally takes some configuration to set up, but the Files and Settings Transfer Wizard takes over those functions to configure the connection for you. Follow these steps to transfer your settings and data from one computer to another with the Files and Settings Transfer Wizard:

1. Start the Wizard on each computer using one of the methods described in the preceding section, "Starting the Wizard."
2. On the old computer, click Next until you see the Select a Transfer Method page (Figure 1-3).
3. Choose the option Direct Cable and click Next.

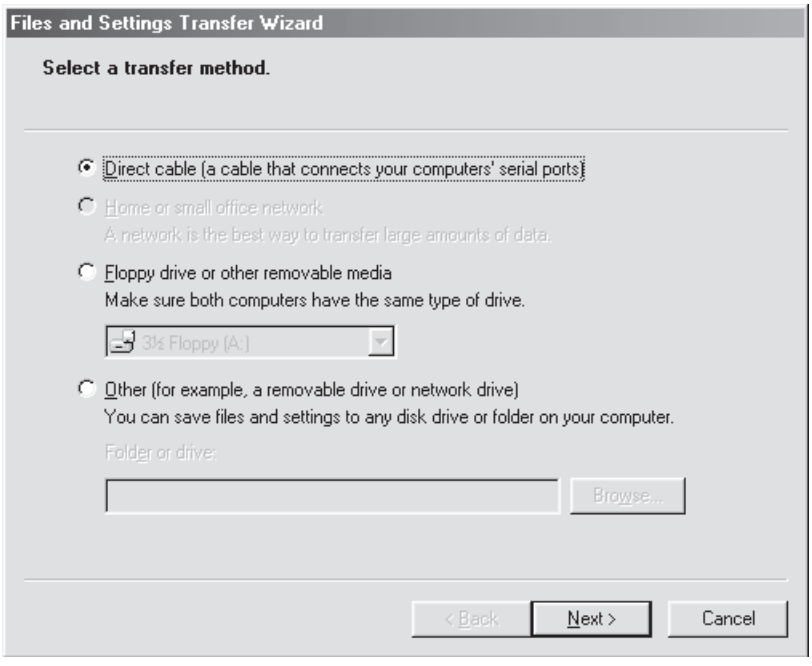

FIGURE 1-3 Select the Direct Cable option to transfer using DCC.

4. On the new computer, start the Files and Settings Transfer Wizard. Choose New Computer and click Next, choose I Don't Need the Wizard Disk and click Next, then choose Direct Cable and click Next.
5. Connect the two computers with the null-modem serial cable.
6. On the Set Up Your Serial Connection page (Figure 1-4) on both computers, click Autodetect.
7. After both computers show a green check mark on the page to indicate a successful connection, click Next on the old computer to display the What Do You Want to Transfer? page. See the section, "Choosing What to Transfer" to specify what the wizard will transfer. After you click Next, the wizard will establish a connection and begin transferring the data between the two. Restart the new computer after the transfer is complete.

Home or Small Office Network

If you are transferring between computers and both are on the same network, you can use the Wizard to transfer your files and settings across the network from the old computer to the new one. Here's how:

1. Start the Wizard on each computer using one of the methods described in the section "Starting the Wizard."

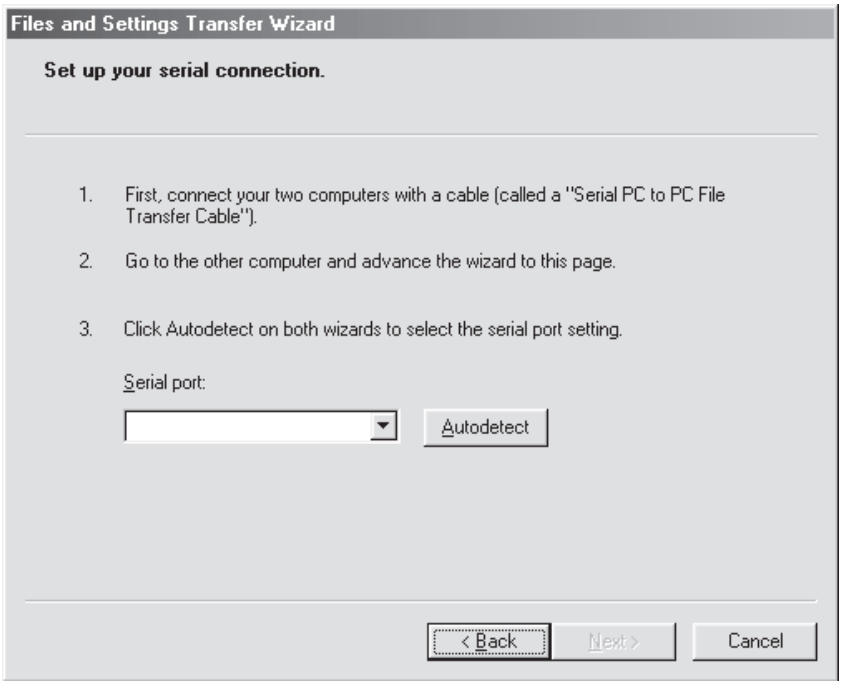

FIGURE 1-4 Use Autodetect on the Set up your serial connection page to automatically select the serial port for the DCC connection.

2. On the new computer, click Next, choose New Computer, and click Next. Choose I Already Have a Wizard Disk and click Next.
3. On the old computer, click Next until you see the Select a Transfer Method page (Figure 1-3).
4. Choose the option Home or small office network.

NOTE *The Home or small office network option will be dimmed (unavailable) if you have not already started the Wizard on the new computer. In addition, both computers must have functioning connections to the network and be able to see one another on the network. See Chapter 16, "Networking Windows XP," to learn how to set up a network if you do not already have one.*

5. Click Next to display the What Do You Want to Transfer? page. After specifying your transfer options per the upcoming section, "Choosing What to Transfer," click Next. If there is more than one computer running the Files and Settings Transfer Wizard on the network, the Wizard on the old computer prompts you to choose the target computer (Figure 1-5). Click the target computer and click OK.

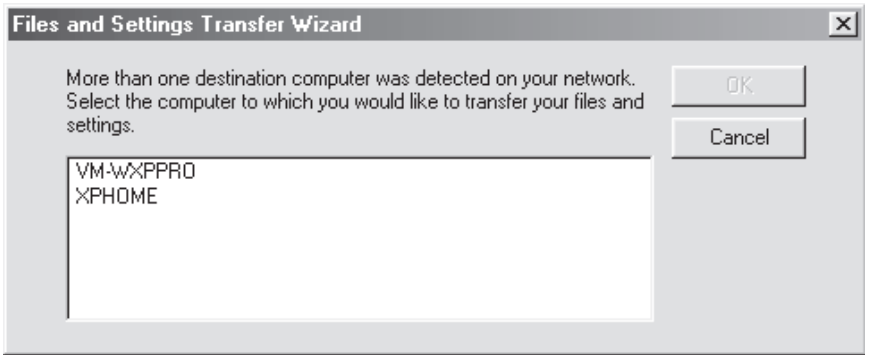

FIGURE 1-5 Choose the computer to which the data should be copied.

6. The Wizard on the new computer displays a dialog box containing a password. Enter that password in the dialog box that appears on the old computer, and then click OK. The Wizard then completes the transfer.

Floppy Drive or Other Removable Media

The main reason to use this option is that you are transferring the settings to a single computer after you have upgraded it to Windows XP or reinstalled Windows XP on it. A secondary reason is that your old computer doesn't include a network adapter and you don't want to use DCC to transfer the data. Whatever the case, follow these steps to transfer data using a floppy disk or other removable media:

1. Start the Wizard on the old computer (or existing Windows installation). If you are running the Wizard under Windows XP, choose the Old Computer option and click Next.
2. Choose the option Floppy Drive or Other Removable Media, then choose the Removable drive from the drop-down list.
3. Click Next to display the What Do You Want to Transfer? page. See the upcoming section, "Choosing What to Transfer," to configure the transfer options, then click Next.
4. The Wizard writes your data to disk, prompting for multiple disks if needed.
5. After the Wizard is finished on the old computer, take the removable disk to the new computer. If you're installing or reinstalling Windows XP on the same computer, perform the installation. After Windows XP is installed, run the Wizard from the StartAll ProgramsAccessoriesSystem Tools menu.
6. Click Next, choose New Computer, and click Next. Choose the option I Don't Need the Wizard Disk, and then click Next. Choose the option Floppy Drive or Other Removable Media, choose the appropriate drive from the drop-down list, and click Next. The Wizard will start the transfer and prompt for additional disks if there is more than one.

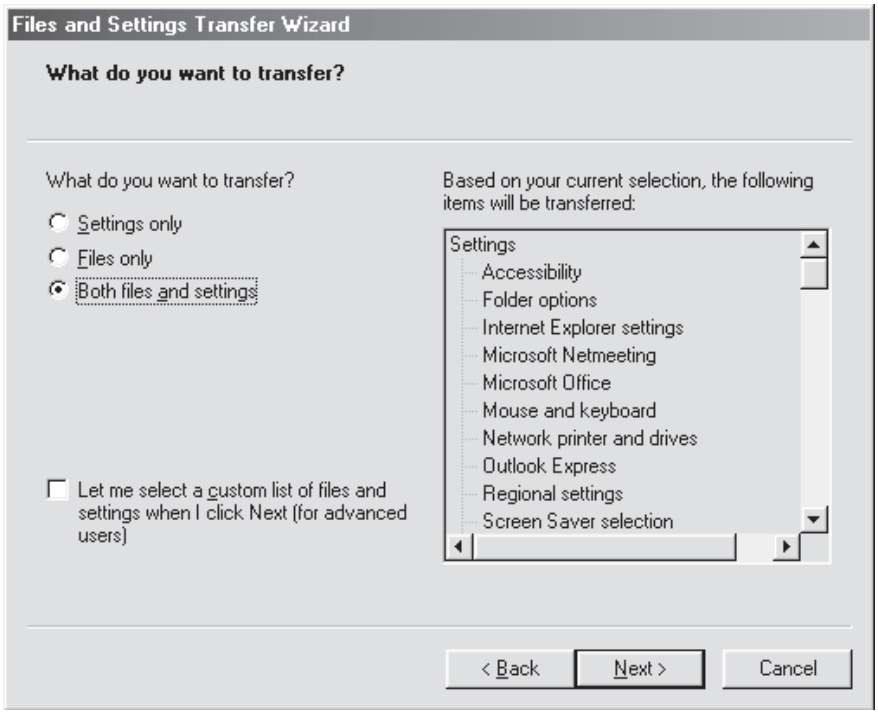

FIGURE 1-6 You can choose to transfer files, settings, or both.

Other

This last option is useful when you want to transfer the data to a network server or a different local hard disk on a system on which you will install Windows XP after running the wizard. Follow these steps to use this method:

1. If you will be transferring the data to a network share, connect to the remote computer where the share is hosted.
2. Start the Wizard on the old computer and click Next. If the computer is running Windows XP, choose Old Computer, and click Next.
3. Choose the Other option, then click Browse and browse for the location where the files will be temporarily stored.
4. Click Next, then see the following section, "Choosing What to Transfer." After you choose what will transfer, click Next. The Wizard writes the data to the specified location.
5. On the target computer after Windows XP is installed, start the Wizard and click Next.
6. Choose New Computer and click Next. Choose the option I Don't Need the Wizard Disk and click Next.

7. Choose the option Other, browse to the location where the data was stored in step 4, and click Next to start the transfer.

Choosing What to Transfer

The Files and Settings Transfer Wizard gives you the option of transferring settings, files, or both (Figure 1-6). If you don't have any files that you want transferred to the new Windows XP installation, choose the Settings option, which will result in a much smaller amount of data and shorter transfer time.

If you want to have more control over what the Wizard will transfer, select the option Let Me Select a Custom List of Files and Settings When I Click Next. When you do click Next, the Wizard displays the Select Custom Files and Settings page, shown in Figure 1-7. Here you can add and remove settings, add folders to be copied, add individual files, and add file types. To remove an item from the list, just click the item and then click Remove. After you are satisfied with the transfer selection, click Next to start the transfer process.

Checking Your System's Compatibility with Windows XP

Windows XP is compatible with a wide range of hardware. Some older hardware, however, might not be supported by Windows XP, or might be only partially supported. Whether your hardware is fully compatible with Windows XP also raises performance issues. In

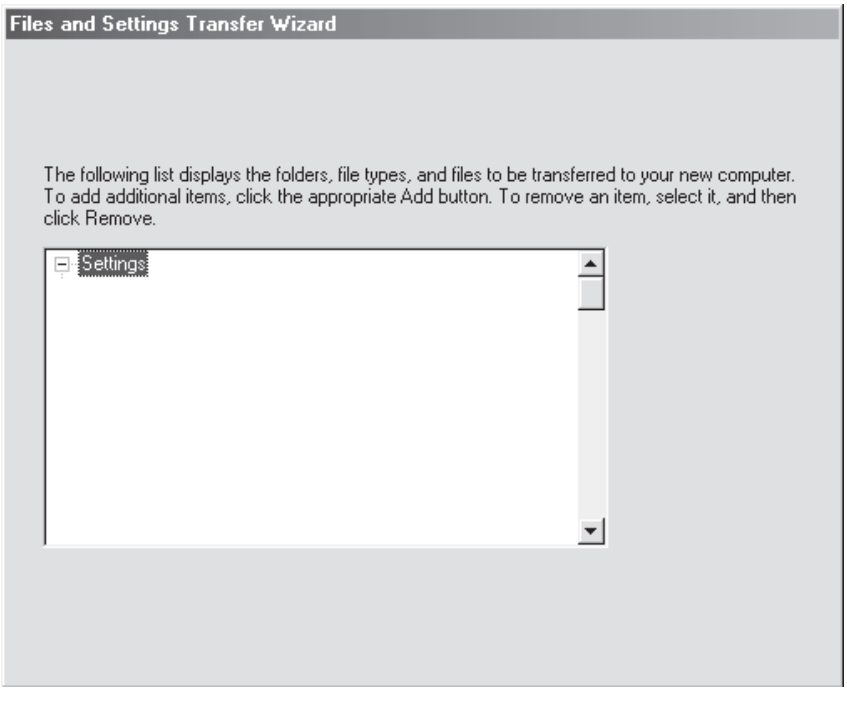

FIGURE 1-7 You can add other files, settings, and folders to the list of items to be transferred.

many cases, a generic Windows XP driver could enable a device to work under Windows XP, but a driver from a manufacturer is often required to take advantage of all of a device's features. What's more, an incompatible or poorly designed driver could cause Windows XP to hang or interfere with other hardware in the computer.

Therefore, it's important that you make sure all of the hardware in your computer is compatible with Windows XP's bundled drivers, or obtain updated Windows XP drivers prior to installing Windows XP. The following section, "Checking Compatibility Before Installing Windows XP," explains how.

Checking Compatibility Before Installing Windows XP

The Windows XP CD includes a tool called the Upgrade Advisor that scans your system to identify hardware that will require updated drivers that aren't included with Windows XP, and to identify software that is not compatible with Windows XP.

To run the Upgrade Advisor, insert the Windows XP CD in your computer. If the CD doesn't automatically start, run Setup from the CD. When Setup displays a menu of choices, click Check System Compatibility, and then click Check My System Automatically. The Upgrade Advisor offers two options:

- **Yes, Download the Updated Setup Files** If your computer has a connection to the Internet, choose this option to allow Setup to download updated files. Setup will download the files from Microsoft over the Internet and then restart. After Setup restarts, choose the No option (see the next bullet).
- **No, Skip This Step and Continue Installing Windows** Choose this option if your computer doesn't have a connection to the Internet or you have already downloaded updated Setup files.

The Upgrade Advisor scans your system and displays a summary of the results of its scan (Figure 1-8). The summary lists items with which the Advisor suspects a compatibility problem with Windows XP.

The summary doesn't necessarily list all of the issues that you will face when upgrading or installing Windows XP on your computer. To see the full list, click Full Details (Figure 1-9). This upgrade report offers additional information. In Figure 1-9, for example, the Upgrade Advisor detected Outlook 2000 on the computer and warns that Outlook will have to be reinstalled after installing Windows XP.

It's a good idea to save the upgrade report so you can review it before installing Windows XP. Click Save As and then click Save to save the file with its default filename, Upgrade.htm, on the desktop. You can also click Print to print the upgrade report. Click Finish when you have finished with the Upgrade Advisor.

Obtaining Updated Drivers

Whether you upgrade your drivers before or after installing Windows XP depends on whether Windows XP's drivers will work in a limited way with the hardware, and whether the hardware is required to install Windows XP. For example, if your video card isn't supported with a bundled Windows XP driver, there is a good chance that the standard video graphics array (VGA) driver included with Windows XP will enable Setup to install Windows and for Windows XP to run on your computer. You just won't get the most out

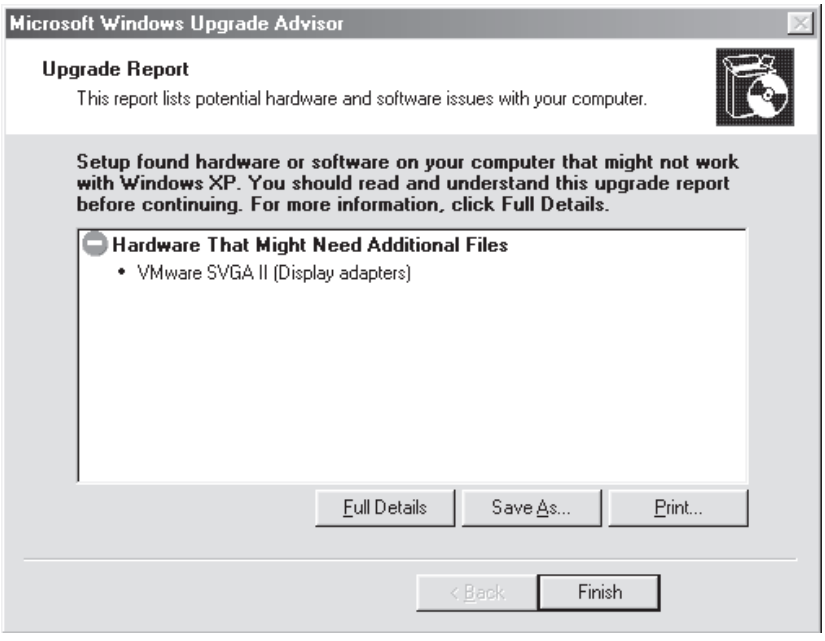

FIGURE 1-8 The Upgrade Advisor displays a summary of potential compatibility problems.

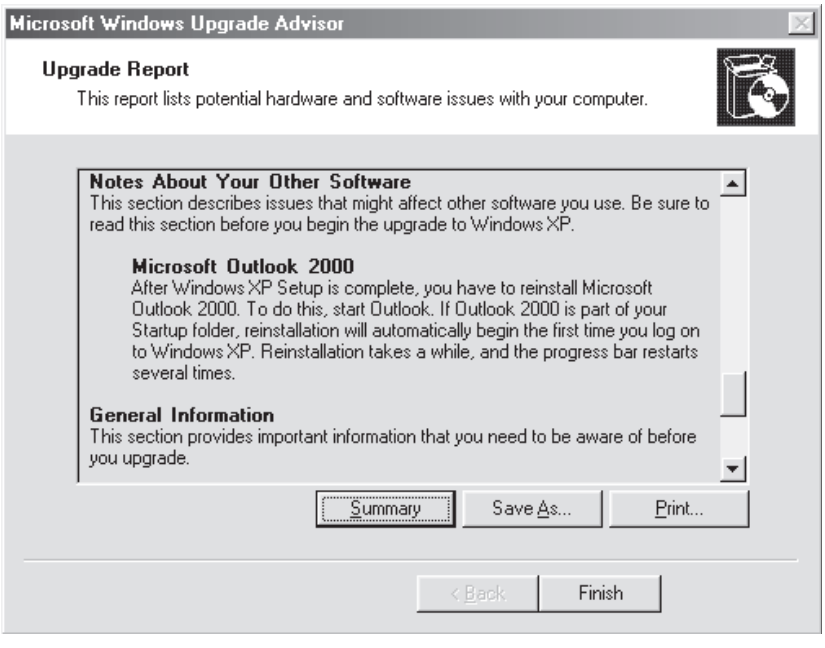

FIGURE 1-9 You can view additional upgrade information in the Upgrade Advisor.

of your video card until you install an XP-compatible driver. In this case, you can install Windows XP and upgrade the driver afterward.

If the hardware is required to install Windows XP and the existing or a bundled driver won't work, you'll have to upgrade the driver during Setup, which will prompt you for the driver. The best place to get updated drivers for your hardware is from the manufacturer. So, your first step to making your system compatible is to visit the manufacturer's web site to download updated drivers. If no Windows XP driver is available, you have two options: use a Windows 2000 driver for the hardware or replace the hardware with an alternative that is Windows XP-compatible.

After you obtain the updated driver, create a folder on your hard disk and place the driver it that folder, or if you will be reformatting your hard disk for a clean installation, burn the driver(s) to a CD.

When to Update Applications

The Upgrade Advisor checks software compatibility as well as hardware compatibility, and if it finds an application that won't run under Windows XP, it tells you so. The Upgrade Advisor also informs you of potential problems the application might experience if you do run it under Windows XP. In cases where an application will cause problems with Windows XP, the Upgrade Advisor will advise you of that and Setup will disable the application. It's a good idea to uninstall these applications before running Setup, and then install the updated version after Windows XP is installed.

If the application will run on your current version without any problems, you can certainly upgrade the application before installing Windows XP. If the upgrade offers special features that only work with Windows XP, however, it's best to install Windows XP first, then upgrade the application.

Installing Without a Bootable CD-ROM Drive

If your computer is older, the BIOS might not support booting from a CD-ROM drive. If that's the case, you can obtain a set of boot diskettes that will enable you to start the Setup process from a bootable floppy disk.

NOTE *You don't need the boot diskettes if your system already contains Windows 9x or later. Instead, you can run Setup and direct it to copy the installation files to your computer, if needed.*

The setup disk set you use depends on which version of Windows XP you are running. This list includes the links from which you can download the right version for your copy of Windows XP:

- **Windows XP Home Edition without SP1** http://www.microsoft.com/downloads/release.asp?ReleaseID=33290
- **Windows XP Home Edition with SP1 integrated on the CD**. http://www.microsoft.com/downloads/release.asp?ReleaseID=33291
- **Windows XP Professional without SP1**. http://www.microsoft.com/downloads/release.asp?releaseid=42818

- **Windows XP Professional with SP1 integrated on the CD**. http://www.microsoft.com/downloads/release.asp?releaseid=42819

After you download the file appropriate to your copy of Windows XP, run it. The resulting program will step you through the process of creating the diskettes.

Upgrade Versus Clean Install

You have two options for installing Windows XP: perform an upgrade or a clean install. This section of the chapter explores these two installation options.

Advantages and Disadvantages of Clean Installs

In a clean install, you install Windows XP in its own directory without upgrading the existing operating system. The result is a pristine installation of Windows XP without any of your existing applications, operating system settings, or documents. The main advantages to this approach to a Windows XP installation is that it leaves all of your old operating system "baggage" behind. You don't have to worry about incompatible applications or performance problems that might creep into Windows XP from registry problems or buggy applications.

The main disadvantage to a clean install is that you have to reinstall all of your applications after installing Windows XP. With that disadvantage, when is a clean install a good option?

If you have relatively few applications on your computer and reinstalling those applications won't be a major chore, I recommend a clean install. In fact, the best approach is to back up your documents, reformat your hard disk, and install Windows XP onto that newly formatted disk. You're likely to see a significant performance improvement in doing so.

If your computer contains several applications that you don't want to have to reinstall, an upgrade is the best way to go. After installation, run the Windows XP Disk Defragmenter from the Computer Management console to defragment the disk for better performance. Right-click My Computer and choose Manage to open the Computer Management console.

NOTE *You can defragment the disk prior to installing Windows XP if you prefer. The only real advantage this offers is a speedier installation.*

Advantages and Disadvantages of an Upgrade

An upgrade installs Windows XP on top of your existing operating system, replacing it. Most of your existing settings—such as desktop configuration, application settings, and other working environment options—are migrated to Windows XP. Unless your applications are incompatible with Windows XP, they are migrated as well, which eliminates the need for you to install new versions or reinstall applications after installing Windows XP. The fact that your applications will continue to run without requiring a reinstallation is the biggest advantage of an upgrade versus a clean installation.

There is a relatively small chance that some existing registry setting will cause problems for Windows XP after installation. More likely is the possibility that you'll see slightly decreased performance when compared to a clean install because of a bloated registry.

Although there are third-party applications you can obtain to clean out the registry prior to (or after) installing Windows XP, a clean installation will result in the smallest, most problem-free registry.

If you have lots of applications that you don't want to reinstall, perform an upgrade. Otherwise, perform a clean install and reinstall all of your applications afterward.

Dealing with Product Activation

Windows XP, unlike previous versions of Windows, requires that you activate the software after installation. Product activation is one of Microsoft's answers to the problem of software piracy.

In the activation process, Windows XP examines your computer's hardware configuration and comes up with a numeric hash value based on that hardware. After the hash value has been generated, there are then two ways that activation can proceed. First, Windows can send the product key and the hash value across the Internet to Microsoft's activation servers to obtain an activation key automatically. Or, you can call Microsoft, read the hash value and product key to a live person, and obtain and enter the activation code yourself. The first approach works best, particularly if you have a broadband Internet connection—activation generally takes only a few seconds.

TIP *You also have the option of registering your copy of Windows XP with Microsoft in addition to activating it. Registration is optional; activation is required within 30 days after installation.*

Contrary to what a few paranoids might think, Setup doesn't send any secret or confidential information about your computer to Microsoft when it activates the product. Microsoft doesn't know what applications you are running, how much money is in your bank account, or even what kind of hardware you are using.

Is product activation a hindrance? The short answer is, "Not really." Product activation takes only a few minutes at most and is not something you have to do repeatedly. You don't even have to reactivate Windows if you reinstall it on the same computer. The activation information is stored on the hard disk and remains there during reinstallation unless you format the hard disk during installation.

There is one scenario in which you might have to reactivate Windows XP after a reinstallation on the same computer, however. If the hardware has changed significantly from the original configuration, Setup will generate a different hash from the original installation. For example, installing a new video card, different network adapter, and a few other items could result in a different hash and the need to reactivate.

When you do need to reactivate, don't expect major problems. Although Microsoft hasn't publicly stated the number of times automatic product activation will work with different hashes before failing, my experience has been that you can install at least a couple of times before the problem occurs. If your activation fails, just call Microsoft's activation number (which Windows displays for you during product activation) and let the technician know that you're reinstalling on the same computer but that you have changed hardware. I've never had a problem obtaining an activation key in this situation.

Backing Up and Reusing Your Activation Information

Windows stores the product activation code in the file Windows\System32\wpa.dbl. If you do want to reformat your hard disk while reinstalling Windows XP, and don't want to go through a reactivation, you can simply back up and restore this file. Here's how:

1. Open My Computer, format a floppy disk in your system's boot floppy drive (typically, drive A), and choose the option Create an MS-DOS Startup Disk.
2. Copy the file Windows\System32\wpa.dbl to this floppy disk.
3. Reinstall Windows XP and allow Setup to reformat the hard disk. Use FAT as the file system rather than NTFS for now.
4. After installation has finished, boot the computer using the floppy disk.
5. Copy the file wpa.dbl to Windows\System32.
6. Remove the floppy disk and restart the computer.

This method assumes that the hardware is sufficiently similar to the original configuration that it would not require reactivation.

Moving Windows XP Between Computers

You can't simply install Windows XP on two computers and then copy the wpa.dbl file from one to the other to successfully move Windows XP to a different computer. If product activation fails on the second computer, call Microsoft and inform the technician that you are moving Windows XP to a different computer and removing it from the original. Unless you have done this several times, you should have no problem obtaining an activation code for the new computer.

Avoiding Product Activation Altogether

Copies of Windows XP obtained through a volume licensing program such as Open License or Select License do not require activation. The purpose of these licensing programs is to allow businesses to obtain a single copy of Windows XP and install it on multiple computers. You simply pay for a license for each of the computers on which you will install Windows XP. Windows does not run the activation process on these computers. Check with your computer reseller to obtain pricing and availability information for volume licensing options.

Dual-Boot Configurations

A dual-boot configuration is one in which the computer contains more than one operating system and can boot to whichever one you choose at system startup. For example, you might want to keep your existing operating system in place but install a clean copy of Windows XP on the same computer. Or, maybe you want Linux and Windows XP to coincide on your computer.

TIP *Systems that contain more than two operating systems are often called multiboot configurations. For simplicity I use the term dual-boot here for systems that can boot more than one operating system regardless of the number.*

Dual-boot is useful when you need to retain your existing operating system, applications, and data, but still want to use Windows XP. The key point to remember is that with a dual-boot configuration, you can use only one operating system at a time. If you want to switch from Windows XP to Windows 98, for example, you have to reboot the computer.

The following sections explore the requirements and process for creating a dual-boot configuration for various operating systems.

TIP *For what it's worth, I don't recommend using dual-boot. A virtual machine such as VMware or Virtual PC is a much better alternative in most cases. See the section, "Alternatives to Dual-Boot Systems" later in this chapter for more details.*

Configuring a Dual-Boot System for Other Microsoft Operating Systems

There are several issues to consider in setting up a dual-boot configuration with Windows XP and any of the other Microsoft operating systems:

- **One volume per operating system.** Each operating system must be installed on its own volume, each represented by a different drive letter. You can install multiple physical disks in the computer to create these volumes, or partition a single large disk into multiple partitions with multiple volumes.
- **File system compatibility.** Older Microsoft operating systems do not support file systems introduced in later versions. Since each operating system will reside on its own volume, file system compatibility only becomes an issue if you want to access one operating system's volume from another's. See Table 1-1 for file systems supported by each operating system.
- **NTFS version.** You must install Service Pack 5 or later on Windows NT to enable it to coexist with Windows 2000 or later because of changes introduced in NTFS with Windows 2000.
- **Application installation and location.** To use an application with more than one operating system, you must install the application in each one. In some cases you can install the application to the same shared volume, but it's best to install a separate copy of the application on each operating system's volume that will use it.

When you've decided which operating systems you will install and have worked out the compatibility issues I've already mentioned, you can start installing operating systems. The following sections offer tips for specific platforms.

TIP *Hard disks are fairly inexpensive these days, so I generally recommend adding another physical drive to your system if you want to dual-boot. If you already have a huge drive and want to re-use it, but all of the space has already been partitioned, you can simply resize the existing partition. Check out Partition Magic at http://www.powerquest.com/partitionmagic if you want to change partition size without reinstalling your current OS.*

Operating System	Supported File Systems
MS-DOS	FAT
Windows 3.x	FAT
Windows NT	FAT, NTFS
Windows 95	FAT
Windows 98	FAT, FAT32
Windows Me	FAT, FAT32
Windows 2000	FAT, FAT32, NTFS
Windows XP	FAT, FAT32, NTFS
Windows Server 2003	FAT, FAT32, NTFS

TABLE 1-1 File System Compatibility by Operating System

MS-DOS, Windows 3.x, Windows 9x, and Windows Me

The key to making Windows XP coexist with any of these operating systems is the installation order. Install the operating systems, each on its own volume, in the following order: MS-DOS, Windows 3.x, Windows 9x, and Windows Me. After these operating systems are installed, you can install Windows XP. If you install any of these other operating systems after installing Windows XP, you'll lose the capability to boot Windows XP because Setup will overwrite the Windows XP boot loader with its own. If you experience this problem, boot the Recovery Console from the Windows XP CD and use the FIXBOOT command to restore the boot loader.

Windows NT 4.0

There are two main keys to successfully creating a dual-boot system with Windows NT 4.0 and Windows XP. The first is to install Windows NT before you install Windows XP. The second is to install Windows NT Service Pack 5 or later before installing Windows XP.

If you reinstall Windows NT after installing Windows XP, you'll have to restore the Windows XP versions of Ntdetect.com and Ntldr. If the boot volume uses a FAT file system, you can simply copy these two files from the i386 folder on the Windows XP CD to your boot disk. Otherwise, boot the Windows XP Recovery Console from the Windows XP CD and use the FIXBOOT command to restore the files.

Windows 2000, Windows XP, and Windows Server 2003

There are no major considerations for multibooting these operating systems other than to ensure that each is installed to its own volume.

Windows XP and Linux Dual-Boot Configuration

Setting up a dual-boot system with Windows XP and Linux isn't very difficult. You don't need to worry about application compatibility because neither operating system will run

the other's applications. You also can ignore file system compatibility unless you need one OS to be able to see the other's file system. If that's the case, use FAT for your Windows XP volume. Or, make sure your Linux distribution includes an NTFS driver that supports NTFS version 5 or later.

Here are the general steps for setting up a Windows XP/Linux system:

1. Make sure you have a large enough hard disk to accommodate Windows XP, Linux, and the Linux swap partition.
3. Create (or resize) a partition for Windows XP, leaving at least 5GB unpartitioned for Linux. Or, install a separate disk for Linux.
4. After installing Windows XP, install Linux, creating a partition for it in the unpartitioned space. Leave sufficient space for the swap partition according to the amount of RAM in the system. Generally, the swap partition should be about twice the size of the amount of RAM in the system.
4. During the Linux installation process, make the Linux partition the active partition.
5. After Linux is booted, you can optionally mount the Windows XP volume under Linux if you need access to it from Linux.

Alternatives to Dual-Boot Systems

Although dual-boot systems are certainly useful, they have one major drawback that leads to several lesser drawbacks: you can only run one operating system at a time. Running a different operating system requires shutting down the current OS and booting another.

There are two virtual machine products very much worth mentioning as alternatives to dual-boot. These applications create virtual machine environments that enable you to run another operating system in a window. One is a third-party application and the other a Microsoft application.

VMware

VMware (http://www.vmware.com) offers several virtualization solutions. Its user-targeted solution, VMware Workstation, is designed for end users and enables multiple operating systems to be run on a single computer. Two versions are available to allow either Windows or Linux systems to serve as the host operating system. For example, you could run Windows XP Professional as your host operating system, then run Linux in one window and Windows Server 2003 in another window. (Figure 1-10 shows Windows 98 and Windows Server 2003 virtual machines running on a Windows XP Professional host operating system.) Or, you might run Linux as your main operating system with Windows XP running in a window. Two other products, GSX Server and ESX Server, are targeted at businesses needing to consolidate servers.

TIP *If you need to convert a physical machine to a virtual machine, check out VMware's PV2 tool at http://www.vmware.com/products/vtools/p2v_faqs.html.*

You can easily switch between virtual machines without disturbing running applications. You can also cut and paste between virtual machines and even drag files from one virtual machine to another.

You can download an evaluation copy of VMware Workstation from VMware's web site.

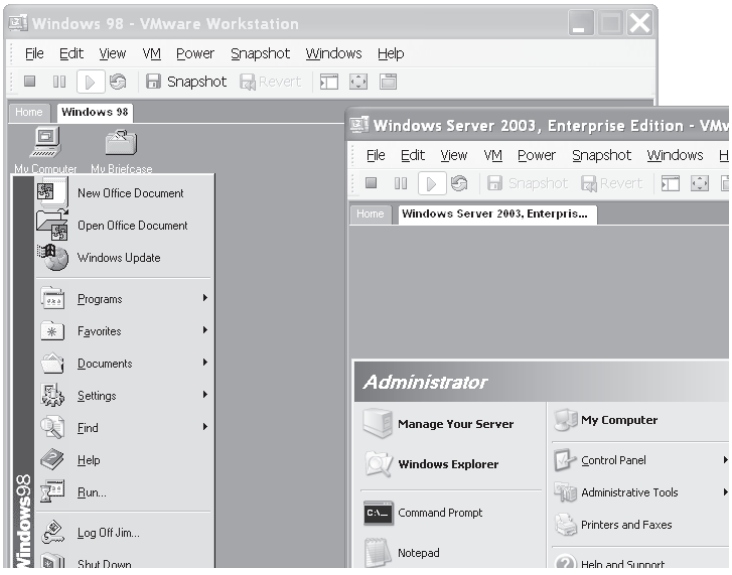

FIGURE 1-10 Here, VMware is running Windows 98 and Windows Server 2003.

Microsoft Virtual PC

Microsoft also offers a virtualization tool, which it purchased from Connectix and redeveloped. Like VMware, Virtual PC enables you to run multiple operating systems at one time on a single workstation. Unlike VMware, however, Microsoft does not support Linux as the host operating system. It does, however, offer a Mac version that enables Mac users to run PC operating systems. Microsoft also offers Virtual Server, which runs on Windows Server 2003 and is targeted at server consolidation and virtualization. See www.microsoft.com/virtualpc to learn about these Microsoft solutions.