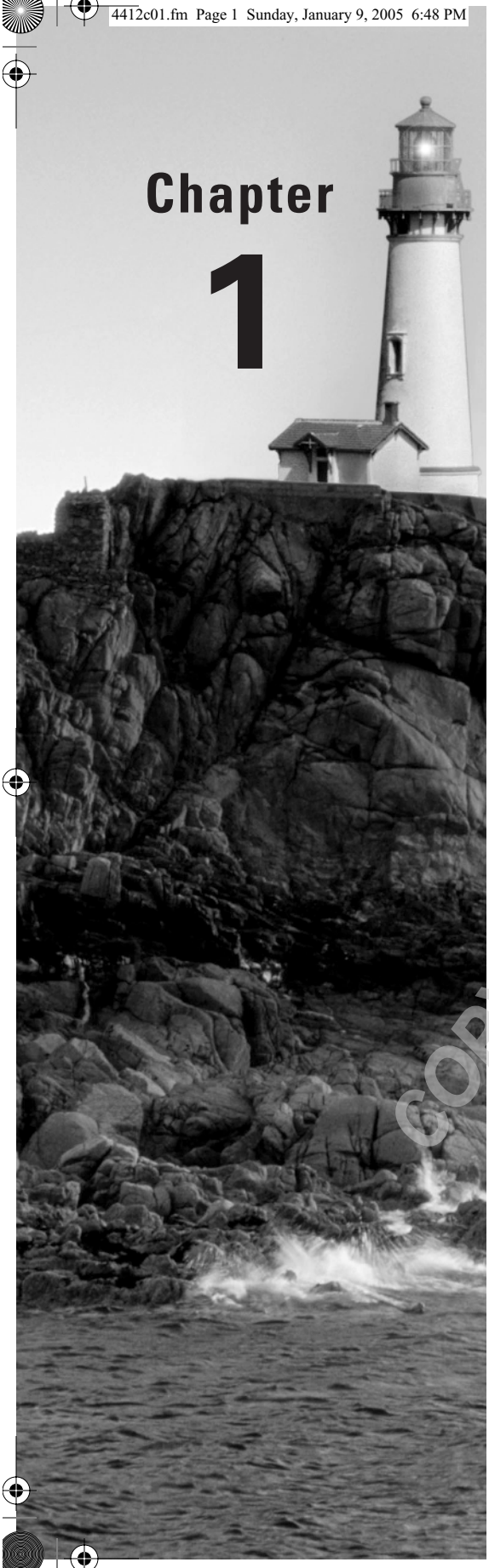


Chapter 1

Getting Started with Windows XP Professional

MICROSOFT EXAM OBJECTIVES COVERED IN THIS CHAPTER:

- ✓ **Perform and troubleshoot an attended installation of Windows XP Professional.**
- ✓ **Perform post-installation updates and product activation.**
- ✓ **Troubleshoot failed installations.**

Preparing for an installation involves making sure that your hardware meets the minimum requirements and that your hardware is supported by Windows XP Professional. When you install Windows XP Professional, you should also decide whether you are upgrading or installing a clean copy on your computer. An upgrade preserves existing settings; a clean install puts a fresh copy of the operating system on your computer. Installation preparation also involves making choices about your system's configuration, such as selecting a file system and a disk-partitioning scheme.

Once you've completed all the planning, you are ready to install Windows XP Professional. This is a straightforward process that is highly automated and user friendly.

To complete the Windows XP Professional installation, you will need to activate the product through Product Activation. This process is used to reduce software piracy. After Windows XP Professional is installed, you can keep the operating system up-to-date with post-installation updates.

When you install Windows XP, you should also consider whether the computer will be used for dual-boot or multi-boot purposes. Dual-booting or multi-booting allows you to have your computer boot with operating systems other than Windows XP Professional.

Preparing to Install Windows XP Professional

Windows XP Professional is easy to install. But this doesn't mean you don't need to prepare for the installation process. Before you begin the installation, you should know what is required for a successful installation and have all of the pieces of information you'll need to supply during the installation process. In preparing for the installation, you should make sure that you

- Know the hardware requirements for Windows XP Professional
- Know how to use the Hardware Compatibility List (HCL) to determine whether your hardware is supported by Windows XP Professional
- Have verification that your computer's BIOS is compatible with Windows XP Professional
- Know whether the devices in your computer have Windows XP drivers
- Understand the difference between a clean install and an upgrade
- Know the installation options suitable for your system, including which disk-partitioning scheme and file system you should select for Windows XP Professional to use

The following sections describe the preparation that is required prior to installing Windows XP Professional.

Hardware Requirements

To install Windows XP Professional successfully, your system must meet certain hardware requirements. Table 1.1 lists the minimum requirements for an *x*86-based computer, as well as the more realistic recommended requirements.

The standard Windows XP Professional operating system is based on the Intel *x*86-based processor architecture, which uses a 32-bit operating system. Windows XP 64-bit edition is the first 64-bit client operating system to be released by Microsoft. The 64-bit version of Windows XP requires a computer with an Itanium processor and is designed to take advantage of performance offered by the 64-bit processor. The hardware requirements for Windows XP 64-bit edition are different from the hardware requirements of a standard version of Windows XP Professional.

TABLE 1.1 Hardware Requirements (Non-Network Installation)

Component	Minimum Requirement	Recommended Requirement
Processor	Intel Pentium/Celeron family, AMD K6/Athlon/Duron family (or compatible) 233MHz or higher	Intel Pentium II (or compatible) 300MHz or higher
Memory	64MB (may limit performance and which features are available)	128MB
Disk space	1.5GB of free disk space	2GB or more of free disk space
Network	None	Network card and any other hardware required by your network topology if you want to connect to a network or if you will install over the network
Display	Super VGA (800×600) video adapter and monitor	Video adapter and monitor with SVGA resolution or higher
Peripheral devices	Keyboard, mouse, or other pointing device	Keyboard, mouse, or other pointing device
Removable storage	CD drive or DVD drive if installing from CD	12x or faster CD drive or DVD drive

The minimum requirements specify the minimum hardware required before you should even consider installing Windows XP Professional. These requirements assume that you are installing only the operating system and not running any special services or applications. For example, you may be able to get by with the minimum requirements if you are installing the operating system just to learn the basics of the software.

The recommended requirements are what Microsoft suggests to achieve what would be considered "acceptable performance" for the most common configurations. Since computer technology and the standard for acceptable performance are constantly changing, the recommendations are somewhat subjective. However, the recommended hardware requirements are based on the standards at the time that Windows XP Professional was released.

Real World Scenario

Deciding on Minimum Hardware Requirements

The company you work for has decided that everyone will have their own laptop running Windows XP Professional. You need to decide on the new computers' specifications for processor, memory, and disk space.

The first step is to determine which applications will be used. Typically, most users will work with an e-mail program, a word processor, a spreadsheet, presentation software, and maybe a drawing or graphics program. Under these demands, a low-end Pentium processor and 64MB of RAM will make for a very slow-running machine with a real likelihood of memory errors. So for this usage, you can assume that the minimum baseline configuration would be a Pentium III processor with 128MB of RAM.

Based on your choice of baseline configuration, you should then fit a test computer with the applications that will be used on it and test the configuration in a lab environment simulating normal use. This will give you an idea whether the RAM and processor calculations you have made for your environment are going to provide suitable response.

Today's disk drives have become capable of much larger capacity, while dropping drastically in price. So for disk space, the rule of thumb is to buy whatever is the current standard. Hard drives are currently shipping in the GB range, which is sufficient for most users. If users plan to store substantial graphics or video files, you may need to consider buying larger-than-standard drives.

Also consider what the business requirements will be over the next 12 to 18 months. If you will be implementing applications that are memory or processor intensive, you may want to spec out the computers initially with hardware sufficient to support upcoming needs, to avoid costly upgrades in the near future.

The hardware requirements listed in Table 1.1 were those specified at the time this book was published. Check Microsoft's website at `www.microsoft.com/windowsxp/pro/evaluation/sysreqs.asp` for the most current information

Depending on the installation method you choose, other devices may be required, as follows:

- If you are installing Windows XP Professional from the CD, you should have at least a 12x CD-ROM drive.
- If you choose to install Windows XP Professional from the network, you need a network connection and a server with the distribution files.

Windows XP Professional supports computers with one or two processors.

Measurement Units Used in Hardware Specifications

Computer processors are typically rated by speed. The speed of the processor, or *central processing unit (CPU),* is rated by the number of clock cycles that can be performed in one second. This measurement is typically expressed in *megahertz (MHz).* One MHz is one million cycles per second.

Hard disks are commonly rated by capacity. The following measurements are used for disk space and memory capacity:

1*MB (megabyte)* = 1024KB (kilobytes)

1*GB (gigabyte)* = 1024MB

1*TB (terabyte)* = 1024GB

1*PB (petabyte)* = 1024TB

1*EB (exabyte)* = 1024PB

The Hardware Compatibility List (HCL)

Along with meeting the minimum requirements, your hardware should appear on the *Hardware Compatibility List (HCL)*. The HCL is an extensive list of computers and peripheral hardware that have been tested with the Windows XP Professional operating system.

The Windows XP Professional operating system requires control of the hardware for stability, efficiency, and security. The hardware and supported drivers on the HCL have been put through rigorous tests to ensure their compatibility with Windows XP Professional. Microsoft

guarantees that the items on the list meet the requirements for Windows XP and do not have any incompatibilities that could affect the stability of the operating system.

If you call Microsoft for support, the first thing a Microsoft support engineer will ask about is your configuration. If you have any hardware that is not on the HCL, you won't be able to get support from Microsoft.

To determine if your computer and peripherals are on the HCL, check the most up-to-date list at www.microsoft.com/hcl.

BIOS Compatibility

Before you install Windows XP Professional, you should verify that your computer has the most current BIOS (Basic Input/Output System). This is especially important if your current BIOS does not include support for Advanced Configuration and Power Interface (ACPI) functionality. Check the computer's vendor for the latest BIOS version information.

Driver Requirements

To successfully install Windows XP Professional, you must have the critical device drivers for your computer, such as the hard drive device driver. The Windows XP Professional CD comes with an extensive list of drivers. If your computer's device drivers are not on the CD, you should check the device manufacturer's website. If the device driver can't be found on the manufacturer's website, and there is no other compatible driver, you are out of luck. Windows XP will not recognize devices that don't have XP drivers.

If you are upgrading from Windows 98 or Windows Me, the device drivers will not migrate at all. These versions of Windows used virtual device drives (VxDs) and these drivers are not compatible with Windows XP Professional.

Clean Install or Upgrade?

Once you've determined that your hardware not only meets the minimum requirements but also is on the HCL, you need to decide whether you want to do a *clean install* or an *upgrade*.

The only operating systems that can be upgraded to Windows XP Professional are Windows 98, Windows Me, Windows NT 4 Workstation, and Windows 2000 Professional.

If you will upgrade Windows 98 and Me, you need to get the Windows XP drivers for your hardware.

Any other operating system cannot be upgraded, but it may be able to coexist with Windows XP in a dual-boot environment.

Dual-booting is covered in the "Supporting Multiple-Boot Options" section later in this chapter.

If you don't have an operating system that can be upgraded, or if you want to keep your previous operating system intact, you need to perform a clean install. A clean install puts the Windows XP Professional operating system into a new folder and uses its default settings the first time the operating system is loaded.

The process for a clean installation is described in the "Running the Windows XP Professional Installation Process" section later in this chapter.

Installation Options

You will need to make many choices during the Windows XP Professional installation process. Following are some of the options that you will configure:

- How your hard disk space will be partitioned
- The file system your partitions will use
- Whether the computer will be a part of a workgroup or a domain
- The language and locale for the computer's settings

Before you start the installation, you should know which choices you will select. The following sections describe the options and offer considerations for picking the best ones for your installation.

Partitioning of Disk Space

Disk partitioning is the act of taking the physical hard drive and creating logical partitions. A *logical drive* is how space is allocated to the drive's primary and logical partitions. For example, if you have a 5GB hard drive, you might partition it into two logical drives: a C: drive, which might be 2GB, and a D: drive, which might be 3GB.

The following are some of the major considerations for disk partitioning:

- The amount of space required
- The location of the system and boot partition
- Any special disk configurations you will use
- The utility you will use to set up the partitions

These considerations are covered in detail in the following sections.

Partition Size

One important consideration in your disk-partitioning scheme is determining the partition size. You need to consider the amount of space taken up by your operating system, the applications that will be installed, and the amount of stored data. It is also important to consider the amount of space required in the future.

Just for Windows XP, Microsoft recommends that you allocate at least 2GB of disk space. This allows room for the operating system files and for future growth in terms of upgrades and installation files that are placed with the operating system files.

The System and Boot Partitions

When you install Windows XP, files will be stored in two locations: the system partition and the boot partition.

The *system partition* contains the files needed to boot the Windows XP Professional operating system. The system partition contains the Master Boot Record (MBR) and boot sector of the active drive partition. It is often the first physical hard drive in the computer and normally contains the necessary files to boot the computer. The files stored on the system partition do not take any significant disk space. By default, the system partition uses the computer's active partition, which is usually the C: drive.

The *boot partition* contains the files that are the Windows XP operating system files. By default, the Windows operating system files are located in a folder named `Windows`. You can, however, specify the location of this folder during the installation process. Microsoft recommends that the boot partition be at least 2GB.

Special Disk Configurations

Windows XP Professional supports several disk configurations. Options include simple, spanned, and striped volumes. These configuration options are covered in detail in Chapter 8, "Managing Disks."

Windows 2000 Server and Windows Server 2003 also include options for mirrored and RAID 5 volumes.

Disk Partition Configuration Utilities

If you are partitioning your disk prior to installation, you can use several utilities such as the DOS or Windows FDISK program or a third-party utility such as PowerQuest's Partition Magic. You might want to create only the first partition where Windows XP Professional will be installed. You can then use the Disk Management utility in Windows XP to create any other partitions you need. The Windows XP Disk Management utility is covered in Chapter 8.

You can get more information about FDISK and other disk utilities from your DOS or Windows documentation. Also, basic DOS functions are covered in *MCSA/MCSE 2003 JumpStart: Computer and Network Basics* by Lisa Donald (Sybex, 2003).

File System Selection

Another factor that determines your disk-partitioning scheme is the type of file system you use. Windows XP Professional supports three file systems:

- *File Allocation Table (FAT16)*
- *FAT32*
- *New Technology File System (NTFS)*

The following sections briefly describe these three file systems.

See Chapter 8, "Managing Disks" for more details about the features of FAT16, FAT32, and NTFS.

FAT16

FAT16 (originally just FAT) is the 16-bit file system widely used by DOS and Windows 3.*x*. FAT16 tracks where files are stored on a disk using a file allocation table and a directory entry table. The disadvantages of FAT16 are that it supports partitions only up to 2GB and it does not offer the security features of NTFS. The advantage of FAT is that it is backward compatible, which is important if the computer will be dual-booted with another operating system, such as DOS, Unix, Linux, OS 2, or Windows 3.1. Almost all PC operating systems read FAT16 partitions.

FAT32

FAT32 is the 32-bit version of FAT, which was first introduced in 1996 with Windows 95, with OEM (original equipment manufacturer) Service Release 2 (OSR2). With FAT32, disk partitions can be as large as 2TB (terabytes). It has more fault-tolerance features than FAT16 and also improves disk-space usage by reducing the size of clusters. However, it lacks several of the features offered by NTFS for a Windows XP or Windows 2000 system, such as local security, file encryption, disk quotas, and compression.

If you choose to use FAT, Windows XP Professional will automatically format the partition with FAT16 if the partition is less than 2GB. If the partition is over 2GB, it will be automatically partitioned as FAT32.

Windows NT 4 and earlier releases of NT do not support FAT32 partitions.

NTFS

NTFS is a file system designed to provide additional features for Windows NT, Windows 2000, Windows XP, and Windows Server 2003 computers. Some of the features NTFS offers include the following:

- The ability to set local security on files and folders.
- The option to compress data. This feature reduces disk-storage requirements.
- The flexibility to assign disk quotas. Disk quotas are used to limit the amount of disk space a user can use.
- The option to encrypt files. Encryption offers an additional level of security.

Unless you are planning on dual-booting your computer to an operating system other than Windows NT, Windows 2000, Windows Server 2003, or another instance of Windows XP, Microsoft recommends using NTFS.

Membership in a Domain or Workgroup

One Windows XP Professional installation choice is whether your computer will be installed as a part of a *workgroup* or as part of a *domain*.

You should install as part of a workgroup if you are part of a small, decentralized network or if you are running Windows XP on a computer that is not part of a network. To join a workgroup, you simply choose that workgroup.

Domains are part of larger, centrally administered networks. You should install as part of a domain if any Windows 2000 and Server 2003 servers on your network are configured as domain controllers with the Microsoft Active Directory installed. There are two ways to join a domain. You can preauthorize a computer before installation, through the Active Directory Users and Computers utility. The second way is done during the Windows XP Professional installation, when you specify an Administrator name and password (or other user who has rights to add computers to the domain). To successfully join a domain, a domain controller for the domain and a DNS server must be available to authenticate the request to join the domain.

If you want a user to be able to add computers to the domain without giving them administrative rights, you can grant them the "Add workstations to the domain" user right. User rights are covered in greater detail in Chapter 7, "Managing Security."

Language and Locale

Language and locale settings are used to determine the language the computer will use. Windows XP supports many languages for the operating system interface and utilities.

Locale settings are used to configure the locality for items such as numbers, currencies, times, and dates. An example of a locality is that English for United States specifies a short date as *mm/dd/yyyy* (month/day/year), while English for South Africa specifies a short date as *yyyy/mm/dd* (year/month/day).

Choosing Your Installation Method

You can install Windows XP Professional either from the bootable CD or through a network installation using files that have been copied to a network share point. If your computer can't boot to a CD, you can start the installation with the `WINNT` or `WINNT32` command-line utilities, dependent on the current operating system you are using, once the computer has started and the CD drive is accessible.

The Windows XP Professional CD is a bootable CD. To start the installation, you simply restart your computer and boot to the CD. The installation process will begin automatically.

We discuss how to install Windows XP in more detail in the next section.

If you are installing Windows XP Professional from the network, you need a *distribution server* and a computer with a network connection. A distribution server is a server that has the Windows XP Professional distribution files copied to a shared folder. The files in this folder must include the `\I386` folder from the Windows XP Professional distribution CD. The following steps are used to install Windows XP Professional over the network:

1. Boot the target computer.
2. Attach to the distribution server and access the share that has the `\I386` folder shared.
3. Launch `WINNT` or `WINNT32` (depending on the computer's current operating system).
4. Complete the Windows XP Professional installation.

You can also install Windows XP Professional through an unattended process, which is covered in detail in Chapter 2, "Automating the Windows XP Installation."

Running the Windows XP Professional Installation Process

This section describes how to run the Windows XP Professional installation process. As explained in the previous section, you can run the installation from the CD or over a network. The only difference in the installation procedure is your starting point: from your CD-ROM drive or from a network share. The steps in the following sections assume that the disk drive is clean and that you are starting the installation using the Windows XP Professional CD.

There are four main steps in the Windows XP Professional installation process:

- Collecting information
- Preparing the installation
- Installing Windows
- Finalizing the installation

Each of these steps is covered in detail in the following sections.

The following sections give the details of the installation process to show how the process works. But you should not actually install Windows XP Professional until you reach Exercise 1.1. In that exercise, you'll set up your computer to complete the rest of the exercises in this book.

Collecting Information

When you boot to the Windows XP Professional CD, the Setup program will automatically start the Windows XP installation. In this stage of the installation, you start the installation program, choose the partition where Windows XP Professional will be installed, and then copy files.

The following steps are involved in running the Setup program:

1. Insert the Windows XP Professional CD in your computer and restart the computer. Boot the computer to the CD-ROM.
2. The Setup program will start automatically. If you need to install a third-party disk driver, you would press F6 during this step when prompted. For automatic recovery, you would press F2 when prompted.
3. The Welcome to Setup dialog box will appear. You can press Enter to install Windows XP Professional, R to repair a Windows XP installation, or F3 to quit the Setup program.
4. The Windows XP Licensing Agreement will appear. Press F8 to accept the agreement—or Esc to not accept the agreement, at which time the installation process will be terminated.
5. The Windows XP Professional Setup dialog box will appear. This will list all existing partitions and unpartitioned disk space on your computer. From this screen you can add or delete partitions and select the partition where Windows XP Professional will be installed. If you create a new partition, you will have the option to format the drive through the Setup program.
6. The Setup files will then be automatically copied to the selected partition.
7. Remove the Windows XP Professional CD and restart your computer.

After the file copying is complete, the computer automatically reboots.

If Windows XP does not recognize your hard drive controller or hard drive because it uses a driver that is not on the XP Professional CD, you will need to provide the driver during the Setup phase.

Preparing Installation

During the Preparing Installation phase, all the files required by the Setup program will be copied to the hard drive. This process will take several minutes and will display a tutorial of helpful Windows XP information.

Installing Windows XP Professional

Once your computer finishes with the file copying and reboots, you will be in the Installing Windows phase of the installation. This first part of the installation is automated and shows you how long the installation has remaining in minutes and what is currently being installed, and it gives you interesting reading material while the installation process is running.

During this process you may see your screen flicker as the video driver is detected.

During the installation process, Setup will gather information about your locale, name, and product key as follows (click Next after completing each dialog box):

1. The Regional Settings dialog box appears. From this dialog box, you choose your locale and keyboard settings. Locale settings are used to configure international options for numbers, currencies, times, and dates. Keyboard settings allow you to configure your keyboard to support different local characters or keyboard layouts. For example, you can choose Danish or United States–Dvorak through this option.
2. In the Personalize Your Software dialog box, you fill in the Name and Organization boxes. This information is used to personalize your operating system software and the applications that you install. If you install Windows XP Professional in a workgroup, the Name entry here is used for the initial user.
3. The Product Key dialog box appears. In the boxes at the bottom of this dialog box, you type in the 25-character product key, which can be found in the Windows XP Professional CD folder.You would skip this step if you have a corporate license for Windows XP Professional.
4. The Computer Name and Administrator Password dialog box appears. Here, you specify a name that will uniquely identify your computer on the network. Your computer name can be up to 15 characters. The Setup Wizard suggests a name, but you can change it to another name. Through this dialog box, you also type and confirm the Administrator password. An account called Administrator will automatically be created as a part of the installation process.

Be sure that the computer name is a unique name within your network. If you are part of a corporate network, you should also verify that the computer name follows the naming convention specified by your Information Services (IS) department.

5. If you have a Plug and Play modem installed, you will see the Modem Dialing Information dialog box. Here, you specify your country/region, your area code (or city code), whether you dial a number to get an outside line, and whether the telephone system uses tone dialing or pulse dialing.
6. The Date and Time Settings dialog box appears. In this dialog box, you specify date and time settings and the time zone in which your computer is located. You can also configure the computer to automatically adjust for daylight saving time.
7. The Network Settings dialog box appears. This dialog box is used to specify how you want to connect to other computers, networks, and the Internet. You have two choices:
   - Typical Settings installs network connections for Client for Microsoft Networks, as well as File and Print Sharing for Microsoft Networks. It also installs the TCP/IP protocol with an automatically assigned address.

- Custom Settings allows you to customize your network settings. You can choose whether you want to use Client for Microsoft Networks, File and Print Sharing for Microsoft Networks, and the TCP/IP protocol. You should use the custom settings if you need to specify particular network settings, such as a specific IP address and subnet mask (rather than using an automatically assigned address).

8. In the next dialog box, Workgroup or Computer Domain, you specify whether your computer will be installed as part of a local workgroup or as part of a domain. (See the "Membership in a Domain or Workgroup" section earlier in this chapter for details about these choices.)
9. The computer will perform some final tasks, including installing Start menu items, registering components, saving settings, and removing any temporary files. This will take several minutes.
10. The Display Settings dialog box will appear, stating that Windows will automatically adjust the resolution of your screen. The Monitor Settings dialog box will then ask you to verify the settings.

Finalizing Installation

Once your computer finishes with the installation, you will be asked to set up your computer. The options that will be configured include the following:

- Specifying how the computer will connect to the Internet. You can select Telephone Modem, Digital Subscriber Line (DSL) or cable modem, or Local Area Network (LAN).
- Activating Windows, which can be done over the Internet, or you can specify that you want to be reminded every few days to do so.
- Deciding whether or not you want to set up Internet access at the present time.
- Providing the name(s) of the user(s) who will use the computer.

When you are finished, the primary user will be logged on and you will see the new Windows XP Professional interface.

Setting Up Your Computer for Hands-On Exercises

Before beginning Exercise 1.1, verify that your computer meets the requirements for installing Windows XP Professional as listed in Table 1.1. Exercise 1.1 assumes that you are not currently running a previous version of Windows that will be upgraded.

The exercises in this book assume that your computer is configured in a specific manner. Your computer should have at least a 3GB drive that is configured with the minimum space requirements and partitions. Other exercises in this book assume that your computer is configured as follows:

- 2GB (about 2000MB) C: primary partition with the FAT file system
- 500MB D: extended partition with the FAT file system
- 500MB of free space

Of course, you can allocate more space to your partitions if it is available.

You are probably wondering why we are not using any NTFS partitions. The reason is that you will convert a FAT partition to NTFS and use the features of NTFS in Chapter 8. You will also use the features of NTFS in Chapter 9, "Accessing Files and Folders." You are probably also wondering about the free space requirement. You need free space because you will create partitions in Chapter 8. If no free space exists, you won't be able to complete that exercise.

Exercise 1.1 assumes that you are performing a clean installation and not an upgrade. Your partitions should be created and formatted as previously specified.

As noted earlier in this chapter, you can set up your partitions through the DOS or Windows FDISK utility or a third-party program. For example, if you have a Windows 98 computer, you can use it to create a Windows 98 boot disk. Set up the Windows 98 boot disk with FDISK and FORMAT from the `Windows` folder on the Windows 98 computer. Then you will be able to boot your computer and see your CD-ROM drive.

You should make a complete backup of your computer before repartitioning your disk or installing new operating systems. All data will be lost during this process!

In Exercise 1.1, you will be installing Windows XP Professional on your system.

EXERCISE 1.1

Installing Windows XP Professional

In this exercise, you will install Windows XP Professional.

Information Collection

1. Boot your computer with the Windows XP CD inserted into your CD-ROM drive.
2. The Welcome to Setup screen appears. Press Enter to set up Windows XP Professional.
3. The License Agreement dialog box appears. Scroll down to the bottom of the page. Press F8 to agree to the license terms if you wish to continue.
4. In the next dialog box, specify the C: partition as the one you want to use to set up Windows XP Professional. Then press Enter.
5. In the next dialog box, choose to leave the current file system intact (no changes). Press Enter to continue. The file copying will take a few minutes to complete.

EXERCISE 1.1 *(continued)*

Installing Windows

6. The Installing Windows phase of installation will begin. You will see a series of informational screens as the system does some background installation tasks.
7. The Regional and Language Options dialog box will appear. Verify that the settings are correct, and click the Next button.
8. In the Personalize Your Software dialog box, type your name and organization. Click the Next button.
9. In the Product Key dialog box, type the 25-character product key (this key can be found on a sticker on the installation folder). Click the Next button.
10. The Computer Name and Administrator Password dialog box appears. Type in the computer name. You can also specify an Administrator password (since this computer will be used for practice, you can leave the Password field blank if you want). Click the Next button.
11. If you have a Plug and Play modem installed, the Modem Dialing Information dialog box appears. Specify the settings for your environment and click the Next button.
12. The Date and Time Settings dialog box appears. Verify that all of the settings are correct, and click the Next button.
13. After the Networking component files are copied (which takes a few minutes), the Network Settings dialog box appears. Confirm that the Typical Settings button is selected. Then click the Next button.
14. In the Workgroup and Computer Domain dialog box, confirm that the option No, This Computer Is Not on a Network, or Is on a Network without a Domain, is selected to indicate that you don't want to put the computer in a domain. In this dialog box, you can accept the default workgroup name, WORKGROUP, or you can specify a unique workgroup name. Since this is a practice computer, the workgroup name is not important. Click the Next button. The Setup components are installed, which takes several minutes.
15. The Display Settings dialog box will appear. Click the OK button to have your screen resolution automatically adjusted.
16. The Monitor Settings dialog box will appear. If you can see the video properly, click the OK button.

Finalizing the Installation

17. The Welcome to Microsoft Windows dialog box will appear. Click the Next button to continue.
18. The system will check to see if you are connected to the Internet. You will see the How Will This Computer Connect to the Internet? dialog box. Specify your connectivity method and click the Next button. Depending on the option you select, you will be directed through a series of dialog boxes. If you do not want to connect to the Internet, click the Skip button.

EXERCISE 1.1 *(continued)*

19. The Ready to Activate Windows? dialog box will appear. Select your option for activation and click the Next button.
20. The Who Will Use This Computer? dialog box will appear. Type in your name and click the Next button.
21. The Thank You dialog box will appear. Click the Finish button.

Windows XP Professional is now installed, and you should be logged on to the new Windows XP interface.

Using Automatic Updates

Automatic Updates, as shown in Figure 1.1, is used to automatically keep your computer up-to-date. When you enable Automatic Updates, you can configure the following options:

- The frequency and time that updates will be downloaded to your computer
- Whether updates will be downloaded and if you want to choose to install them
- Whether you want to be notified that updates are available, but not to download or install them
- Turn off automatic updates

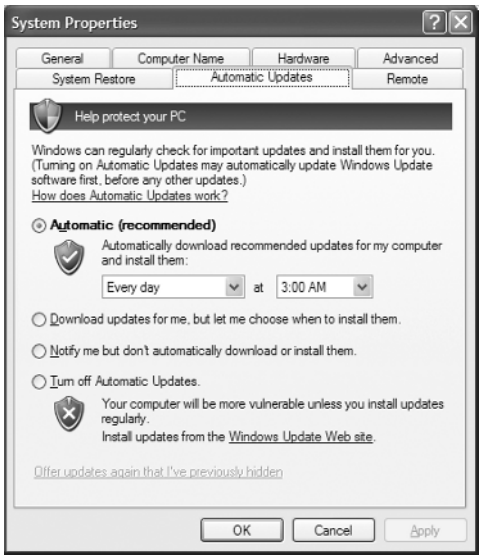
The following steps are used to configure Automatic Updates:

1. Select Start ➢ Control Panel.
   - From Windows Classic View, select System ➢ Automatic Updates.
   - From Windows Category View, select Performance and Maintenance ➢ System Automatic Updates.
2. Configure the options you want to use for Automatic Updates and click the OK button.

Using Product Activation

Product activation is Microsoft's way of reducing software piracy. Unless you have a corporate license for Windows XP Professional, you will need to perform post-installation activation. This can be done online or through a telephone call. After Windows XP is installed, you will be prompted to activate the product. There is a 30-day grace period when you will be able to use the operating system without activation. After the grace period expires, you will not be able to successfully log on to the computer without activation if you restart or log out of the computer. When the grace period runs out, the Product Activation Wizard will automatically start; it will walk you through the activation process.

FIGURE 1.1 Automatic Updates



Using Windows Update

You can perform post-installation updates of Windows XP Professional through Windows Update. Windows Update is a utility that connects to Microsoft's website and checks to ensure that you have the most up-to-date version of XP Professional files.

Some of the common update categories associated with Windows Update are:

- Critical updates and Service Packs
- Windows XP updates
- Drivers

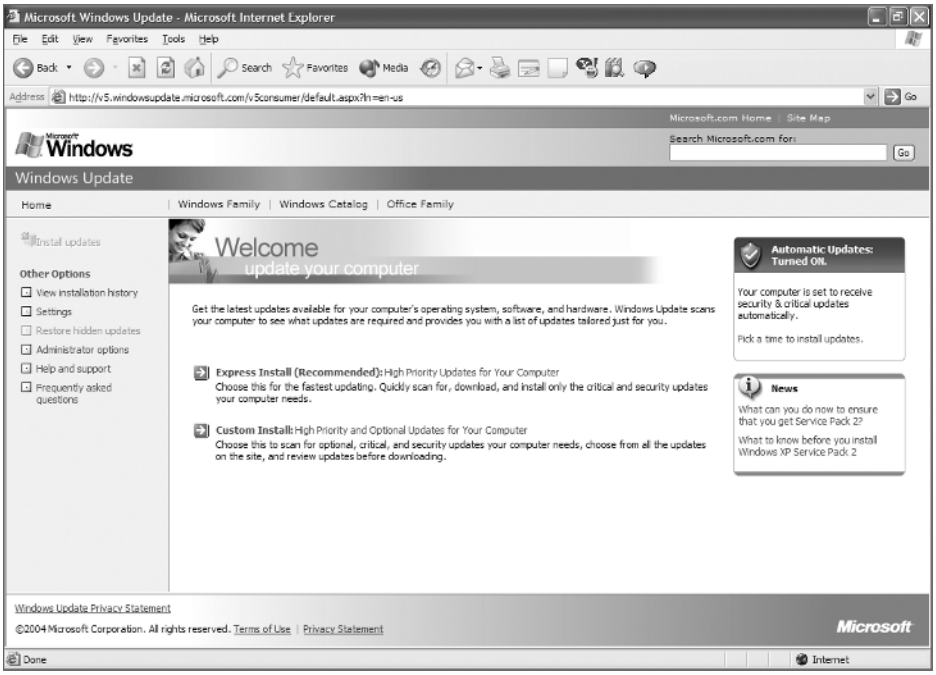
In the following sections you will learn how to access Windows Update and how to use the options that are associated with Windows Update.

Accessing Windows Update

The following steps are used to access Windows Update:

1. Confirm that your computer is connected to the Internet.
2. Select Start ➢ Help and Support.
3. From the Help and Support dialog box, select Windows Update.
4. The Windows Update dialog box will appear, as shown in Figure 1.2.

FIGURE 1.2 Windows Update



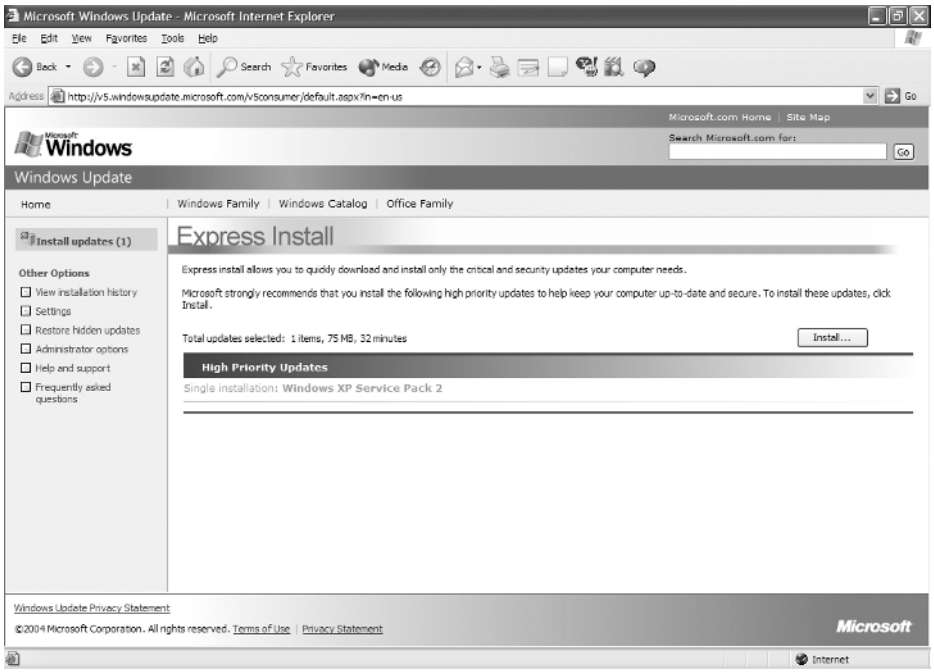
5. Select either Express Install or Custom Install. Express Install scans your computer and downloads only the most critical updates. Custom Install scans your computer and downloads optional, critical, and security updates for your computer. Make your selection for Express Install or Custom Install to scan your computer.
6. The list of updates will appear. Select which updates you want to install and click the Install button, as shown in Figure 1.3.
7. The updates that you have selected will be downloaded and installed. You may be prompted to restart your computer after the updates have been installed.

Other Windows Update Options

The other options that can be accessed from Windows Update include the following:

- View Installation History
- Settings
- Restore Hidden Updates
- Administrator Options
- Help and Support
- Frequently Asked Questions

FIGURE 1.3 Windows Update sample list of updates



These options are all covered in detail in the following sections.

View Installation History

View Installation History, as shown in Figure 1.4, is used to view a list of all of the installations that have been performed on the computer. You can see the following information for each installation:

- Update Name
- Status (Successful, Unsuccessful, or Canceled)
- Date
- Source

Settings

Settings is used to customize what is shown through Windows Update. As shown in Figure 1.5, you can configure Language options for Windows Update and Advanced options, which include whether beta and related updates will be displayed as they become available.

FIGURE 1.4 Windows Update, View Installation History

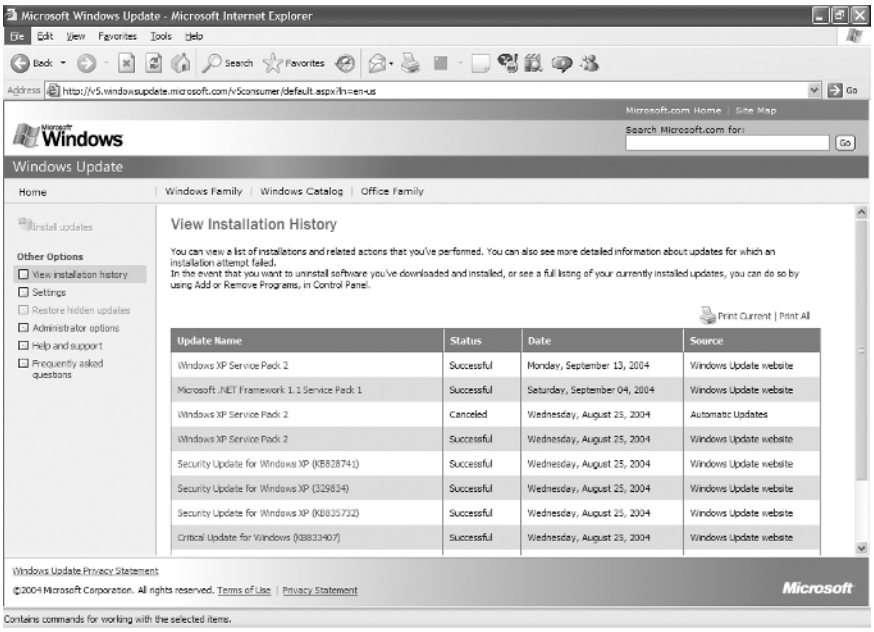
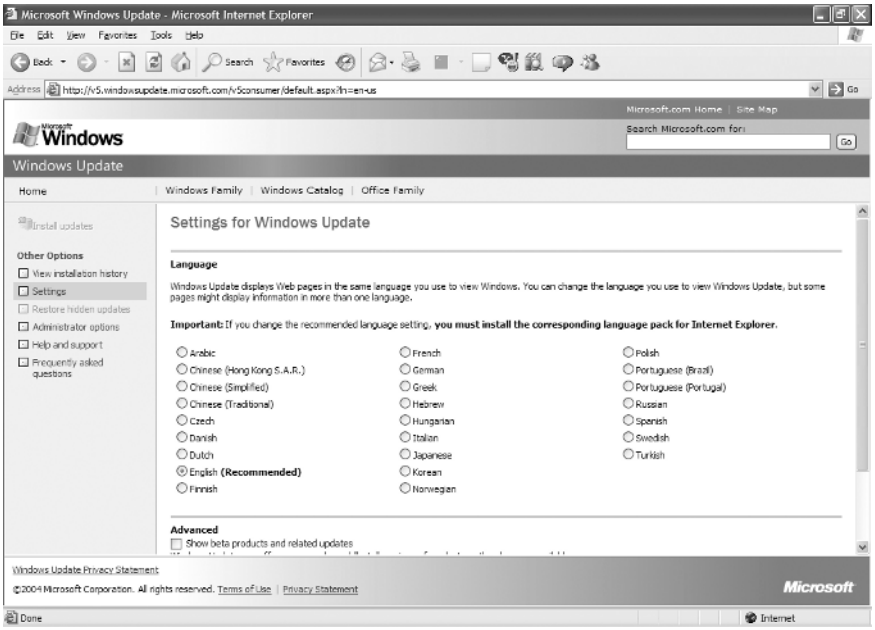


FIGURE 1.5 Windows Update, Settings



Restore Hidden Updates

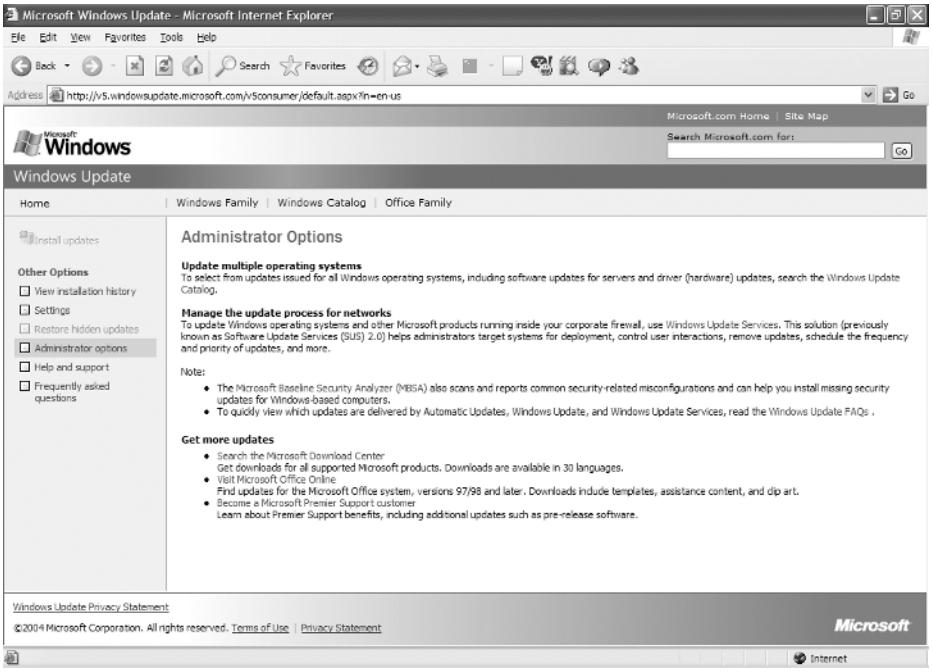
Restore Hidden Updates is used to list any updates that you have hidden from the list of available updates. An administrator might hide updates that they do not want users to install.

Administrator Options

Administrator Options, as shown in Figure 1.6, are used to update multiple operating systems or to manage the update process for networks. Administrators can use optional services such as Windows Update Services (formerly known as Software Update Services (SUS) 2.0) or Microsoft Baseline Security Analyzer (MBSA) to manage security updates.

Software Update Services and Microsoft Baseline Security Analyzer are covered in greater detail in *MCSA/MCSE 2003 Windows Server 2003 Environment Management and Maintenance* by Lisa Donald with Suzann Sage London and James Chellis (Sybex, 2003).

FIGURE 1.6 Windows Update, Administrator Options



Help and Support

Help and Support is used to provide help and support for Windows Update. You would use Help and Support to troubleshoot problems associated with deploying Windows Update or with problems that may arise as a result of using Windows Update.

Frequently Asked Questions

Frequently Asked Questions is used to answer frequently asked questions about Windows Update.

Windows Service Packs

Service Packs are updates to the Windows XP operating system that include bug fixes and product enhancements. Some of the options that might be included in Service Packs are security fixes or updated versions of software, such as Internet Explorer.

Windows XP Service Pack 2 (SP2) is used to update Windows XP Professional. You can download and install SP2 from Windows Update or through a CD provided from Microsoft. Prior to installing SP2, you should take the following steps:

1. Back up your computer.
2. Check your computer to ensure that it is not running any spyware or other unwanted software.
3. Check with your computer manufacturer to see if there are any special instructions for your computer prior to installing SP2.

The main changes to functionality in SP2 include the following:

- Network protection against network-based attacks
- Memory protection from malicious software attacks
- Better e-mail handing to help prevent viruses
- Browsing security through enhancements to Internet Explorer
- Improved maintenance through enhanced updates

You can download Service Packs from Microsoft.com or you can pay for a CD of the Service Pack to be mailed to you. Before you install a Service Pack, you should read the Release Note that is provided for each Service Pack on Microsoft's website.

Troubleshooting Installation Problems

The Windows XP installation process is designed to be as simple as possible. The chances for installation errors are greatly minimized through the use of wizards and the step-by-step process. However, it is possible that errors may occur.

In the following sections, you will learn more about

- Identifying and resolving common installation problems
- Troubleshooting installation problems that relate to the `Boot.ini` file
- Installing non-supported hard drives
- Troubleshooting installation errors using installation log files

Identifying Common Installation Problems

As most of you are aware, installations seldom go off without a hitch. Table 1.2 lists some possible installation errors you might encounter.

TABLE 1.2 Common Installation Problems

Problem	Description
Media errors	Media errors are caused by defective or damaged CDs. To check the CD, put it into another computer and see if you can read it. Also check your CD for scratches or dirt—it may just need to be cleaned.
Insufficient disk space	Windows XP needs at least 2GB of free space for the installation program to run properly. If the Setup program cannot verify that this space exists, the program will not let you continue.
Not enough memory	Make sure that your computer has the minimum amount of memory required by Windows XP Professional (64MB). Having insufficient memory may cause the installation to fail or blue-screen errors to occur after installation.
Not enough processing power	Make sure that your computer has the minimum processing power required by Windows XP Professional (Pentium 233MHz). Having insufficient processing power may cause the installation to fail or blue-screen errors to occur after installation.
Hardware that is not on the HCL	If your hardware is not on the HCL, Windows XP may not recognize the hardware, or the device may not work properly.
Hardware with no driver support	Windows XP will not recognize hardware without driver support.

TABLE 1.2 Common Installation Problems *(continued)*

Problem	Description
Hardware that is not configured properly	If your hardware is Plug and Play–compatible, Windows should configure it automatically. If your hardware is not Plug and Play–compatible, you will need to manually configure the hardware per the manufacturer's instructions.
Incorrect CD key	Without a valid CD key, the installation will not go past the Product Key dialog box. Make sure that you have not typed in an incorrect key (check your Windows XP installation folder for this key).
Failure to access TCP/IP network resources	If you install Windows XP with typical settings, the computer is configured as a DHCP client. If there is no DHCP server to provide IP configuration information, the client will still generate an auto-configured IP address but be unable to access network resources through TCP/IP if the other network clients are using DHCP addresses.
Failure to connect to a domain controller when joining a domain	Make sure that you have specified the correct domain name. If your domain name is correct, verify that your network settings have been set properly and that a domain controller and DNS server are available. If you still can't join a domain, install the computer in a workgroup, and then join the domain after installation.

Troubleshooting Installation Errors with the *Boot.ini* File

If the text-based portion of the installation completes successfully, but the GUI-based portion of the installation fails, the error may be caused by a device driver that is failing to load properly. If you suspect that this is causing the installation error, you can edit a file called `Boot.ini` to list the drivers that are being loaded during the boot process. The `Boot.ini` file is located in the root of the system partition.

In order to cause the device drivers to be listed during the boot process, you need to edit the `Boot.ini` file to include the `/sos` switch, as shown:

```
[operating systems]
multi(0)disk(0)rdisk(0)partition(1)\WINDOWS = "Microsoft   Windows XP
Professional" /sos
```

You can learn more about editing the `Boot.ini` file in Chapter 14, "Performing System Recovery Functions."

Installing Non-Supported Hard Drives

If your computer is using a hard disk that does not have a driver included on the Windows XP Professional CD, you will receive an error message stating that the hard drive cannot be found. You should verify that the hard drive is properly connected and functional. You will need to obtain a disk driver from the manufacturer for Windows XP and then specify that you are using a manufacturer-supplied driver (by pressing the F6 key when prompted) during the text-mode portion of the installation process.

Troubleshooting with Installation Log Files

When you install Windows XP Professional, the Setup program creates several log files. You can view these logs to check for any problems during the installation process. Two log files are particularly useful for troubleshooting:

- The action log includes all of the actions that were performed during the setup process and a description of each action. These actions are listed in chronological order. The action log is stored as `\Windows\setupact.log`.
- The error log includes any errors that occurred during the installation. For each error, there is a description and an indication of the severity of the error. This error log is stored as `\Windows\setuperr.log`.

In Exercise 1.2, you will view the Windows XP setup logs to determine whether there were any problems with your Windows XP installation.

EXERCISE 1.2

Troubleshooting Failed Installations with Setup Logs

In this exercise, you will view the installation with setup logs, which could be helpful in troubleshooting failed installations.

1. Select Start ➢ All Programs ➢ Accessories ➢ Windows Explorer.
2. In Windows Explorer, click My Computer, click Local Disk (C:), and click Windows.
3. Since this is the first time you have opened the `Windows` folder, click the Contents of This Folder option.
4. In the `Windows` folder, click the `setupact` file to view your action log in Notepad. When you are finished viewing this file, close Notepad.
5. Double-click the `setuperr` file to view your error file in Notepad. If no errors occurred during installation, this file will be empty. When you are finished viewing this file, close Notepad.
6. Close Windows Explorer.

Supporting Multiple-Boot Options

You may want to install Windows XP Professional but still be able to run other operating systems. *Dual-booting* or *multi-booting* allows your computer to boot multiple operating systems. Your computer will be automatically configured for dual-booting if there was a supported operating system on your computer prior to the Windows XP Professional installation (and you didn't upgrade from that operating system).

One reason for dual-booting is to test various systems. If you have a limited number of computers in your test lab, and you want to be able to test multiple configurations, you dual-boot. For example, you might configure one computer to multi-boot with Windows NT 4 Workstation, Windows NT 4 Server configured as a Primary Domain Controller (PDC), Windows 2000 Professional, and Windows XP Professional.

Another reason to set up dual-booting is for software backward compatibility. For example, you may have an application that works with Windows 98 but not under Windows XP Professional. If you want to use Windows XP but still access your legacy application, you can configure a dual-boot.

Here are some keys to successful dual-boot configurations:

- Make sure you have plenty of disk space. It's a good idea to put each operating system on a separate partition, although this is not required.
- Put the simplest operating systems on first. If you want to support dual-booting with DOS and Windows XP Professional, DOS must be installed first. If you install Windows XP Professional first, you cannot install DOS without ruining your Windows XP configuration. This requirement also applies to Windows 9*x* and Windows 2000.
- Never, ever, upgrade to Windows XP dynamic disks. Dynamic disks are seen only by Windows 2000 and Windows XP and are not recognized by any other operating system, including Windows NT.
- Do not convert your file system to NTFS if you are planning a dual-boot with any operating system except Windows NT, Windows 2000, or Windows XP. These operating systems are the only ones that recognize NTFS.
- If you will dual-boot with Windows NT, you must turn off disk compression or Windows XP will not be able to read the drive properly.

If you are planning on dual-booting with Windows NT 4, you should upgrade it to NT 4 Service Pack 4 (or higher), which provides NTFS version 5 support.

Once you have installed each operating system, you can choose the operating system that you will boot to during the boot process. You will see a boot selection screen that asks you to choose which operating system you want to boot.

Summary

In this chapter, you learned how to install Windows XP Professional. We covered the following topics:

- Installation preparation, which begins with making sure that your computer meets the minimum system requirements and that all of your hardware is on the Hardware Compatibility List (HCL). Then you need to decide whether you will perform a clean install or an upgrade. Finally, you should plan which options you will select during installation. Options include methods of partitioning your disk space, selecting a file system, whether the computer will be installed as part of a workgroup or a domain, and your language and locale settings.
- The methods you can use for installation, which include using the distribution files on the Windows XP Professional CD or using files that have been copied to a network share point.
- How to install Windows XP Professional, which proceeds in four main installation phases: information collection, installation preparation, Windows installation, and installation finalization.
- The Windows Update and product activation features. Post-installation updates are used to ensure that you have the latest files. Product activation is used to complete the Windows XP licensing process.
- How to troubleshoot installation problems. Common errors are caused by media problems, lack of disk space or memory, and hardware problems. Other common errors include an improperly configured `Boot.ini` file or using non-supported hard drives. You can view setup log files to check for problems that occurred during the installation.
- Information about supporting dual-boot or multi-boot environments. Dual-booting and multi-booting allow you to boot to a choice of two or more operating systems

Exam Essentials

Be able to tell if a computer meets the minimum hardware requirements for Windows XP Professional. Windows XP has minimum hardware requirements that must be met. In addition, the hardware must be on the HCL, and Windows XP drivers must be available for all devices.

Understand the different methods that can be used for Windows XP Professional installation. Be able to specify the steps and setup involved in installing Windows XP through options such as local CD and through network installation.

Understand the reasons why a Windows XP installation might fail. You should be able to list common reasons for failure of a Windows XP Professional installation and be able to offer possible fixes or solutions.

Specify what is required to support multiple-boot configurations. If you plan to install Windows XP Professional on the same computer that is running other operating systems, be able to specify what must be configured to support dual- or multiple-boot configurations.

Review Questions

1. James is the network administrator for a large corporation. He is in charge of compatibility testing and needs to test his corporation's standard applications on the Windows XP Professional operating system. He has decided to install Windows XP on a test computer in the lab. He can choose among several computers. When making his selection, what is the minimum processor required for an Intel-based computer to install and run Windows XP Professional?

   A. A Pentium with a 133MHz or better processor

   B. A Pentium with a 233MHz or better processor

   C. A Pentium II with a 166MHz or better processor

   D. A Pentium III with a 333MHz or better processor

2. Martina has Windows NT 4 Workstation installed on her home desktop computer. This computer is running some applications that require the use of her sound card; however, her sound card does not have a Windows XP–compatible driver. Martina is planning on replacing the sound card at some point, and she has purchased an upgrade to Windows XP Professional. She decides to install Windows XP Professional on her desktop computer in a dual-boot configuration. She has an extra 4GB partition that can be used. What is the minimum free disk space required to install Windows XP Professional on the extra partition?

   A. 500MB

   B. 650MB

   C. 1GB

   D. 1.5GB

3. Dionne is purchasing 12 new computers for the training room. She needs to make sure that the computers will support Windows XP Professional. What is the name of the list that shows the computers and peripheral hardware that have been extensively tested with the Windows XP Professional operating system?

   A. The Windows Compatibility List

   B. The XP Compatibility List

   C. The Microsoft Compatibility List

   D. The Hardware Compatibility List

4. You are the network administrator for a small company. You have recently purchased 20 brand-new computers that came with no operating system but are configured with the latest hardware. Each computer has a SCSI controller and an 80GB SCSI hard drive. When you purchased the computers, they came with a minimal operating system so that the CD drive would read CDs and a CD that contained all of the Windows XP drivers for the devices in the computer. You put the Windows XP Professional CD in the CD drive and start the installation. During the Setup phase, Windows XP reports that no disk device is available. Which of the following actions should you take?

   A. Install a full version of Windows 98 on the computer, and then try to upgrade to Windows XP Professional.

   B. Verify that the BIOS for the SCSI controller is enabled.

   C. During the Setup phase, when the disk is being detected, provide the Windows XP device drivers that are on the manufacturer's CD.

   D. Replace the SCSI drive with a drive that has a driver on the Windows XP Professional CD.

5. Mike is the network administrator for a medium-sized company. All of the computers that are installed must be a part of Active Directory and installed in `SJ.MASTERMCSE.COM`. The computers should be installed into Active Directory during initial installation. When Mike installs the computers, he has no problem adding them to the domain. Mike has asked Steve, a contract worker, to assist with installations. When Steve attempts to add computers to the domain, he is denied access. What are the minimum rights that Steve needs to be assigned so that he can also add computers to the domain during installation?

   A. Steve needs to be made a member of the Domain Admins group.

   B. Steve needs to be made a member of the Power Users group.

   C. Steve needs to be made a member of the Server Operators group.

   D. Steve needs to be granted the user right to add workstations to the domain.

6. You are the network administrator of a large corporation. Your company issues a laptop to each user. The laptops are brand new. You verify that you can access the hard drive with the operating system that came installed with the laptops. However, when you attempt to install Windows XP Professional, you keep getting an error that the hard drive cannot be accessed. You restart the installation and get the same error. What action should you take?

   A. Go into the system BIOS and verify that the UDMA for the hard drive is enabled.

   B. Go into the system BIOS and verify that the APM for the hard drive is disabled.

   C. Reserve an IRQ for the hard drive in the system BIOS.

   D. Get an XP driver from the hard drive manufacturer and install the disk driver during the text-mode portion of the installation when prompted.

7. You are the network administrator of a large corporation. Currently your network runs a mixture of Windows 98, Windows Me, and Windows 2000 Professional computers. You are considering adopting a corporate standard that all new computers will be installed with Windows XP Professional. Part of the reason you want to adopt Windows XP Professional is that you have had problems with users updating applications and then having major operating system problems because the application has overwritten core operating system files. Which of the following Windows XP features is used to protect core operating system files so that they are not overwritten improperly by application files?

   A. Windows File Protection

   B. Windows File Manager

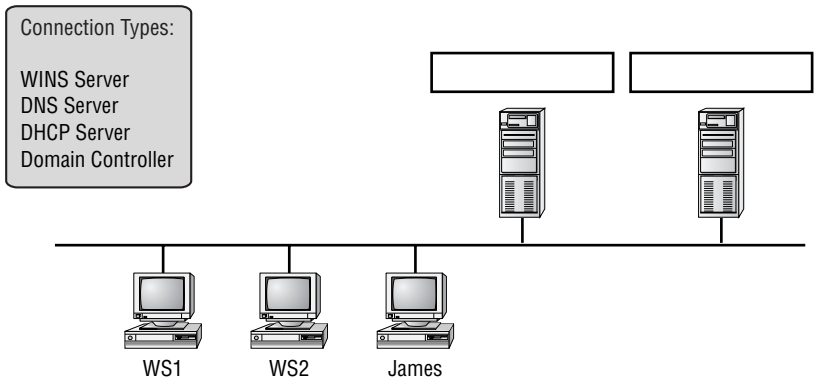
   C. Kernel Mode File Protection

   D. Ring 0 Manager

8. Sean has four computers in the test lab. He wants to install Windows XP Professional. The configurations for each of his computers are listed in the exhibit below. Place a mark on the computer that does *not* meet the minimum requirements for Windows XP Professional.

	Computer A	Computer B	Computer C	Computer D
Processor	PII/266	PIII/450	PII/166	Pentium/233
Memory	64MB	64MB	32MB	64MB
Free Disk Space	2GB	750GB	650GB	2GB

9. James is installing a Windows XP Professional computer in the `Sales.ABCCorp.com` domain. Select and place the servers that must be available on the network to support the addition of James's computer to the domain.



10. Your computer is configured with two hard drives. You have decided to configure logical drive C: on disk 0 and logical drive D: on disk 1. You want to run Windows 98 for backward compatibility with some applications that will not run under Windows XP. However, you also want to run Windows XP Professional to take advantage of the Windows XP features. On drive D:, you want to store files that should have a high level of security. You will install Windows 98 on drive C: and Windows XP Professional on drive D:. How should the drives on this computer be configured?

A. Configure both logical drives as FAT32.

B. Configure both logical drives with NTFS.

C. Configure logical drive C: as FAT32 and logical drive D: as NTFS.

D. Configure logical drive C: as NTFS and logical drive D: as FAT32.

11. You are the network administrator of a large corporation. You manage a computer lab that is used for compatibility testing. Many of the computers are configured to support dual-booting of operating systems. One of the racks of computers is configured to dual-boot between Windows NT 4 Workstation and Windows XP Professional. Which of the following statements reflects proper configuration for these computers?

A. You should turn off disk compression on the Windows NT 4 Workstation configuration.

B. You should enable dynamic disks on the Windows XP Professional configuration.

C. You should install both operating systems into the same `Windows` directory so you can access applications under both operating systems.

D. You should edit the Registry on the Windows XP computer for `HKEY_LOCAL_MACHINE\DualBoot` to a value of 1 so you can access applications under both operating systems.

12. You are the network administrator of a small company. You have decided to install Windows XP Professional on all of the company's computers. Because of your company's high security needs, your network is not connected to the Internet. After you installed Windows XP Professional, you did not perform the post-installation activation because you did not have an Internet connection and have not had time to call the Microsoft Clearing House to properly complete post-installation activation. After the grace period for post-installation activation expires, which of the following actions will require you to activate the computer before it can be used? (Choose all that apply.)

A. Putting the computer in sleep mode.

B. Restarting the computer.

C. Logging out of the computer and attempting to log on again.

D. You are automatically required to activate the operating system before any further actions can be taken.

13. Catherine is the network administrator for a large company. She needs to install Windows XP Professional on 25 computers that, for security purposes, do not have CD-ROM drives installed. Each of the computers has a valid network connection and is able to connect to a server called DIST. Catherine decides to use the network installation method to install Windows XP Professional on these computers. What folder must be copied from the Windows XP Professional CD to the network share that has been created in the DIST server?

    A. `\$OEM$`

    B. `\I386`

    C. `\Intel`

    D. `\$WINI386`

14. Eammon is the network administrator for a small company. His company recently purchased three new computers that need to have Windows XP Professional installed on them. When Eammon attempted to install the first computer with Windows XP Professional, the text-mode portion of the installation process completed. When the GUI portion of the installation process started, the computer stopped responding. Eammon suspects that the problem is due to a device driver failing to load properly. Which of the following steps should he take?

    A. Modify the `Boot.ini` file to include the `/sos` switch.

    B. Modify the `Boot.ini` file to include the `/fastdetect` switch.

    C. Modify the `Boot.ini` file to include the `/report` switch.

    D. Modify the `Boot.ini` file to include the `/error` switch.

15. You are the network administrator for your company. You are attempting to install Windows XP Professional on a computer in the lab, but the installation process keeps failing halfway through. During the process of troubleshooting the Windows XP Professional installation, you decide to verify all of the actions that were taken during the Setup phase. Where can you find a log file that will tell you this information?

    A. `\Windows\verify.log`

    B. `\Logfiles\verify.log`

    C. `\Windows\setupact.log`

    D. `\Logfiles\setup.log`

Answers to Review Questions

1. B. The processor must be a Pentium 233MHz or better. You can verify the current requirements for Windows XP Professional at `http://www.microsoft.com/windowsxp/pro/evaluation/sysreqs.asp`.

2. D. You must have a minimum of a 2GB drive with at least 1.5GB of free space to install Windows XP Professional. You can verify the current requirements for Windows XP Professional at `http://www.microsoft.com/windowsxp/pro/evaluation/sysreqs.asp`.

3. D. The Hardware Compatibility List (HCL) shows the computers and components that have been tested to work with Windows XP Professional. When selecting hardware, you should always check for HCL compatibility.

4. C. If you have a disk device that does not have a driver on the Windows XP Professional CD, and the manufacturer provides a Windows XP Professional driver, you can load the alternate driver during the Setup phase of Windows XP Professional installation.

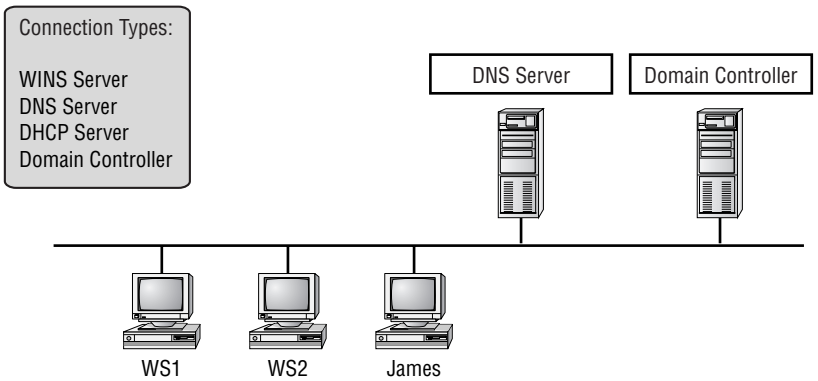
5. D. The minimum right needed to add computers to the domain is the granting of the "Add workstations to the domain" user right. Administrators and Server Operators can also add computers to the domain but grants the user additional rights.

6. D. You will need to obtain a disk driver from the manufacturer for Windows XP and then specify that you are using a manufacturer-supplied driver (by pressing the F6 key when prompted) during the text-mode portion of the installation process.

7. A. Windows File Protection is a new feature of Windows XP Professional that prevents core operating system files from being overwritten by application files.

8. C. You should have placed a mark on Computer C. Computers A, B, and D meet the minimum requirements of a Pentium 233MHz or higher processor, 64MB of memory, and at least 1.5GB of free disk space. Computer C does not.

9. You must have a domain controller and a DNS server running in your domain to add a computer to the domain. These services are also required for the Active Directory.



10. C. You should configure logical drive C: as FAT32 because Windows 98 will not read NTFS partitions. Logical drive D: should be configured as NTFS because you want to implement local security.

11. A. You should turn off disk compression before you dual-boot. Windows XP Professional does not support the disk compression that was used by Windows NT 4 Workstation. There is no way to configure the operating systems to recognize applications under both platforms.

12. B, C. Once the grace period for product activation expires, you will not be able to access the operating system if you log out of the computer or restart the computer.

13. B. You must copy the `\I386` folder and share the folder to install Windows XP Professional over a network. You should verify that all subfolders of the `\I386` folder are copied as well.

14. A. If the text-based portion of the installation completes successfully, but the GUI-based portion of the installation fails, the error may be caused by a device driver that is failing to load properly. If you suspect that this is causing the installation error, you can edit a file called `Boot.ini` to list the drivers that are being loaded during the boot process. The `Boot.ini` file is located in the root of the system partition. In order to cause the device drivers to be listed during the boot process, you need to edit the `Boot.ini` file to include the `/sos` switch.

15. C. You can find the log file that details Setup actions in *\Windows\setupact.log*. This log can be useful in identifying installation errors.