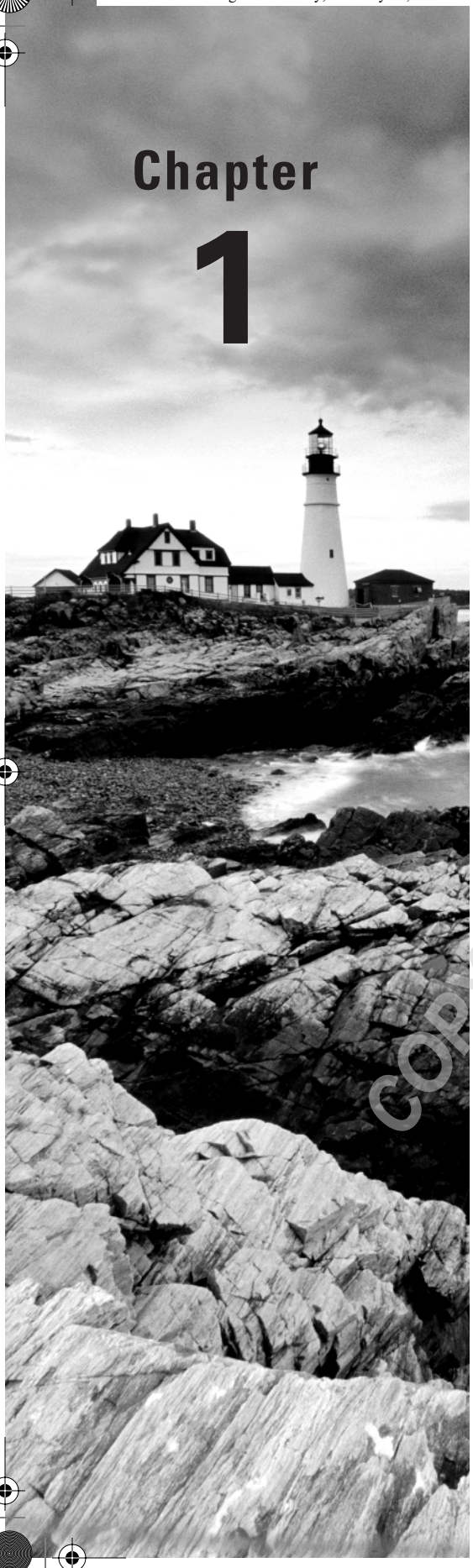


Chapter 1

Getting Started with Windows Vista

MICROSOFT EXAM OBJECTIVES COVERED IN THIS CHAPTER:

- ✓ **Installing and Upgrading Windows Vista**
  - Identify hardware requirements
  - Perform a clean installation
  - Upgrade to Windows Vista from previous versions of Windows
  - Upgrade from one edition of Windows Vista to another edition
  - Troubleshoot Windows Vista installation issues
  - Install and configure Windows Vista drivers
- ✓ **Maintaining and Optimizing Systems that Run Windows Vista**
  - Configure Windows Update

Preparing for an installation involves making sure that your hardware meets the minimum requirements and that your hardware is supported by Windows Vista. When you install Windows Vista, you should also decide whether you are upgrading or installing a clean copy on your computer. An upgrade attempts to preserve 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 disk-partitioning scheme.

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

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

When you install Windows Vista, 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 Vista.

Preparing to Install Windows Vista

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

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

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

Windows Vista Editions

Windows Vista is available in six editions:

- Windows Vista Starter
- Windows Vista Home Basic
- Windows Vista Home Premium
- Windows Vista Business
- Windows Vista Enterprise
- Windows Vista Ultimate

Multiple editions will be contained on the Windows Vista media, and you can unlock which one you want based on the product key.

All editions of Windows Vista are available for the Intel *x*86-based 32-bit processor architecture. All editions of Vista except Vista Starter are available for the 64-bit *x*64-based processor architecture; Vista Starter is available only for 32-bit architectures.

Windows Vista supports computers with one or two physical processors. Windows Vista Starter, Windows Vista Home Basic, and Windows Vista Home Premium will support one physical processor. Windows Vista Business, Windows Vista Enterprise, and Windows Vista Ultimate will support two physical processors. There is no limit to the number of processor cores these editions will support, so you will be able to use quad-core processor architectures with Windows Vista.

Windows Vista Starter will be available only to emerging markets, where software piracy typically runs rampant; Windows Vista Starter will not be available in the United States or Europe. It has the following limitations:

- Only three applications can be launched simultaneously.
- Incoming network connections are blocked.
- Memory is limited to 2GB.
- Only 32-bit processor architectures are available.
- Only a single Celeron, Pentium III, or equivalent processor is supported.

Windows Vista Home Basic is recommended for basic computer needs, such as accessing the Internet, checking e-mail, and basic document creation. Home Basic has the following features and limitations:

- Windows Aero (the new user interface) is not available.
- Only a single physical processor can be installed.
- Memory is limited to 8GB.

Windows Vista Home Premium includes digital entertainment features. Home Premium has the following features and limitations:

- All of the features found in Windows Vista Home Basic
- Windows Aero
- Integrated operating system search functionality
- Windows Media Center capabilities, which can be used to record and watch TV and HDTV, and to connect the PC with an Xbox 360
- Windows Tablet PC capabilities, which can be used to enable digital pen and touchscreen interfaces
- Integrated DVD authoring
- Extra games
- File system encryption
- Photo management application
- Limited to a single physical processor
- Memory limited to 16GB

Windows Vista Business is similar in functionality to Windows XP Professional. It contains the following features and limitations:

- Does not include Media Center capabilities
- Windows Aero
- Integrated operating system search functionality
- Windows Tablet PC capabilities, which can be used to enable digital pen and touchscreen interfaces
- IIS web server
- Offline file support
- Fax support
- Remote Desktop support
- Previous versions support
- Dual physical processor support
- Memory limited to 128GB

Windows Vista Enterprise includes the following features and limitations:

- All of the features found in Windows Vista Business
- Virtual PC Express
- BitLocker Drive Encryption
- Subsystem for Unix-based applications

- Inclusion of all user-interface languages available to Windows
- Only available via Microsoft Software Assurance or a Microsoft Enterprise Agreement

Windows Vista Ultimate has everything that Windows Vista has to offer, including the following:

- All of the features found in Windows Vista Home Premium
- All of the features found in Windows Vista Enterprise
- DVD ripping support
- Podcast creation support
- WinSAT, which is used to improve gaming performance

Two more editions, Windows Vista Home Basic N and Windows Vista Business N, will be available only in the European Union. These editions will ship without Windows Media Player.

You can use a Control Panel tool named Windows Anytime Upgrade to purchase a one-time upgrade license to a more advanced edition of Windows Vista. You can upgrade Home Basic to Home Premium or Ultimate, you can upgrade Home Premium to Ultimate, and you can upgrade Business to Ultimate. We will discuss Windows Anytime Upgrade in detail later in the chapter.

For the exercises and screen captures throughout this book, we will be using Windows Vista Ultimate.

Hardware Requirements

To install Windows Vista successfully, your system must meet certain hardware requirements. Table 1.1 lists the requirements for a Windows Vista Capable PC as well as the requirements for a Windows Vista Premium Ready PC.

TABLE 1.1 Hardware Requirements (Non-network Installation)

Component	Windows Vista Capable PC	Windows Vista Premium Ready PC
Processor	800MHz 32-bit (*x*86) or 64-bit (*x*64) processor; Intel Core/Pentium/ Celeron, AMD, Via, or compatible	1GHz 32-bit (x86) or 64-bit (x64) processor; Intel Core/Pentium/Celeron, AMD, Via, or compatible
Memory	512MB	1GB

TABLE 1.1 Hardware Requirements (Non-network Installation) *(continued)*

Component	Windows Vista Capable PC	Windows Vista Premium Ready PC
Disk space	20GB hard drive with 15GB of free disk space	40GB hard drive with 15GB free disk space
Graphics	DirectX 9 video card capable of SVGA at 800×600 resolution (WDDM Driver Support recommended)	DirectX 9 video card that supports a WDDM driver, Pixel Shader 2.0 in hardware, and 32 bits per pixel; graphics card memory dependent on desired resolution
Optical drive	Internal or external CD or DVD drive	Internal or external DVD drive

A Windows Vista Capable PC meets or exceeds the basic requirements to deliver the core functionality of Windows Vista. These requirements assume that you are installing only the operating system without any premium functionality. 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.

A Windows Vista Premium Ready PC is able to use premium Windows Vista features, such as Windows Aero. The requirements for the graphic card depend on the resolution at which you want to run. The required amount of memory is as follows:

- 64MB is required for a single monitor at a resolution of 1,310,720 pixels or less, which is equivalent to a 1280×1024 resolution.
- 128MB is required for a single monitor at a resolution of 2,304,000 pixels or less, which is equivalent to a 1920×1200 resolution.
- 256MB is required for a single monitor at a resolution larger than 2,304,000 pixels.

In addition, the graphics memory bandwidth must be at least 1,600MB per second, as assessed by the Windows Vista Upgrade Advisor.

If you choose to install Windows Vista from the network, you will also need a network connection and a server with the distribution files.

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 Vista was released.

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/technet/windowsvista/evaluate/hardware/vistarpc.mspx` for the most current information.

Real World Scenario

Deciding on Minimum Hardware Requirements

The company you work for has decided that everyone will have their own laptop running Windows Vista. 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. Additionally, an antivirus application will probably be used. Under these demands, an 800MHz Celeron processor and 512MB of RAM will make for a very slow-running machine. So for this usage, you can assume that the minimum baseline configuration would be a Pentium 4 processor with 1GB 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. At the time this book was published, 80GB drives were commonplace, 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 with hardware sufficient to support upcoming needs, to avoid costly upgrades in the near future.

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 *gigahertz (GHz)*. One GHz is one trillion cycles per second. Keep in mind that processor architecture must also be taken into account when considering processor speed. A processor with a more efficient pipeline will be faster than a processor with a less efficient pipeline at the same CPU speed.

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 Vista operating system.

The Windows Vista 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 Vista. Microsoft guarantees that the items on the list meet the requirements for Windows Vista 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 may not 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 `https://winqual.microsoft.com/HCL/Default.aspx`.

BIOS Compatibility

Before you install Windows Vista, 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. ACPI functionality is required for Windows Vista to function properly. Check the computer's vendor for the latest BIOS version information.

Driver Requirements

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

Clean Install or Upgrade?

Once you've determined that your hardware meets the minimum requirements, you need to decide whether you want to do an upgrade or a *clean install*.

An *upgrade* allows you to retain your existing operating system's applications, settings, and files. If you currently have a computer with Windows 2000 Professional or Windows XP Professional, you are eligible to purchase an upgrade copy of Windows Vista. However, you must perform a clean install with Windows 2000 Professional.

You can perform an upgrade if the following conditions are true:

- You are running Windows XP.
- You want to keep your existing applications and preferences.
- You want to preserve any local users and groups you've created.

You must perform a clean install if any of the following conditions are true:

- There is no operating system currently installed.
- You have an operating system installed that does not support an in-place upgrade to Windows Vista (such as DOS, Windows 9*x*, Windows NT, Windows Me, or Windows 2000 Professional).
- You want to start from scratch, without keeping any existing preferences.
- You want to be able to dual-boot between Windows Vista and your previous operating system.

Only certain versions of Windows will allow an in-place upgrade to Windows Vista. Generally, if the Windows Vista installation would cause your existing installation to lose functionality, a clean install must occur. Table 1.2 shows the operating systems that can be upgraded to each edition of Windows Vista.

TABLE 1.2 Windows Vista Upgrade Options

	Home Basic	Home Premium	Business	Ultimate
Windows 2000 Professional	No	No	No	No
Windows XP Home	Yes	Yes	Yes	Yes
Windows XP Media Center	No	Yes	No	Yes
Windows XP Professional	No	No	Yes	Yes
Windows XP Tablet PC	No	No	Yes	Yes
Windows XP Professional *x*64	No	No	No	No

Other operating systems cannot be upgraded, but they may be able to coexist with Windows Vista in a dual-boot or multi-boot environment. These operating systems require that you purchase a full version of Windows Vista.

Dual-booting and multibooting are 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 Vista operating system into a new folder and uses its default settings the first time the operating system is loaded. After a clean install, you will need to reinstall all your applications and reset your preferences.

If you are performing a clean install to the same partition as an existing version of Windows, the contents of the existing `Users` (or `Documents and Settings`), `Program Files`, and `Windows` directories will be placed in a directory named `Windows.old`, and the old operating system will no longer be available.

Upgrade Considerations

Almost all Windows 2000 Professional and Windows XP applications should run with Windows Vista. However, the following are a few exceptions to this statement:

- Applications that use file-system filters, such as antivirus software, may not be compatible.
- Custom power-management tools are not supported.
- Custom Plug and Play solutions are not supported.
- Before upgrading to Windows Vista, you should remove any virus scanners, network services, or other client software.

Hardware Compatibility Issues

You need to ensure that you have Windows Vista device drivers for your hardware. If you have a video driver without a Windows Vista–compatible driver, the Windows Vista upgrade will install the Standard VGA driver, which will display the video with an 800×600 resolution. Once you get the Windows Vista driver for your video, you can install it and adjust video properties accordingly.

Application Compatibility Issues

Not all applications that were written for earlier versions of Windows will work with Windows Vista. After the upgrade, if you have application problems, you can address the problems as follows:

- If the application is compatible with Windows Vista, reinstall the application after the upgrade is complete.
- If the application uses Dynamic Link Libraries (DLLs), and there are migration DLLs for the application, apply the migration DLLs.

- Use the Microsoft Application Compatibility Toolkit (ACT) version 5.0 or later to determine the compatibility of your current applications with Windows Vista. ACT will determine which applications are installed, identify any applications that may be affected by Windows updates, and identify any potential compatibility problems with User Account Control and Internet Explorer. Reports can be exported for detailed analysis.
- If applications were written for earlier versions of Windows but are incompatible with Windows Vista, use the Windows Vista Program Compatibility Wizard, from Start ➢ All Programs ➢ Accessories ➢ Program Compatibility Wizard. This utility is covered in greater detail in the "Dealing with Incompatible Software Applications" section later in this chapter.
- If the application is not compatible with Windows Vista, upgrade your application to a Windows Vista–compliant version.

Windows Vista Upgrade Advisor

To assist you in the upgrade process, the Windows Vista Setup program can check the compatibility of your system, devices, and installed applications and then provide the results to you. You can then analyze these results to determine whether your hardware or software applications will port properly from Windows 2000 Professional or Windows XP to Windows Vista.

You can access the Windows Vista Upgrade Advisor web page by launching `setup.exe` on the Windows Vista media and clicking Check Compatibility Online. Alternatively, you download it from `http://www.microsoft.com/windowsvista/getready/upgradeadvisor/default.mspx`.

When installing the Windows Vista Upgrade Advisor, you may be prompted to download and install Microsoft Core XML Services (MSXML) 6.0 or later and .NET Framework version 2.0 or later.

After your computer is scanned, the Upgrade Advisor will determine whether any incompatibilities exist between your computer and Home Basic, Home Premium, Business, and Ultimate. It will also tell you which edition of Windows Vista seems to be best for your computer. However, you are by no means limited to upgrading to the recommended edition.

Compatibility reports are broken up into three categories:

- The System Requirements report will alert you to any shortcomings your system might have when running certain editions of Windows Vista. For example, my lab computer should have no problems accessing all the features of Windows Vista Business, but it won't be able to access all of the features of Windows Vista Home Premium or Windows Vista Ultimate because it doesn't have a TV tuner card.
- The Drivers report will alert you to any potential Windows Vista driver issues. Each device in your system will be listed in this section either as a device to be reviewed or as a device that should automatically work after Windows Vista is installed. As shown in Figure 1.1, we will need a driver for the network card after Windows Vista is installed.
- The Programs report will alert you to any potential application compatibility issues.

FIGURE 1.1 Windows Vista Upgrade Advisor

You can also save or print a task list that tells you the most compatible Windows Vista edition, your current system configuration, and the steps you need to take before and after installing Windows Vista.

An Upgrade Checklist

Once you have made the decision to upgrade, you should develop a plan of attack. The following upgrade checklist (valid for upgrading from Windows 2000 Professional and Windows XP) will help you plan and implement a successful upgrade strategy.

- Verify that your computer meets the minimum hardware requirements for Windows Vista.
- Be sure that your hardware is on the HCL.
- Make sure you have the Windows Vista drivers for the hardware. You can verify this with the hardware manufacturer.
- Run the Windows Vista Upgrade Advisor tool from the Microsoft website, which also includes documentation on using the utility, to audit the current configuration and status

of your computer. It will generate a report of any known hardware or software compatibility issues based on your configuration. You should resolve any reported issues before you upgrade to Windows Vista.

- Make sure that your BIOS is current. Windows Vista requires that your computer has the most current BIOS. If it does not, the computer may not be able to use advanced power-management features or device-configuration features. In addition, your computer may cease to function during or after the upgrade. Use caution when performing BIOS updates, as installing the incorrect BIOS can cause your computer to fail to boot.
- Take an inventory of your current configuration. This inventory should include documentation of your current network configuration, the applications that are installed, the hardware items and their configuration, the services that are running, and any profile and policy settings.
- Back up your data and configuration files. Before you make any major changes to your computer's configuration, you should back up your data and configuration files and then verify that you can successfully restore your backup. Chances are if you have a valid backup, you won't have any problems. Chances are if you *don't* have a valid backup, you will have problems.
- Delete any unnecessary files or applications, and clean up any program groups or program items you don't use. Theoretically, you want to delete all the junk on your computer before you upgrade. Think of this as the spring-cleaning step.
- Verify that there are no existing problems with your drive prior to the upgrade. Perform a disk scan, a current virus scan, and defragmentation. These, too, are spring-cleaning chores. This step just prepares your drive for the upgrade.
- Perform the upgrade. In this step, you upgrade from your previous operating system to Windows Vista.
- Verify your configuration. After Windows Vista has been installed, use the inventory to compare and test each element that was previously inventoried prior to the upgrade to verify that the upgrade was successful.

Handling an Upgrade Failure

Before you upgrade, you should have a contingency plan in place. Your plan should assume the worst-case scenario. For example, what happens if you upgrade and the computer doesn't work anymore? It is possible that, after checking your upgrade list and verifying that everything should work, your attempt at the actual upgrade may not work. If this happens, you may want to return your computer to the original, working configuration.

Indeed, we have made these plans, created our backups (two, just in case), verified our backups, and then had a failed upgrade anyway—only to discover that we had no clue where to find our original operating system CD. A day later, with the missing CD located, we were able to get up and running again. Our problem was an older BIOS, and the manufacturer of our computer did not have an updated BIOS.

Migrating Files and Settings

Rather than perform an in-place upgrade, you can choose to migrate your files and settings from an existing installation. In this case, you can use the User State Migration Tool or Windows Easy Transfer.

Windows Easy Transfer

Windows Vista ships with a utility called Windows Easy Transfer that is used to transfer files and settings from one computer to another. As shown in Figure 1.2, you can transfer some or all of the following files and settings from a computer running Windows XP with Service Pack 2 or Windows Vista:

- User accounts
- Folders and files
- Program settings
- Internet settings
- Favorites
- E-mail messages, contacts, and settings

You can use Windows Easy Transfer to migrate files from a computer running Windows 2000 with Service Pack 4, but you cannot transfer system and program settings.

FIGURE 1.2 Windows Easy Transfer

You can launch Windows Easy Transfer by inserting the Windows Vista media in your optical drive and selecting Transfer Files and Settings from Another Computer. Alternatively, you can push the wizard files to a CD or DVD, removable media, or network drive from any Windows Vista computer, and then you can launch `migwiz.exe` from the source computer.

You can launch Windows Easy Transfer from Windows Vista by selecting Start ➢ All Programs ➢ Accessories ➢ System Tools ➢ Windows Easy Transfer.

You can transfer the migrated files and settings using the following methods:

- Easy Transfer Cable, which is a USB cable that connects to the source and destination computers
- CD or DVD
- Removable media, such as a USB flash drive or a removable hard drive
- Network share
- Direct network connection

You can password-protect the migrated files and settings if you use CDs, DVDs, removable media, or a network share.

User State Migration Tool

Windows Vista ships with a utility called the *User State Migration Tool (USMT)* that is used by administrators to migrate large numbers of users over automated deployments. The USMT is similar to Windows Easy Transfer with the following differences:

- The USMT is more configurable and can use XML files to specify which files and settings are transferred.
- The USMT is scriptable and uses command-line utilities to save and restore user files and settings.

Overview of the USMT

The USMT consists of two executable files: `ScanState.exe` and `LoadState.exe`. In addition, there are three premade migration rule information files: `Migapp.xml`, `Migsys.xml`, and `Miguser.xml`. Finally, you can create a `Config.xml` file that specifies what should and should not be migrated. The purpose of these files is as follows:

- `ScanState.exe` collects user data and settings information based on the configuration of the `Migapp.xml`, `Migsys.xml`, and `Miguser.xml` files and stores it as an image file named `USMT3.mig`.
- `LoadState.exe` then deposits the information that is collected in `USMT3.mig` to a computer running a fresh copy of Windows Vista.

The information that is migrated includes the following:

- From each user:
  - My Documents
  - My Video

  - My Music
  - My Pictures
  - Desktop files
  - Start Menu
  - Quick Launch toolbar
  - Internet Explorer Favorites
- From the All Users profile:
  - Shared Documents
  - Shared Video
  - Shared Music
  - Shared Desktop files
  - Shared Pictures
  - Shared Start Menu
  - Shared Internet Explorer Favorites
- Files with certain file types, including `.doc`, `.dot`, `.rtf`, `.txt`, `.wps`, `.wri`, `.xls`, `.csv`, `.wks`, `.ppt`, `.pps`, `.pot`, `.pst`, and more
- Access Control Lists (ACLs)
- Settings for many applications, including certain versions of the following:
  - Adobe Acrobat Reader
  - Apple QuickTime Player
  - MusicMatch Jukebox Basic
  - Microsoft Windows Media Player
  - MSN Messenger
  - Microsoft Works
  - Microsoft Office
  - Quicken
  - Real Player Basic
  - WordPerfect Office
  - Yahoo Messenger
- If running Windows XP:
  - Internet Explorer settings
  - Outlook Express mail files
  - RAS settings
  - Dial-up connections

- Phone and modem options
- Accessibility settings
- Classic Desktop
- Command Prompt settings
- Wallpaper selection
- Screen saver selection
- Fonts
- Folder options
- Taskbar settings
- ODBC settings
- Mouse and keyboard settings
- Multimedia settings
- Regional settings

- If running Windows Vista:
  - Internet Explorer settings
  - Outlook Express mail files
  - RAS settings
  - Dial-up connections
  - Accessibility settings
  - Folder options
  - Taskbar settings
  - Mouse and keyboard settings
  - Multimedia settings
  - Regional settings
  - Network printers
  - Bluetooth settings
  - Media Player settings
  - FAX settings
  - IIS settings
  - Scheduled tasks
  - Terminal Server settings
  - Universal Description, Discovery, and Integration (UDDI) settings
  - Windows Logon Settings

USMT will not migrate hardware settings, drivers, passwords, application binaries, synchronization files, `.dll` files, or other executables.

Using the USMT

In its simplest form, you use the USMT in the following manner:

1. Run `ScanState.exe` on the source computer. `ScanState.exe` will copy the user state data to an intermediate store. The intermediate store (for example, a CD-RW) must be large enough to accommodate the data that will be transferred. `Scanstate.exe` would commonly be executed as a shortcut sent to users that they would deploy in the evening or through a scheduled script.
2. Install a fresh copy of Windows Vista on the target computer.
3. Run `LoadState.exe` on the target computer. `LoadState.exe` will access the intermediate store to restore the user settings.

When you use the USMT, you can create a script that can be run manually or can be used as an automated process at a scheduled time. Table 3.1 defines the options for the `Scanstate.exe` and `Loadstate.exe` commands.

TABLE 1.3 Options for *Scanstate.exe* and *Loadstate.exe*

Option	Description
`/config`	Specifies the `Config.xml` file that should be used
`/encrypt`	Encrypts the store (`Scanstate.exe` only)
`/decrypt`	Decrypts the store (`Loadstate.exe` only)
`/nocompress`	Disables data compression
`/genconfig`	Generates a `Config.xml` file but does not create a store
`/targetxp`	Optimizes ScanState for use with Windows XP
`/all`	Migrates all users
`/ue`	User exclude: excludes the specified user
`/ui`	User include: includes the specified user
`/uel`	Excludes user based on last login time
`/v` *verboselevel*	Used to identify what verbosity level will be associated with the log file on a scale of 013, with 0 being the least verbose

Installation Options

You will need to make many choices during the Windows Vista installation process. The following are some of the options that you will configure:

- How your hard disk space will be partitioned
- Windows Update and security settings
- 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.

Disk Space Partitioning

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 200GB hard drive, you might partition it into two logical drives: a C: drive, which might be 50GB, and a D: drive, which might be 150GB.

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.

Microsoft recommends that you allocate at least 20GB of disk space for Windows Vista. 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 Vista, files will be stored in two locations: the system partition and the boot partition. The system partition and the boot partition can be the same partition.

The *system partition* contains the files needed to boot the Windows Vista 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. The *active partition* is the system partition that is used to start your computer. The C: drive is usually the active partition.

The *boot partition* contains the files that are the Windows Vista operating system files. By default, the Windows operating system files are located in a folder named `Windows`.

Special Disk Configurations

Windows Vista supports several disk configurations. Options include simple, spanned, and striped volumes. These configuration options are covered in detail in Chapter 7, "Configuring 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 Norton's Partition Magic. You might want to create only the first partition where Windows Vista will be installed. You can then use the Disk Management utility in Windows Vista to create any other partitions you need. The Windows Vista Disk Management utility is covered in Chapter 7.

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).

Language and Locale

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

Locale settings 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).

Installing Windows Vista

You can install Windows Vista either from the bootable DVD or through a network installation using files that have been copied to a network share point. You can also launch the `setup.exe` file from within Windows 2000, Windows XP, or Windows Vista to upgrade your operating system.

The Windows Vista DVD is bootable. To start the installation, you simply restart your computer and boot to the DVD. The installation process will begin automatically.

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

If you are installing Windows Vista 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 Vista distribution files copied to a shared folder. The following steps are used to install Windows Vista over the network:

1. Boot the target computer.
2. Attach to the distribution server and access the share that has the files copied to it.
3. Launch `setup.exe`.
4. Complete the Windows Vista installation using either the clean install method or the upgrade method. These methods are discussed in detail in the following sections.

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

Performing a Clean Install of Windows Vista

This section describes how to perform a clean install of Windows Vista. As explained in the previous section, you can run the installation from the optical media or over a network. The only difference in the installation procedure is your starting point: from your optical drive or from a network share. The steps in the following sections assume you are using the Windows Vista DVD to install Windows Vista.

There are three main steps in the Windows Vista installation process:

1. Collecting Information
2. Installing Windows
3. Set Up Windows

We cover each of these steps 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 Vista 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.

Clean Install: Collecting Information

When you boot to the Windows Vista installation media, the Setup program will automatically start the Windows Vista installation. In the Collecting Information stage of the installation, you will select your language and locale settings, enter your product key, accept the license terms, select the type of installation, and specify the install location.

The following steps are involved in a clean installation of Windows Vista (click Next after completing each step):

1. Insert the Windows Vista DVD in your computer. Restart the computer, and boot to the DVD drive. Alternatively, you can run `setup.exe` from the Windows Vista media or a network share. However, for this walk-through, we will explain how to boot to the Windows Vista DVD.
2. The Setup program will start automatically and begin loading files. At this point, the computer is running the Windows Preinstallation Environment (WinPE) operating system.

You can access the command line from within WinPE by pressing Shift+F10.

3. The Install Windows dialog box will appear. You can select the language to install, the time and currency format, and the keyboard or input method.
4. The Install Now button will appear in the center of the screen. In addition, two options will be available in the lower-left corner: What to Know Before Installing Windows, and Repair Your Computer.
5. You will be prompted to type your 25-character product key for activation. You can find the product key on a sticker on your computer or on the installation disc folder. Unlike previous versions of Windows, the product key is one long text box rather than five separate text boxes. As you type the 25-character product key, the dashes will be added for you automatically. There is also a check box to automatically activate Windows when online.
6. The Microsoft Windows Vista license terms will appear. The installation will not allow you to click Next until you have accepted the license terms.
7. You will be prompted to select the type of installation you want to perform. A Custom installation will install a clean copy of Windows Vista and will also allow you to select the installation location or make changes to disks and partitions. This option is also required for multiboot installations.

The option for performing an Upgrade installation will be unavailable to you. To upgrade, you must start the installation from within Windows.

8. You will be prompted for the location where you want to install Windows Vista. This will list all existing disks and partitions on your computer. To add, delete, format, or extend a partition, select the Drive Options (advanced) option.
9. If an existing installation of Windows is located on the partition you selected, a dialog box will appear warning you that files and folders from your existing installation will be moved to a directory named `Windows.old`.

If Windows Vista does not recognize your hard drive controller or hard drive because it uses a driver that is not on the Windows Vista DVD, you will need to select the Load Driver option and load the driver from a floppy disk, CD, DVD, or USB flash drive.

Clean Install: Installing Windows

During the Installing Windows phase, all the files required by the Setup program will be copied to the hard drive. During the process, the computer automatically reboots during the installation process. This process will take several minutes and will proceed automatically without user intervention.

The following steps are displayed on the screen along with a completion percentage for each:

1. Copying Windows Files
2. Expanding Files
3. Installing Features
4. Installing Updates
5. Completing Installation

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

Clean Install: Set Up Windows

Once your computer finishes copying files and reboots, you will be in the Set Up Windows phase of the installation. In this final stage, you will configure a user account, specify a computer name, select update and feature settings, and configure the time and date.

The following steps are involved (click Next after completing each step):

1. You will be prompted to choose a username, password, password hint, and picture.
2. You will be prompted to type a computer name that will uniquely identify your computer on the network. The installation program suggests a name, but you can change it to another name. Your computer name can be up to 15 characters. You can also select your desktop background.

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.

3. Settings related to Windows Update and security will appear. You can use the recommended settings, install important updates for Windows only, or have the computer ask you later. If you select the option to use the recommended settings, the following settings will be configured:
   - Windows Update will be enabled and updates will automatically install.
   - Windows Defender will be installed and any collected information will be sent to Microsoft.
   - Errors will automatically be sent to Microsoft.
   - The latest drivers for your hardware will automatically be downloaded from Windows Update.
   - The Internet Explorer Phishing Filter will be enabled.
4. Options related to the date, time, and time zone will appear.
5. The installation program will thank you, and a Start button will appear in the lower-right corner.
6. Windows will check your computer's performance.
7. The username that was configured will be displayed and you will be prompted for a password. This is the standard Windows Vista login screen.

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!

Setting Up Your Computer for Hands-On Exercises

Before beginning Exercise 1.1, verify that your computer meets the requirements for installing Windows Vista as listed in Table 1.1. Exercise 1.1 assumes 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 20GB drive that is configured with the minimum space requirements and partitions. Other exercises in this book assume that your computer is configured as follows:

- 20GB C: partition with the NTFS file system

- Optional D: partition with the NTFS file system
- 1GB or more of unallocated space

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

You are probably wondering about the free space requirement. You need free space because you will create a new volume in Chapter 7. If no free space exists, you won't be able to complete that exercise.

As noted earlier in this chapter, you can set up your partitions by using the Windows Vista installation utility, 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. Then, copy FDISK from the `Windows` folder on the Windows 98 computer to the boot disk.

In Exercise 1.1, you will be installing a clean install of Windows Vista on your system.

You can use Windows Easy Transfer to migrate your user account information, files and folders, program settings, Internet settings, Favorites, and e-mail configuration settings. See the section in this chapter covering Windows Easy Transfer.

If you want to perform an upgrade install of Windows Vista, follow the steps in Exercise 1.2.

EXERCISE 1.1

Performing a Clean Install of Windows Vista

In this exercise, you will perform a clean install of Windows Vista. This exercise assumes that you have access to Windows Vista Ultimate; other editions may vary slightly.

Collecting Information

1. Boot your computer with the Windows Vista media inserted into your optical drive.
2. After the computer loads the required files, the Install Windows dialog box will appear. Ensure these settings are correct and click the Next button.
3. In the next dialog box, click the Install Now button to continue.
4. Type your 25-digit product key, and click Next to continue.
5. Click the check box I Accept the License Terms, and click Next to continue.

EXERCISE 1.1 *(continued)*

6. Click Custom to install a clean copy of Windows.
7. Select the partition where you want to install Windows Vista, and click Next. If you do not have an existing partition that is adequate for Windows Vista installation, select Drive Options (advanced) and create, delete, or extend partitions as necessary. It is not necessary to format the partition before continuing.
8. If an existing version of Windows is located on the partition you selected, a dialog box will appear warning you that files and folders from your existing installation will be moved to `Windows.old`. Click OK to continue.

Installing Windows

1. The Installing Windows phase of installation will begin. No intervention is required during this phase.

Set Up Windows

1. Enter a username and a password. You will be required to enter the password twice. If you want, you can also enter a password hint in case you forget your password. Select a picture for your user account, and click Next to continue.
2. Enter a computer name, select a desktop background, and click Next to continue.
3. Settings related to Windows Update and security will appear. For this walk-through, click Use Recommended Settings.
4. Settings related to the date and time will appear. Ensure that the date, time, and time zone settings are correct, and click Next to continue.
5. The Thank You dialog box will appear. Click the Start button to continue. Windows will check your computer's performance while informational icons appear.

Windows Vista is now installed, and you will be prompted to log in with your new username and password.

Performing an Upgrade to Windows Vista

This section describes how to perform an upgrade to Windows Vista. Similar to a clean install, you can run the installation from the optical media or over a network. The only difference in the installation procedure is your starting point: from your optical drive or from a network share. The steps in the following sections assume that you are using the Windows Vista DVD to install Windows Vista.

There are three main steps in the Windows Vista upgrade process:

1. Collecting Information

2. Upgrading Windows
3. Set Up Windows

We will cover each of these steps 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 upgrade Windows Vista until you reach Exercise 1.2. In that exercise, you'll set up your computer to complete the rest of the exercises in this book.

Upgrade: Collecting Information

The Collecting Information stage of the upgrade is slightly different from a clean installation. The following steps are involved with an upgrade installation (click Next after completing each step):

1. Insert the Windows Vista DVD in your computer, and run `setup.exe` from the Windows Vista media. Alternatively, you can run `setup.exe` from a network share.

If you boot the computer to the Windows Vista DVD, you will only have the option to perform a clean install.

2. You will be presented with the Windows Vista installation dialog box, as shown in Figure 1.3. From here, you can choose to install Windows Vista, check the compatibility of your system online by using the Windows Vista Upgrade Advisor, read about the Windows installation process, and transfer files and settings from another computer by using Windows Easy Transfer.

We discussed Windows Vista Upgrade Advisor and Windows Easy Transfer earlier in this chapter.

3. You will be prompted to update your current operating system. If you choose not to update, the installation might fail. You can also choose to send information to Microsoft during this process.
4. You will be prompted to type your 25-character product key for activation. You can find the product key on a sticker on your computer or on the installation disc folder. Unlike previous versions of Windows, the product key is one long text box rather than five separate text boxes. As you type the 25-character product key, the dashes will be added for you automatically. There is also a check box to automatically activate Windows when online.
5. The Microsoft Windows Vista license terms will appear. The installation will not allow you to click Next until you have accepted the license terms.

FIGURE 1.3 Windows Vista installation screen

6. You will be prompted to select the type of installation you want to perform. An Upgrade installation can be performed only if you have an operating system that can be upgraded to Windows Vista. In order to upgrade, you must start the installation from within Windows.

The Custom option is required for multiboot installations.

7. You will see a compatibility report that will alert you of any applications or drivers that are not supported in Windows Vista.

You can right-click and select Print from the context menu if you want to print the compatibility report.

Upgrade: Upgrading Windows

During the Upgrading Windows phase, all the files required by the Setup program will be copied to the hard drive. During the process, the computer automatically reboots during the installation process. This process will take several minutes and will proceed automatically without user intervention.

The following steps appear on the screen along with a completion percentage for each:

1. Copying Windows Files
2. Gathering Files
3. Expanding Files
4. Installing Features and Updates
5. Completing Upgrade

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

Upgrade: Set Up Windows

Once your computer finishes copying files and reboots, you will be in the Set Up Windows phase of the installation. The following steps are involved with an upgrade installation (click Next after completing each step):

1. You can select the country, the time and currency format, and the keyboard layout.
2. Settings related to Windows Update and security will appear. You can use the recommended settings, install important updates for Windows only, or have the computer ask you later. If you select the option to use the recommended settings, the following settings will be configured:
   - Windows Update will be enabled and updates will automatically install.
   - Windows Defender will be installed and any collected information will be sent to Microsoft.
   - Errors will automatically be sent to Microsoft.
   - The latest drivers for your hardware will automatically be downloaded from Windows Update.
   - The Internet Explorer Phishing Filter will be enabled.
3. Options related to the date, time, and time zone will appear.
4. Windows will check your computer's performance.
5. Installation will complete and you will be allowed to log in to Windows Vista.

In Exercise 1.2, you will be performing an upgrade install of Windows Vista on your system.

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!

You can use Windows Easy Transfer to migrate your user account information, files and folders, program settings, Internet settings, Favorites, and e-mail configuration settings. See the section in this chapter covering Windows Easy Transfer.

If you want to perform a clean install of Windows Vista, follow the steps in Exercise 1.1.

EXERCISE 1.2

Performing an Upgrade Install of Windows Vista

In this exercise, you will perform an upgrade install of Windows Vista. This exercise assumes that you are upgrading Windows XP Professional to Windows Vista Ultimate; other editions may vary slightly.

Collecting Information

1. Insert the Windows Vista media into your optical drive. If Autoplay is enabled, you will see the Windows Vista installation dialog box. If not, launch `setup.exe` from the Windows Vista media.
2. The Windows Vista installation dialog box will appear. Click Install Now to continue.
3. In the next dialog box, select the option to upgrade your computer if your computer is not up-to-date.
4. Type your 25-digit product key and click Next to continue.
5. Click the check box I Accept the License Terms, and click Next to continue.
6. Click Upgrade to upgrade your version of Windows.
7. Read the compatibility report, and click Next.

Upgrading Windows

1. The Upgrading Windows phase of installation will begin. No intervention is required during this phase.

Set Up Windows

1. Ensure the correct country, time and currency, and keyboard layout settings are selected, and then click Next to continue.

EXERCISE 1.2 *(continued)*

2. Settings related to Windows Update and security will appear. For this walk-through, click Use Recommended Settings.
3. Settings related to the date and time will appear. Ensure that the date, time, and time zone settings are correct, and click Next to continue.
4. Windows will check your computer's performance while informational icons appear.

Windows Vista is now installed, and you will be prompted to log in with your existing username and password.

Using Windows Anytime Upgrade

You can also upgrade Windows Vista Home Basic, Home Premium or Business to a more advanced edition of Vista through Windows Anytime Upgrade. You can upgrade the following editions:

- Home Basic users can upgrade to Home Premium or Ultimate.
- Home Premium users can upgrade to Ultimate.
- Business users can upgrade to Ultimate.

To access Windows Anytime Upgrade, select Start ➢ Control Panel ➢ System and Maintenance ➢ Windows Anytime Upgrade. After selecting the upgrade you want to perform, you can purchase a license from a Microsoft partner, download and install the license, and install the additional features from the Windows Vista media.

Troubleshooting Installation Problems

The Windows Vista 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 next sections, you will learn more about the following:

- Identifying and resolving common installation problems
- Installing nonsupported 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 1.3 lists some possible installation errors you might encounter.

TABLE 1.4 Common Installation Problems

Problem	Description
Media errors	Media errors are caused by defective or damaged CDs or DVDs. To check the disc, put it into another computer and see if you can read it. Also check your disc for scratches or dirt—it may just need to be cleaned.
Insufficient disk space	Windows Vista needs at least 15GB 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 Vista (512MB). 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 Vista (800MHz). 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 listed on the HCL, Windows Vista may not recognize the hardware or the device may not work properly.
Hardware with no driver support	Windows Vista will not recognize hardware without driver support.
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 product key	Without a valid product key, the installation will not go past the Product Key screen. Make sure that you have not typed in an incorrect key (check your Windows Vista installation folder or your computer case for this key).
Failure to access TCP/IP network resources	If you install Windows Vista 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 autoconfigured IP address but be unable to access network resources through TCP/IP if the other network clients are using DHCP addresses.

Installing Nonsupported Hard Drives

If your computer is using a hard disk that does not have a driver included on the Windows Vista media, 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 Vista and then specify the driver location by selecting the Load Driver option during partition selection.

Dealing with Incompatible Software Applications

You may have legacy applications that will not run under Windows Vista. Microsoft provides a Program Compatibility Wizard to help address this issue. You should not use this wizard if the application makes kernel-level calls or if the application is Windows Vista–compatible. To use the wizard, perform the following steps:

1. Select Start ➢ All Programs ➢ Accessories ➢ Program Compatibility Wizard.
2. You will see a caution statement that this wizard should not be used for older virus detection, backup, or system programs. Click the Next button.
3. Locate the program that requires the compatibility settings. Choose from the options that appear on your screen, and click the Next button:
   - Select from a list of programs (Windows Vista will detect all currently installed programs and provide you with a list).
   - Use the program in the CD-ROM drive.
   - Locate the program manually.
4. The next option allows you to select the compatibility for the application. Choose from the options that appear on your screen and click the Next button:
   - Microsoft Windows 95
   - Microsoft Windows NT 4.0 (Service Pack 5)
   - Microsoft Windows 98/Windows Me
   - Microsoft Windows 2000
   - Microsoft Windows XP (Service Pack 2)
   - Do not apply a compatibility mode
5. The next option allows you to configure the display settings for the program. Choose from the options that appear on your screen, and click the Next button:
   - 256 Colors
   - 640×480 Screen Resolution
   - Disable Visual Themes
   - Disable Desktop Composition
   - Disable Display Scaling on High DPI Settings

6. You will be asked whether the program requires administrator privileges. If required, click the check box to run the program as an administrator, and then click the Next button.
7. You will then be asked to confirm your selections. After you click Next, a test will be performed to verify that the settings work with your application.
8. You will be asked whether the program worked correctly. You can choose from the following answers:
   - Yes, Use These Settings
   - No, Try Different Settings
   - No, But I Am Finished Trying Settings
9. Microsoft will want you to send them information about your compatibility settings. Choose whether you want to send the information to Microsoft, and then select Next. Click Finish to exit the wizard.

The most common applications that require you to change video settings are older educational software programs and games.

Troubleshooting with Installation Log Files

When you install Windows Vista, 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 1.3, you will view the Windows Vista setup logs to determine whether there were any problems with your Windows Vista installation.

EXERCISE 1.3

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 ➢ Computer.
2. Double-click Local Disk (C:).

EXERCISE 1.3 *(continued)*

3. Double-click Windows.
4. In the `Windows` folder, double-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 the directory window.

Supporting Multiple-Boot Options

You may want to install Windows Vista but still be able to run other operating systems. *Dual-booting* or *multibooting* 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 Vista installation, you didn't upgrade from that operating system, and you installed Windows Vista into a different partition.

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 multiboot with Windows 2000 Professional, Windows XP Professional, and Windows Vista.

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 Vista. If you want to use Windows Vista 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.
- Windows Vista must be installed on a separate partition in order to dual-boot with other operating systems.
- Install older operating systems before installing newer operating systems. If you want to support dual-booting with DOS and Windows Vista, DOS must be installed first. If you install Windows Vista first, you cannot install DOS without ruining your Windows Vista configuration. This requirement also applies to Windows 9*x*, Windows 2000, and Windows XP.
- Never, ever upgrade to Windows Vista dynamic disks. Dynamic disks are seen only by Windows 2000, Windows XP Professional, Windows Server 2003, and Windows Vista, and are not recognized by any other operating system, including Windows NT and Windows XP Home Edition.
- Only Windows NT 4.0 (with Service Pack 4), Windows 2000, Windows XP, and Windows Server 2003 can recognize NTFS file systems. Other Windows operating systems

use FAT16 or FAT32 and cannot recognize NTFS. All Windows-based operating systems can recognize FAT partitions.

- If you will dual-boot with Windows 9*x*, you must turn off disk compression or Windows Vista will not be able to read the drive properly.
- Do not install Windows Vista on a compressed volume unless the volume was compressed using NTFS compression.
- Files that are encrypted with Windows Vista will not be available to Windows NT 4.

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.

The Boot Configuration Data (BCD) store contains boot information parameters that were previously found in `boot.ini` in older versions of Windows. To edit the boot options in the BCD store, use the BCDEdit utility, which can be launched only from a command prompt. To open a command prompt window, you can do the following:

1. Launch `\Windows\system32\cmd.exe`.
2. Open the Run command by pressing Windows+R and then entering **cmd**.
3. Open Run from the Start menu, if the Start menu is configured to display it.

After the command prompt windows is open, type **bcdedit** to launch BCDEdit.

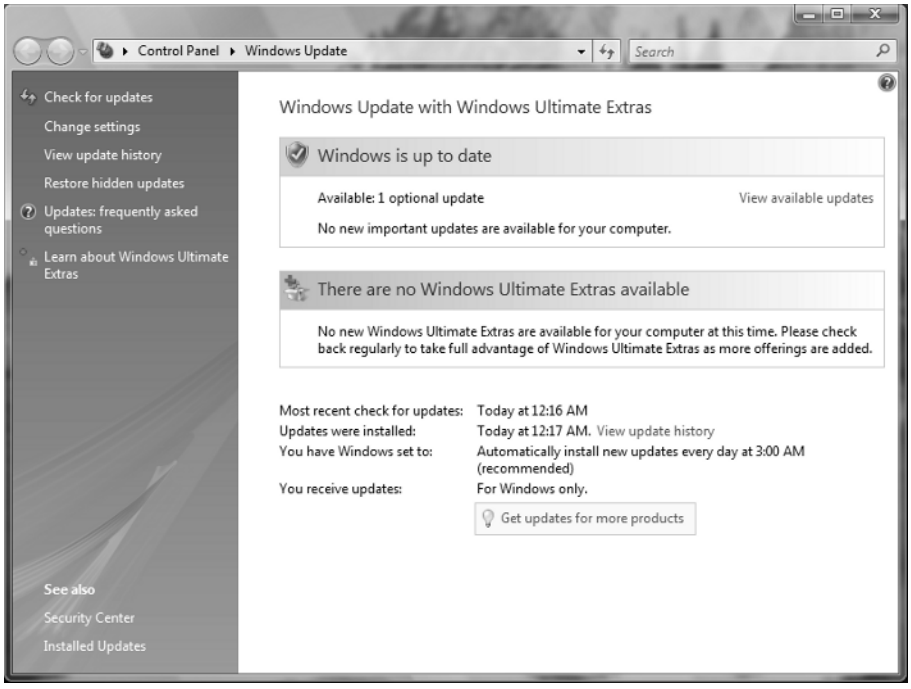
Using Windows Activation

Windows Activation is Microsoft's way of reducing software piracy. Unless you have a corporate license for Windows Vista, you will need to perform postinstallation activation. This can be done online or through a telephone call. Windows Vista will attempt automatic activation three days after you log on to Windows Vista for the first time. 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 create new files or save changes to existing files until Windows Vista is activated. When the grace period runs out, the Windows Activation Wizard will automatically start; it will walk you through the activation process.

Using Windows Update

Windows Update, as shown in Figure 1.4, is a utility that connects to Microsoft's website and checks to ensure that you have the most up-to-date version of Microsoft products.

FIGURE 1.4 Windows Update



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

- Critical updates
- Service packs
- Drivers

Follow these steps to configure Windows Update:

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

   The options you can access from Windows Update include the following:
   - Check for Updates
   - Change Settings
   - View Update History
   - Restore Hidden Updates
   - Updates: Frequently Asked Questions

- Learn About Windows Ultimate Extras
- Security Center
- Installed Updates
- Get Updates for More Products

We will cover all these options in detail in the following sections.

Check for Updates

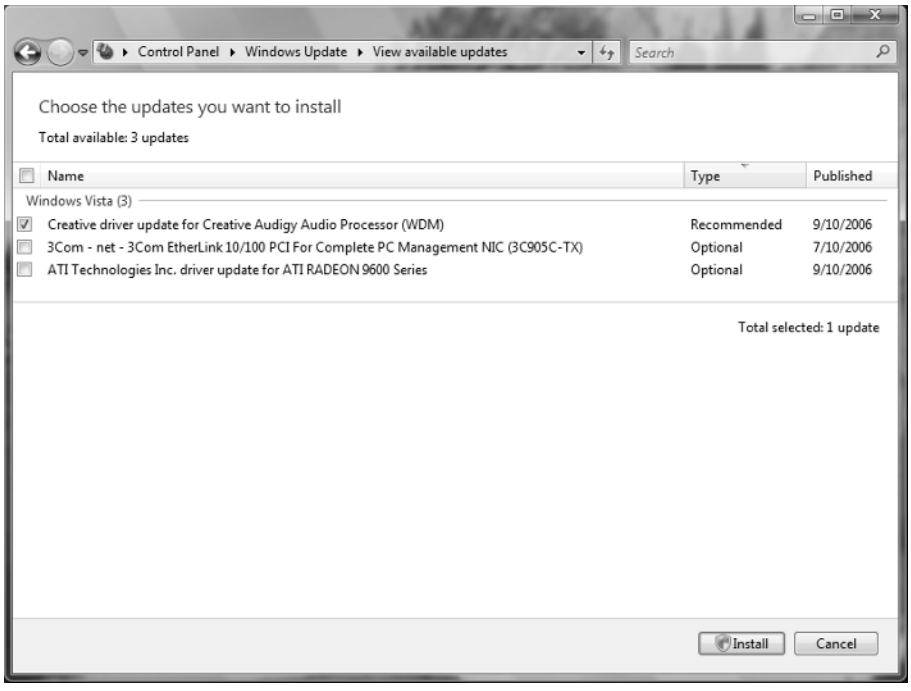
When you click Check for Updates, Windows Update will retrieve a list of available updates from the Internet. You can then click View Available Updates to see what updates are available. Updates are marked as Important, Recommended, or Optional. Figure 1.5 shows a sample list of updates.

Change Settings

Clicking Change Settings allows you to customize how Windows can install updates. You can configure the following options:

- The frequency and time that updates will be downloaded to your computer

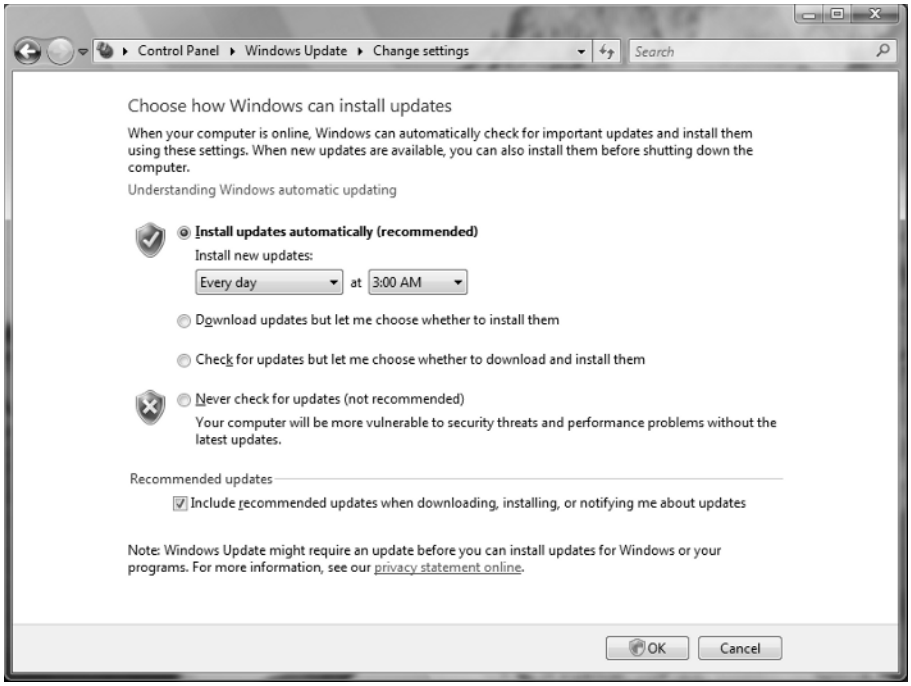
FIGURE 1.5 Windows Update sample list of updates



- 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
- Disable checking for updates

Figure 1.6 shows the settings that can be configured for Windows Update.

FIGURE 1.6 Windows Update, Change Settings

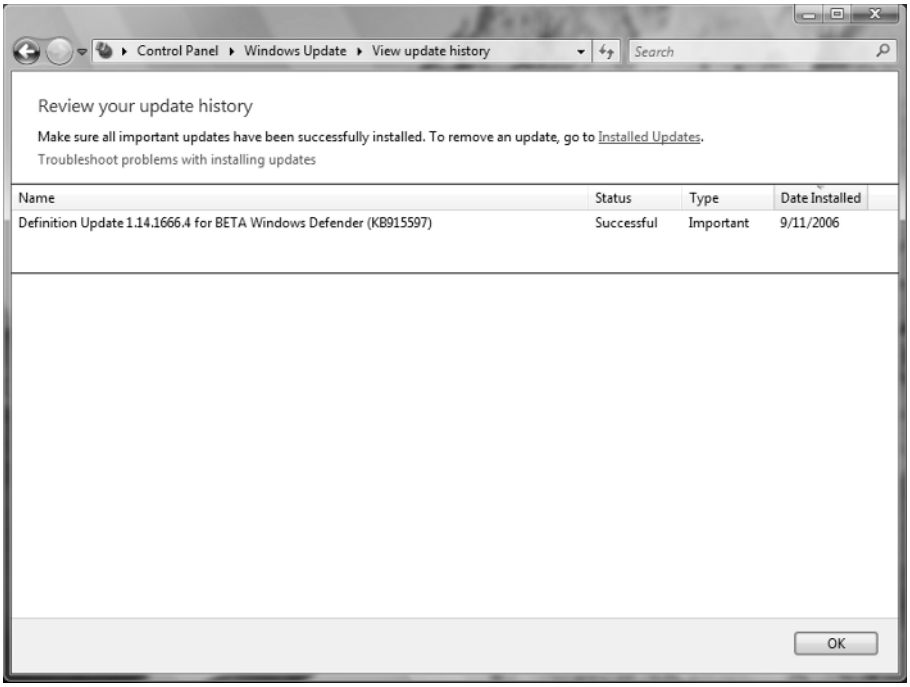


View Update History

View Update History, as shown in Figure 1.7, 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)
- Type (Important, Recommended, or Optional)
- Date Installed

FIGURE 1.7 Windows Update, View Update History



Restore Hidden Updates

With Restore Hidden Updates you can 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.

Update: Frequently Asked Questions

With Update: Frequently Asked Questions, you can launch Help and Support to answer frequently asked questions about Windows Update.

Learn About Windows Ultimate Extras

Learn About Windows Ultimate Extras, as you might imagine, appears only in Windows Vista Ultimate, and it discusses those features that are available only with Windows Vista Ultimate.

Security Center

Clicking Security Center opens the Windows Security Center, which allows you to see the status of your firewall, automatic update settings, malware protection, and other security settings.

We will discuss Windows Security Center in more detail in Chapter 6, "Configuring Security."

Installed Updates

Installed Updates allows you to see the updates that are installed and to uninstall or change them if necessary. The Installed Updates feature is a part of the Programs and Features applet in Control Panel, which allows you to uninstall, change, and repair programs.

Get Updates for More Products

Clicking this link will direct you to a website to download Microsoft Update, which can be used not only to update Windows Vista but also to update other Microsoft products, such as Microsoft Office.

Installing Windows Service Packs

Service packs are updates to the Windows Vista 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.

Prior to installing a service pack, you should perform the following steps:

1. Back up your computer.
2. Check your computer to ensure that it is not running any malware or other unwanted software.
3. Check with your computer manufacturer to see whether there are any special instructions for your computer prior to installing the service pack.

You can download service packs from `Microsoft.com`, you can receive service packs via Windows Update, or you can pay for a copy of the service pack to be mailed to you on disc. Before you install a service pack, you should read the Release Note that is provided for each service pack on Microsoft's website.

Summary

In this chapter, you learned how to install and upgrade Windows Vista. 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, your username and password, and whether you want to enable Windows Update and other security features.

- The methods you can use for installation, which include using the distribution files on the Windows Vista media or using files that have been copied to a network share point.
- The client upgrade paths that can upgrade to Windows Vista and the minimum hardware requirements to perform an upgrade.
- Guidelines for when you should upgrade and when you should perform a clean install of Windows Vista.
- Upgrade considerations and potential problems with the Windows Vista upgrade process.
- An upgrade checklist with steps to help ensure a successful upgrade.
- How to migrate files and settings from one computer to another using Windows Easy Transfer and how to migrate user data from one computer to another using the User State Migration Tool.
- How to install Windows Vista.
- How to upgrade Windows Vista.
- How to troubleshoot and resolve common installation errors.
- 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 using nonsupported hard drives. You can view setup log files to check for problems that occurred during the installation.
- How to resolve application compatibility issues.
- Information about supporting dual-boot or multiboot environments. Dual-booting and multibooting allow you to boot to a choice of two or more operating systems.
- The Windows Update and Windows Activation features. Postinstallation updates are used to ensure that you have the latest files. Product activation is used to complete the Windows Vista licensing process.

Exam Essentials

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

Understand the different methods that can be used for Windows Vista installation. Be able to specify the steps and setup involved in installing Windows Vista through options such as optical media and network installation.

Understand how to migrate users from one computer to another computer. Know how to use Windows Easy Transfer and the User State Migration Tool.

Understand the reasons why a Windows Vista installation might fail. You should be able to list common reasons for failure of a Windows Vista 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 Vista 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.

Be able to list the requirements for a Windows Vista upgrade. Know the requirements for upgrading a computer to Windows Vista, including which operating systems can be upgraded, what the hardware requirements are, and the steps for completing an upgrade.

Know all the possible issues that may arise during a Windows Vista upgrade. Be aware of possible upgrade problems, including application compatibility problems. Know how to use the Program Compatibility Wizard.

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 Vista operating system. He has decided to install Windows Vista 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 Vista?

   A. A Celeron or Pentium III with a 600MHz or better processor

   B. A Celeron or Pentium III with a 800MHz or better processor

   C. A Celeron or Pentium III with a 1GHz or better processor

   D. A Celeron or Pentium 4 with a 1.6GHz or better processor

2. Martina has Windows 2000 Professional 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 Vista–compatible driver. Martina is planning on replacing the sound card at some point, and she has purchased an upgrade to Windows Vista. She decides to install Windows Vista on her desktop computer in a dual-boot configuration. She has an extra 30GB partition that can be used. What is the minimum free disk space required to install Windows Vista on the extra partition?

   A. 1GB

   B. 5GB

   C. 15GB

   D. 20GB

3. Dionne has 12 identical computers in the training room. She wants to upgrade them to Windows Vista, but before she does, she wants to ensure that the hardware is compatible. What can be used to determine whether the computers' hardware components are supported by Windows Vista? (Choose all that apply.)

   A. Windows Vista Upgrade Advisor

   B. Windows Vista Help and Support

   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. You put the Windows Vista DVD in the DVD drive and start the installation. During the partition configuration phase, the disk is not displayed. You do not see any partitions available, nor do you see any unallocated space. Which of the following actions should you take?

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

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

   C. Click Load Driver and provide the Windows Vista device drivers that are on the manufacturer's CD or downloaded from the manufacturer's website.

   D. Replace the SCSI drive with a drive that has a driver on the Windows Vista DVD.

5. Josh is the network administrator of a large company. The company's computers run a variety of Windows operating systems, including Windows 2000 Professional, Windows XP Professional, Windows XP Professional *x*64, and Windows XP Tablet PC. Josh wants to upgrade all of the computers to Windows Vista Business. Which of the following operating systems require a clean install? (Choose all that apply.)

   A. Windows 2000 Professional

   B. Windows XP Professional

   C. Windows XP Professional *x*64

   D. Windows XP Tablet PC

6. Vince runs a home-based business using two Windows XP Professional computers. The XP Professional computers are installed with many applications and configured so that he can use them efficiently. He asks you for advice regarding upgrading his operating systems to Windows Vista, but he wants to ensure that his applications and settings will remain intact. Which Windows Vista operating systems can Vince upgrade by performing an in-place upgrade? (Choose all that apply.)

   A. Windows Vista Home Basic

   B. Windows Vista Home Premium

   C. Windows Vista Business

   D. Windows Vista Ultimate

7. Adam performed a clean installation of Windows Vista on his Windows XP Professional computer. However, he chose to install Windows Vista in the same partition as his Windows XP Professional installation. He asks you if there's any way to retrieve his old files. In which directory would you tell Adam that his files for his old operating system are stored?

   A. `\Windows`

   B. `\Windows.old`

   C. `\Windows\old`

   D. `\WindowsXP`

8. Sean has four computers in the test lab. He wants to install Windows Vista. The configurations for each of his computers are listed in the exhibit below. Place a mark on the computer that meets all of the minimum requirements for Windows Vista.

	Computer A	Computer B	Computer C	Computer D
Processor	Celeron 2.4GHz	PIII 600MHz	P4 1.6 GHz	Athlon XP 2000+
Memory	512MB	512MB	256MB	768MB
Free Disk Space	15GB	60GB	20GB	10GB

9. You are a consultant for a medium-sized business. Your client wants to upgrade his computers to Windows Vista, but is not sure which edition he should purchase. He wants his computers to support dual physical processors, Windows Aero, Remote Desktop, and integrated hardware-based drive encryption. Which Windows Vista edition should he purchase?

A. Windows Vista Home Premium

B. Windows Vista Business

C. Windows Vista Enterprise

D. Windows Vista Ultimate

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 Vista. However, you also want to run Windows Vista to take advantage of the Windows Vista 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 Vista 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 98 and Windows Vista. Which of the following statements reflects proper configuration for these computers?

A. You should turn off disk compression on the Windows 98 configuration.

B. You should enable dynamic disks on the Windows Vista 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 Vista 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 Vista 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 Vista, you did not perform the postinstallation activation because you did not have an Internet connection and have not had time to call the Microsoft Clearinghouse to properly complete postinstallation activation. After the grace period for postinstallation activation expires, which of the following actions will you not be able to perform until you activate the product?

A. Reading files

B. Writing files

C. Logging on to the computer

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

13. Timothy is the network administrator for a small company. While installing Windows Vista on a Windows XP computer, he finds that he is unable to select Upgrade from the list of installation options. What steps should Timothy perform to enable the Upgrade option?

A. Boot using the Windows Vista DVD and allow the installation program to run.

B. Boot using a floppy disk and run `setup.exe` from the Windows Vista DVD.

C. Boot using a floppy disk and run `setup.exe` from a network share.

D. Run `setup.exe` on the Windows Vista DVD from within the Windows XP operating system.

14. Eammon is the network administrator for a small company. He recently created a dual-boot configuration with Windows XP Professional and Windows Vista. Eammon needs the computer to boot to Windows XP Professional by default. What should Eammon use to modify the default operating system? (Choose all that apply.)

A. `Boot.ini`

B. `Bcdedit.exe`

C. BIOS

D. Select Control Panel ➢ Advanced System Settings ➢ Settings from the Windows Vista Control Panel

15. You are the network administrator for your company. You are attempting to install Windows Vista on a computer in the lab, but the installation process keeps failing halfway through. During the process of troubleshooting the Windows Vista 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`

16. Christine has a computer that is capable of booting to Windows 2000 Professional, Windows XP Home Edition, Windows Server 2003, and Windows Vista. Each operating system is contained on its own partition. After converting the Windows Vista partition to a dynamic disk, which of Christine's operating systems will not be able to see the Windows Vista partition?

A. Windows 2000 Professional

B. Windows XP Home Edition

C. Windows 2003 Server

D. None of these operating systems will be able to see the Windows Vista partition.

17. Robert is the IT director for a healthcare company. He wants to create a multiboot computer that can be used for testing clinical applications on a variety of operating systems, including DOS, Windows 98, Windows 2000 Professional, Windows XP Professional, and Windows Vista. In what way should he install the operating systems?

A. The operating systems should be installed from oldest to newest, and all operating systems should be placed in separate partitions.

B. The operating systems should be installed from oldest to newest, and all operating systems should be placed in the same partition.

C. The operating systems should be installed from newest to oldest, and all operating systems should be placed in separate partitions.

D. The operating systems should be installed from newest to oldest, and all operating systems should be placed in the same partition.

18. You are the network administrator for your company. You are installing Windows Vista on a computer that has many partitions already configured. When you reach the partition selection phase, you do not see an available partition that you want to use. Which of the following actions are you not able to perform after selecting Drive Options (advanced)?

A. Adding a partition

B. Contracting a partition

C. Deleting a partition

D. Extending a partition

19. Gary is a junior administrator at your company. He is attempting to configure his new Windows Vista computer to automatically download critical updates, service packs, and drivers, but he wants to be able to choose whether they are installed. He also wants to configure his computer to automatically download updates for Microsoft Office. How can Gary access these settings from the Control Panel? (Choose all that apply.)

A. From Windows Classic View, Gary can select Windows Update.

B. From Windows Category View, Gary can select Security Center ➢ Windows Update.

C. From Windows Classic View, Gary can select Automatic Updates.

D. From Windows Category View, Gary can select Security Center ➢ Automatic Updates.

20. Hayden is the network administrator of a toy distribution center in the United States. After receiving his Windows Vista DVD in the mail, he is surprised to discover that the DVD only contains four Windows Vista editions. Which Windows Vista editions are probably not included on his DVD? (Choose all that apply.)

A. Windows Vista Starter

B. Windows Vista Home Basic

C. Windows Vista Ultimate

D. Windows Vista Enterprise

Answers to Review Questions

1. B. The processor must be a Celeron or Pentium III 800MHz or better. A 1GHz processor is required to be considered a Windows Vista Premium Ready PC, but James is only required to have an 800MHz processor to install Windows Vista. You can verify the current requirements for Windows Vista at `http://www.microsoft.com/technet/windowsvista/evaluate/hardware/vistarpc.mspx`.

2. C. You must have a minimum of a 20GB drive with at least 15GB of free space to install Windows Vista. You can verify the current requirements for Windows Vista at `http://www.microsoft.com/technet/windowsvista/evaluate/hardware/vistarpc.mspx`.

3. A, D. The Windows Vista Upgrade Advisor is used to ensure that a computer's hardware components are supported by Windows Vista. The Hardware Compatibility List (HCL) can also be used to ensure compatibility with Windows Vista. The Hardware Compatibility List (HCL) shows the computers and components that have been tested to work with Windows Vista. When selecting hardware, you should always check for HCL compatibility. You can access the Windows Vista HCL at `https://winqual.microsoft.com/HCL/Default.aspx`.

4. C. If you have a disk device that does not have a driver on the Windows Vista DVD, and the manufacturer provides a Windows Vista driver, you can load the alternate driver by clicking Load Driver and browsing to the location where the driver is stored. You can load the driver from CD, DVD, or USB removable media.

5. A, C. Windows 2000 Professional and Windows XP Professional *x64* cannot be upgraded to Windows Vista Business by performing an in-place upgrade; a clean install must be performed. The 32-bit version of Windows XP Professional and Windows XP Tablet PC can be upgraded to Windows Vista Business by performing an in-place upgrade.

6. C, D. Vince can perform an in-place upgrade to either Windows Vista Business or Windows Vista Ultimate. A clean install, which does not preserve applications or settings, would have to be performed in order to install Windows Vista Home Basic or Windows Vista Home Premium. Generally, if the Windows Vista installation would cause your existing installation to lose functionality, a clean install must occur.

7. B. Adam's files are stored in the `\Windows.old` directory. The files and folders that are moved to the `\Windows.old` directory include those contained within `Documents and Settings`, `Program Files`, and `Windows`.

8. A. You should have placed a mark on Computer A, which meets the minimum requirements of an 800MHz processor, 512MB of memory, and 15GB of free disk space. Computer B does not meet the minimum processor requirement. Computer C does not meet the minimum memory requirement. Computer D does not meet the free disk space requirement.

9. C. Your client should purchase Windows Vista Enterprise, which contains support for dual physical processors, Windows Aero, Remote Desktop, and BitLocker Drive Encryption. Windows Vista Business includes support for each of those features except the integrated hardware-based drive encryption offered by BitLocker. Windows Vista Home Premium lacks support for drive encryption, Remote Desktop, and dual physical processors. Windows Vista Ultimate contains each of the required features, but at a cost greater than that of Windows Vista Enterprise.

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 NTFS file system security. Windows Vista cannot be installed on a FAT partition.

11. A. You should turn off disk compression before you dual-boot. Windows Vista does not support the disk compression that was used by Windows 98. There is no way to configure the operating systems to recognize applications under both platforms. Windows Vista cannot be installed on a FAT partition, and Windows 98 cannot be installed on an NTFS partition. Windows 98 cannot read dynamic disks.

12. B. Once the grace period for product activation expires, you will not be able to write any changes to files or create new files until you activate the product.

13. D. To enable the Upgrade option, Timothy must run the `setup.exe` program from within Windows 2000, Windows XP, or Windows Vista. The `setup.exe` program can be run from the DVD or network share. It is not necessary to use a floppy disk to boot a computer before installing Windows Vista because the Windows Vista media is bootable.

14. B, D. Eammon should use the `Bcdedit.exe` utility or select Control Panel ➢ Advanced System Settings ➢ Settings from the Windows Vista Control Panel to modify the default operating system.

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.

16. B. Windows XP Home Edition will not be able to see the Windows Vista partition after it is converted to a dynamic disk. Windows NT 4.0 and Windows 9*x* operating systems are also not able to see Windows Vista dynamic disks.

17. A. Robert should install the operating systems from oldest to newest, and all operating systems should be placed in separate partitions. In fact, Windows Vista requires that it be installed in a separate partition in a dual- or multiple-boot configuration. Besides, if Robert is creating an environment for testing applications on each operating system, he will probably want the operating systems to be completely separate from one another.

18. B. You cannot contract a partition from the partition selection screen after selecting Drive Options (advanced). However, you are able to add, delete, extend, or format a partition.

19. A, B. From Windows Classic View, Gary can select Windows Update, or from Windows Category View, Gary can select Security Center ➢ Windows Update. The remaining two choices are used for configuring Automatic Updates on a Windows XP computer.

20. A, D. Windows Vista Starter and Windows Vista Enterprise are probably not included on this DVD. The standard Windows Vista DVD contains the Home Basic, Home Premium, Business, and Ultimate editions. The Windows Vista Starter edition is only available in developing countries; it is not available in the United States or the European Union. The Windows Vista Enterprise edition is only available through Microsoft Software Assurance or a Microsoft Enterprise Agreement.