



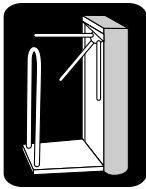
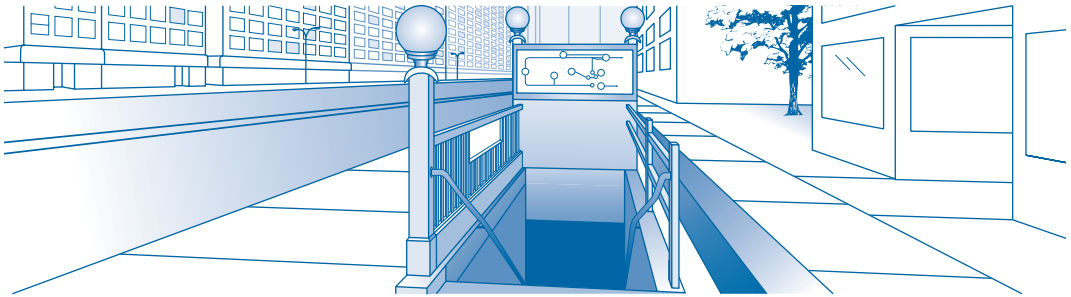
CHAPTER

1

Installing Windows Vista

STATIONS ALONG THE WAY

- Taking stock of your system's prerequisites
- Identifying the edition of Vista that best suits your needs
- Selecting the correct installation option
- Upgrading from a previous version of Windows
- Installing Vista on a new PC
- Booting your computer using two different versions of Windows



Enter the Station

Questions

1. What are the hardware requirements needed to install Vista?
2. What kind of guidance is there for installing a new operating system?
3. How do you get your machine ready to install Vista?
4. What are the five different versions of Windows Vista?
5. How do you choose the right version of Vista?
6. What if I have an older PC?
7. How much RAM do you need to run Vista?
8. Do you need a special video card to use Vista?



The Express Line

If Windows Vista has already been installed on your computer, move on to Chapter 2.



indows Vista might well be the personal computer's first gigabyte application. Unlike other consumer-based applications that still arrive on a CD distribution (capacity about 650 megabytes [MB]), Vista arrives on a DVD (capacity about 4.7 gigabytes [GB], which is approximately seven times that of a CD). The reason Vista now arrives on a DVD instead of a CD is twofold. First, Vista's installation DVD includes all five versions of Microsoft's new operating system. The second, more significant, reason is that Vista's new visually enhanced applications require much more space to run and install than previous editions of Windows. In other words, Vista's new graphics features and computing capabilities take up more memory space, or RAM, to run properly.

The downside to this increase in system requirements is that older computers might not have enough free space on their hard drives to run Vista. If they do happen to contain enough memory to run Microsoft's new operating system, they might not have enough space left to run other third-party applications, or they might experience slower processing times when running Vista and additional third-party applications. Vista might also require that the drivers for some peripherals — including Web cameras and Internet network adapters that worked with earlier versions of Windows — be updated, or they might no longer be compatible with this version of Windows, in which case you must acquire (or download) new versions of these tools.

Vista requires an order of magnitude more of everything to run properly — RAM, CPU speed, graphics adapter, even network adapter. However, later I discuss the Vista Upgrade Advisor, which will tell you immediately whether your existing system can run Vista and if so at what level.

However, Microsoft is banking that the overall user experience of Windows Vista provides you with enough positive benefits to either purchase a new computer with Vista preinstalled or upgrade your current computer to include Vista. The new layout and functionality of Windows Vista is designed to let you find, organize, and view computer files in an easier, more intuitive, manner. This additional functionality is meant to streamline your overall computing experience. Vista's improved security, digital entertainment features, and productivity tools are all incentives meant to persuade you to invest your time (and money) into using Vista.

Windows Vista is by far the most complex and the most multifunctional version of Windows that Microsoft has ever produced. It needs lots of breathing room as well as a whole lot more sheer graphical and computing power in terms of CPU speed, main memory, and graphics adapter memory. However, after you are exposed to the bright and flashy colors of Vista, previous versions of Windows pale in comparison.




Evaluating Your System Requirements

Windows Vista has certain requirements that your computer must meet or exceed if the program is to run well — or even run at all. Microsoft has created two basic classifications for computers that are capable of running Windows Vista — Vista Capable PCs and Vista Premium PCs. The first grouping, Vista Capable, describes computers that offer only the bare minimum requirements for running Microsoft's new operating system. If you own or purchase a Vista Capable PC, you can run Vista successfully, but you might not get the full benefit of this new visually enhanced version of Windows. Vista Premium PCs, on the other hand, provide you with all the advanced Vista features. Which type of PC you use depends on the activities you are going to perform with your computer.

Choosing between a Vista Capable or Vista Premium PC

No matter what computer you decide on, Windows recommends a minimum size hard drive of 40GB with at least 15GB of free space, not only to accommodate the some 3,000 files that Vista installs but also to give the program breathing room as it writes temporary files and carries out housekeeping duties and other functions.

According to Microsoft, a Windows Vista Capable PC must have

-  A fast processor, with a minimum of 800 megahertz (MHz)
-  At least 512MB of system memory
-  A DirectX 9-capable graphics adapter

Because Vista comes on a DVD, even the lowest level must have a drive that can at least read DVDs if not burn them. As for HD capacity, as noted, 40GB is considered minimum (it will run on less), but no optimum size is recommended. Vista is all about networking, so an Internet connection is also *de rigueur*; although it will run without one.










Transfer

To determine whether your computer meets these basic Vista requirements, skip ahead to the “Checking upgrade compatibility” section of this chapter.

If your computer is configured according to these standards, it should bear the Windows Vista Capable logo. A Windows Vista Capable PC runs the core functions of Windows Vista but does not support its more advanced features, such as enhanced

graphics. To enjoy all the features of Windows Vista, your computer requires a much broader range of hardware and software capabilities. Bear in mind that the suggestions here are minimums. Exceeding these minimums, high as they might be, yields even better PC performance.

The requirements for Vista Premium PCs are

-  A 1 gigahertz (GHz) 32-bit (x86) or 64-bit (x64) processor
-  1GB of system memory
-  Support for DirectX 9 graphics with a WDDM (Windows Vista Display Driver), at least 128MB of graphics memory, Pixel Shader 2.0, and 32 bits per pixel
-  At least 40GB of hard drive capacity with 15GB of free space
-  DVD-ROM drive (or a CD-ROM drive capable of reading DVDs)
-  Audio capability
-  Internet access

If your computer is configured as a Vista Premium PC, it should bear the Windows Vista Premium logo.



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To determine whether your computer meets the Premium Vista requirements, skip ahead to the “Checking upgrade compatibility” section of this chapter.



Information Kiosk

Now that Windows Vista ships on a DVD, your computer must have at the very least a CD drive that can read DVDs, if not write (or burn) them.

Because downloading a 3GB file over a dialup telephone connection is not practical, you should only attempt to download Vista from Microsoft's Web site if you have a high-speed Internet connection, such as DSL or cable modem.

Checking your processor speed

Having a fast processor enables your PC to perform requested tasks quickly and efficiently. If you do not have a powerful processor, your computer can be sluggish during moments of activity. This is especially true with Vista.



Step into the Real World

I recommend that your PC's system requirements actually be doubled in order to get the best performance from Windows Vista. In other words, a 2 GHz processor, 2GB RAM, 512MB graphics memory, and an 80GB hard drive would ideally provide better performance results than a standard Vista Premium PC. And given today's prices for processors and RAM, not to mention hard drives, the cost to comfortably exceed the minimums is not astronomical. If possible, upgrading these system requirements is well worth the expense because your PC will run much quicker and more smoothly than more basic versions.

Vista's highly visual nature requires a much quicker processor than most other operating systems. If your processor is not up to Vista's standards, you are going to experience prolonged moments of waiting while your computer loads images from selected menus and screens.

If you already have an earlier version of Windows installed on your computer and you want to determine the speed of your processor, you can find this data by accessing your PC's Control Panel:

- 1. Click the Start button.**

The Start Menu appears onscreen.

- 2. Select Control Panel.**

The Control Panel dialog box appears.

- 3. Select System and Maintenance.**

The System and Maintenance dialog box replaces the Control Panel screen.

- 4. Choose System.**

The System window appears, as shown in Figure 1-1. This window reveals the name and speed of your processor as well as its RAM limitations.



Information Kiosk

32-bit or 64-bit? Windows Vista ships in two data-path versions: 32-bit (x86) and 64-bit (x64). The numbers in parentheses refer to the CPU chip architecture. The x86 chip goes all the way back to 1978 when the original processor chips ran some of the earliest PCs. Subsequent chips up to the Pentium used similar architectures and were designated 80386, 80486, and so on — thus, the x86. (The Pentium was initially dubbed the 80586.) The x64 simply means 64 bits.

The 32- or 64-bits refers to the size of data chunks, or words, a computer can handle without splitting them into smaller chunks. Thus, all other factors being equal, a 64-bit machine may be faster than a 32-bit one, but not

necessarily. The largest benefit flowing from 64-bit architecture is the chip's ability to address virtually unlimited system memory. A 32-bit machine is limited to 4GB (2^{32}) of RAM. At one point, that was more than enough memory. However, today's high-performance machines running enormous applications and databases are bumping against that ceiling. The 64-bit machine raises the ceiling to 2^{64} bytes, or about four billion times as much RAM as the 32-bit chips.

Average users, even high-intensity business users, have little need for the 64-bit version unless their data processing needs are such that they must have more than 4GB of system memory. In any case, much of the software and drivers that could benefit from the larger data chunk size have not yet been written.

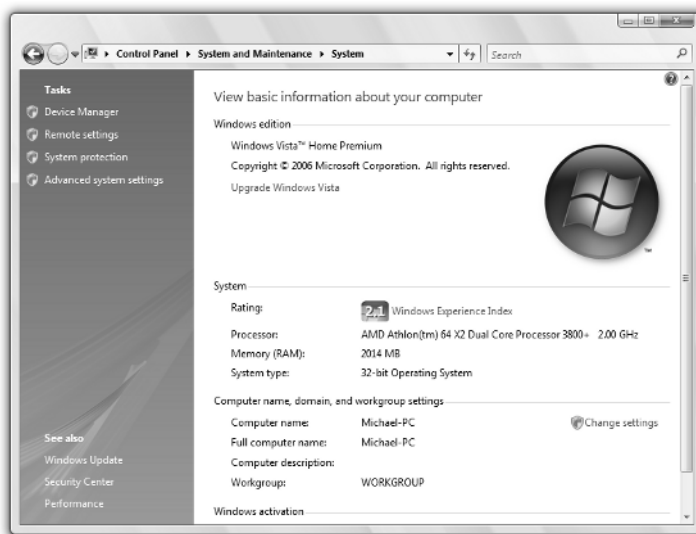






Figure 1-1: The Windows Vista System window.

Determining how much RAM is enough

The amount of random access memory (*RAM*) your Windows Vista PC has installed significantly affects the real-world performance of your computer. Therefore, if you plan to use your PC for *multitasking* (perhaps you want to listen to music online, check your e-mail, and view family photos all at the same time), you should consider adding more RAM to your computer. Installing additional RAM is also a good idea if you plan to access large documents or files for work-related projects. Memory-hungry applications, such as image editing software like Photoshop or AutoCAD, also slow your computer to a crawl when running on a PC with insufficient RAM. Therefore, you need to take the types of applications you plan to use on a regular basis into consideration when determining how much RAM to include on your Vista PC.

The following list outlines the suggested RAM requirements for basic PC usage:

-  **256MB:** This is the bare minimum. With less than this amount, Windows Vista does not run. This is an acceptable amount of RAM if you plan to use your PC only for word processing, e-mail, or playing the occasional video clip — and even then, performance can suffer.
-  **512MB:** A real-world bottom level for most general users. Power users, however, might not find this level of RAM sufficient for their purposes. For example, opening programs such as Photoshop, using e-mail, and running simultaneous downloads can cause your machine to run slowly at this level of RAM.
-  **1GB RAM:** The recommended minimum level of RAM if you do a lot of multitasking and want to prevent application slowdowns or hang-ups.
-  **1.5GB RAM or more:** Allows you to open and actively use a variety of programs simultaneously, without causing much RAM-related slowdown in your computer's performance. This is the optimal setting for multitasking PC users.

These factors (your hardware and how much RAM you have installed) are essential for the healthy operation of Windows Vista. These considerations carry a much higher significance than for any of Windows' predecessors.

To determine how much RAM your PC has, follow these steps:

1. Click the Start button.

2. Select Control Panel.

The Control Panel dialog box appears.

3. Select Performance and Maintenance.

The Performance and Maintenance dialog box replaces the Control Panel screen.

4. Choose System.

The System Properties pop-up box appears.

5. Click the General tab.

The Computer section of this tab reveals your PC's RAM limitations as well as the name and speed of your processor.

Locating your video card information

Ensuring that you have a video card capable of handling whatever chores Vista throws its way is also essential to making Vista run properly. Video cards that do not meet the minimum system requirements (usually the older video cards) do not support the glassy transparency effects of Vista Aero, nor can you see the 3-D tab flipping or the pop-up images of your Windows Vista tabs if you do not have an appropriate video card. In other words, not having a powerful video card limits the graphics capabilities of Windows Vista.



Information Kiosk

Few people are aware that the transparency effects did exist in Windows XP. It could be enabled, but again, with preconditions similar to those of Windows Vista; a latest card with the latest XP driver and 512MB on-board RAM.

To determine whether your video card is capable of displaying all the advanced features of Windows Vista, follow these steps:

1. Click the Start button then select Control Panel from the menu that appears.

2. Select Appearance and Personalization.

The Appearance and Themes window replaces the Control Panel screen.

3. Choose Personalization.

The Personalize Appearance and Sounds window appears.

4. From this window, select the Display Settings option.

The Display Settings dialog box appears.

5. Select the Advanced Settings tab from the Display Settings menu.

This tab contains information about your screen resolution and color quality.

6. Click the Advanced button.

A window with several tabs all relating to your graphics card appears.

This box contains several different tabs, including Adapter, Monitor, Troubleshoot, and Color Management. The last tab is most likely your graphics tab. This is where you can find information concerning your PC's current video card.

7. Click the Properties button.

The Properties window for your card appears, as shown in Figure 1-2.

If your system does not include a Graphics or Video tab, it might be listed according to the name of the third-party application. If need be, search through all remaining tabs to locate your current video card information. It should be listed under the System Information section of the appropriate tab. Here you can locate the name of your processor as well.

If your video card is less than the suggested minimum requirements, you might have difficulty running the power-saving mode known as "Sleep." In addition, you might encounter problems with Windows Media Player when viewing your video files, and you might not be able to play video games enhanced with intense, dynamic effects. Fortunately, updating your video card driver can solve most of these problems. You could also choose to invest in a brand-new video card; they typically cost less than \$50 after rebates.

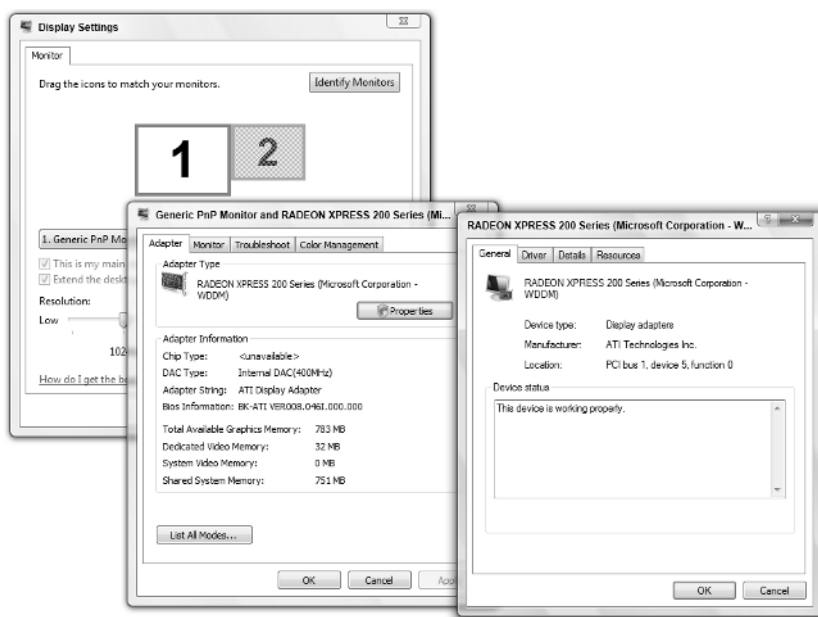


Figure 1-2: The Properties window for the graphics/video card installed on your machine.





Transfer

Refer to Chapter 8 for more information on how to update your existing video driver.

Choosing the right version of Vista

To create personalized Vista packages for several different types of customers, Microsoft offers five versions (or editions) of Vista. Each of these versions provides users with different features and capabilities:

 **Windows Vista Home Basic:** For those seeking better security and reliability, with basic computing needs — word processing and simple communications (e-mail), for example. The suggested retail price for the Home Basic version is \$199 (or \$99.95 if upgrading from a previous edition of Windows).

 **Windows Vista Home Premium:** Offers more versatility than the Basic edition, including entertainment functions (such as music and video, Web surfing, and some gaming) as well as basic financial accounting and communication capabilities. The suggested retail price for the Home Premium edition is \$239 (or \$159 if upgrading from a previous version of Windows).



Windows Vista Business: Aimed primarily toward small or home-based business users. Features enhanced security, a better user interface, and robust communications capabilities. The suggested retail price for a full version of this edition is \$299 (or \$199 if you are upgrading from a previous version).



Windows Vista Enterprise: For large global organizations with complex information technology (IT) requirements. Offers lower IT costs while providing several layers of security. The Vista Enterprise edition is available only to Microsoft Volume License customers.



Windows Vista Ultimate: Combines all the best business features and security enhancements as well as top-level home entertainment capabilities, including the most demanding gaming scenarios. The suggested retail price for the Ultimate edition of Vista is \$399 (or \$259 if you are upgrading from a previous edition of Microsoft's operation system).



Information Kiosk

For an Information Technology manager with multiple machines to upgrade, the Vista upgrade can save a lot of time and thus money compared to installing previous versions. Properly done, a Vista installation is a set-it-and-forget-it operation that does not require constant human attendance and intervention.

It doesn't matter whether you are running XP Home or XP Pro, or Windows 3.1 for that matter; the installation process for Vista just moves the older OS out of the way into a temporary directory and then proceeds as if the old one did not exist. As stated elsewhere, every Vista installation is essentially a clean one.

Which edition of Vista you choose depends upon which activities you plan to use most often. If you only need the most basic computing features, you might want to choose Windows Vista Basic. If you plan to engage in a number of advanced gaming or other home entertainment activities, the Ultimate edition might be the better way to go. Or, to achieve a level somewhere in between the Basic and Ultimate extremes, perhaps the Home Premium edition best suits your needs.



Information Kiosk

A sixth version of Windows Vista — Window Starter 2007 — is scheduled to be released in countries with emerging PC markets. Available in multilingual editions, it features limited features and less-restricted hardware requirements. As of the printing of this book, the Starter edition is not slated to be marketed in the U.S. For more information, go to www.microsoft.com and type "**Vista Starter 2007**" into the Search box.

Installing Vista

When Vista becomes readily available as a preinstalled operating system on new computers, you might not need to concern yourself with the installation process for this operating system. You might, instead, be able to buy a computer with the appropriate level of Vista preinstalled by an *OEM* (Original Equipment Manufacturer). However, even if you do initially buy a computer with one of the lower levels of Vista already installed, you might decide to upgrade both machine and software at some future time. And, if the unthinkable should happen and a lightning strike utterly corrupts your operating system, you might need to know how to reinstall Vista from scratch even though you bought it as an OEM installation.



Information Kiosk

The installation DVD includes an unlock key that allows you to install the desired version of Vista on your computer. If you later wish to upgrade your operating system to another edition of Vista, you can buy an upgrade key and install the additional features, provided that your PC supports the higher levels of the new edition.

Determining your installation options

You have several different options to choose from when installing Vista. For example, you can upgrade your current desktop or laptop to Vista from a previous version of Windows, or you can choose to purchase a brand-new PC with Vista capabilities. You also have the option to install Vista on your current PC while keeping a version of your previous Windows system on your computer. A brief description of each of these scenarios is listed here:



Installing Vista on a brand-new laptop or desktop that bears the Windows Vista Capable or Windows Vista Premium logo: (See the “Evaluating Your Systems Requirements” section earlier in this chapter to compare the Vista Capable and Premium requirements.) This computer most likely has an OEM version of Windows XP installed as well as other OEM programs such as Microsoft Office and Microsoft Word, among others. This computer comes with a stack of installation CDs corresponding to the operating system and other programs already installed. This computer probably does not have any data files on it yet.



Installing Vista on an existing computer running an earlier version of Windows: This machine is probably a couple of years old and has obsolete drivers as well as some peripherals that are not quite Vista-ready. It also has your cherished settings for your operating system and every installed application as well as all the data files you have generated over the last few years.



Installing Windows Vista on an existing machine while also keeping the current operating system: This scenario is a *dual boot* option. When two operating systems are on the same machine, you are prompted when you start the computer to choose one. Setting up a dual boot machine can be complex and requires great care. A wrong step during installation, and your machine might become unusable. The benefit of using a dual boot system is that it allows you to run the two systems side by side. This capability allows you to become familiar with Windows Vista before you fully commit to it. It also permits you to continue using software and hardware that does not run or runs poorly under Vista. As you upgrade both hardware and software, you can migrate to Vista so that eventually you are running only Vista and can then remove the earlier version of Windows.



Watch Your Step

If you encounter problems during the Vista installation on a brand-new machine, nothing is lost. You just start over and do it right the next time. If you make an error with your old machine, though, you are in danger of losing all or much of the data you have painfully assembled over the years. To safeguard your existing files from this risk, be sure to make backups of all your data — correspondence, spreadsheets, movies, music, photos, and so on, as well as backups of installation copies or disks for all your programs currently on the computer. (See the “Preparing your computer for installation” section later in this chapter for instructions on how to back up your existing files.)

Checking upgrade compatibility

Assuming that you already have a computer running an earlier version of Windows and that you wish to upgrade to Windows Vista, the first thing you need to know before you even buy your copy of Vista is whether your computer can support Microsoft’s new operating system. Fortunately, Microsoft has created a Web site dedicated to this purpose:

<http://www.microsoft.com/windowsvista/getready/upgradeadvisor/default.aspx>

This link leads you directly to the Windows Vista *Upgrade Advisor*, which is a small downloadable application that scans your computer and tells you to what degree your existing hardware and software meets or exceeds the minimum requirements to run Windows Vista. (See Figure 1-3.)



Information Kiosk

The Windows Vista Upgrade Advisor also gives you guidance with regard to steps you can take to ensure the smooth operation of your operating system. I highly recommended that you run the Upgrade Advisor before you install Windows Vista. In fact, you can and should run the Advisor before you even buy Windows Vista.



Figure 1-3: Download the Vista Upgrade Advisor application from Microsoft's Get Ready Web page.

The Upgrade Advisor scans your entire system, examining your processor, system memory, graphics adapter, printers, and all other peripherals such as Web cams, TV capture devices, network adapters, sound cards, and so on to determine whether each device meets Vista standards — and, if so, which edition of Vista will run best on your machine. If any part of your system does not meet the minimum standards, the Advisor tells you which devices are deficient and what you can do to remedy the deficiencies. The remedy might be as simple as replacing a driver with a newer Vista-tailored one or as complex (and potentially costly) as replacing your computer or various parts of your system including a graphics card, a sound card, or even your network adapter. The Advisor might also tell you that some of your installed software will not run properly after you install Vista. To remedy these situations, you might need to acquire upgraded software from the vendor or choose different software from another vendor.

To use Microsoft's Advisor evaluation tool

1. Point your browser to the following Web page:

www.microsoft.com/windowsvista/getready/upgradeadvisor/default.aspx

The Windows Vista Get Ready page appears. (Refer to Figure 1-3.)



2. Click the Windows Vista Upgrade Advisor download link.

A Security Warning box appears, asking whether you want to run or save this program.

3. Select Run.

You are prompted with an additional Internet Explorer Security Warning dialog box, asking whether you want to run this software.

4. Click Run.

The Advisor program is loaded to your computer.

5. If you are prompted with another Security Warning box, select Run again.

After this process is complete, the Windows Upgrade Advisor Setup Wizard appears onscreen.

6. Click Next.

A License Agreement page appears. Read through these terms.

7. Select I Agree.

A green dot appears in the I Agree radio button.

8. Click Next.

The Select Installation Folder appears. Choose where you would like to save the Advisor application on your computer.

The default folder setting is located in your PC's `C:\Program Files` drive. You can also type in the path route or use the Browse feature to change the default folder location.

9. Click Next.

The Confirmation Installation page appears.

10. Click Next.

The Upgrade Advisor software is installed on your computer. When this process is complete, you are prompted with an Installation Complete message.

11. Click Close.

This removes the Upgrade Advisor Installation page from your screen and brings up the Upgrade Advisor Welcome page, as shown in Figure 1-4.

12. Click the Start Scan link.

The Scanning System window opens, as shown in Figure 1-5.

While the program scans your system, you are invited to click the numbers at the bottom of the page to review information about several of Vista's new features. You can browse these screens while the scan continues.



Figure 1-4: The Vista Upgrade Advisor Welcome screen.

When the scan is complete, you are prompted with a Scan Complete message.



Figure 1-5: The Windows Vista Upgrade Advisor system scanner.

13. Click the See Details button.

The results of your scan are shown onscreen, as seen in Figure 1-6.



Figure 1-6: The Windows Vista Upgrade Advisor showing scanner results.

In this instance, this computer can run the Vista Ultimate edition. The machine has no obvious system problems, but you need to run further tests to determine whether your peripheral devices and installed software programs are Vista capable. If you click the right-arrow button (at the top left), you see the Device Details section of the Advisor Report, as shown in Figure 1-7.

Here are the four tabs underneath the heading Report Details: Windows Vista Ultimate. The first tab — System — describes which version of Vista you can run on your computer. The second tab — Devices — contains information about your PC's peripheral devices. The third tab — Programs — outlines any issues that Vista might encounter with regards to the software loaded on your computer. The fourth tab — Task List — provides you with a list of suggested remedies. Following the procedures included in this list can make it possible for you to install Vista on your PC.



Information Kiosk

You can check your PC against four different versions of Vista: Home Basic, Home Premium, Business, and Ultimate. To do so, simply click the name of the edition you wish to check (located to the left of the Upgrade Advisor results page), and then proceed through the various tabs to determine the Vista capabilities of your computer.

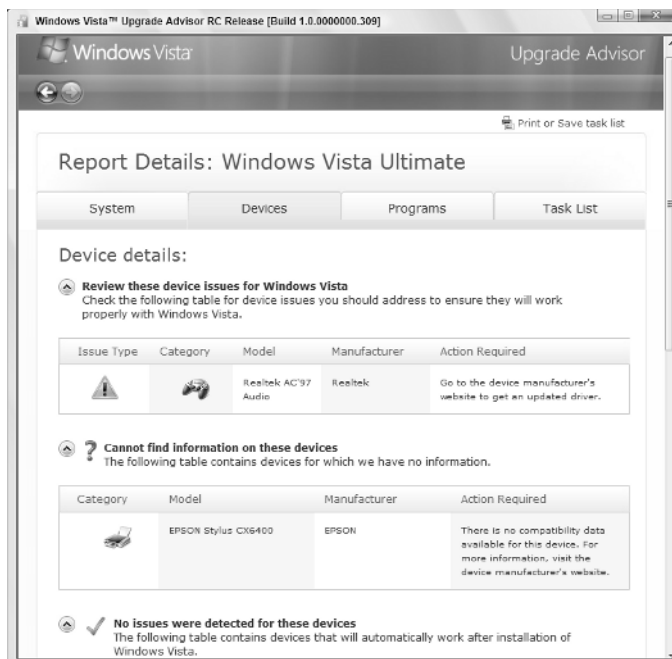


Figure 1-7: The Windows Vista Upgrade Advisor showing device details.

When reviewing these results, pay careful attention to the Caution icons, which bear a yellow triangle with a black exclamation point. These symbols let you know whether a potential problem exists between your system and Vista.

If you refer to Figure 1-7, you can see that in this example, one device (the Realtek audio device) needs a new driver and one device (the Epson Stylus printer) has no published information concerning its driver compatibility. In both cases, you are told to visit the manufacturer's Web site for more information or for a free download.

Clicking the next tab calls up the Program Details window, as shown in Figure 1-8.

In this example, you can see that no software program issues prevent the upgrade to Windows Vista. If the Windows Vista Upgrade Advisor finds any programs that would prevent your Vista installation, you would be provided with appropriate instructions. Under most circumstances, you would either have to disable or uninstall the offending program.

Clicking the Task List tab brings up a to-do list of issues that you must deal with both before and after you install Windows Vista. This list is a reiteration of the previous three windows. Print out the Task List before you start (just click the Print button at the upper right of the window); see Figure 1-9.

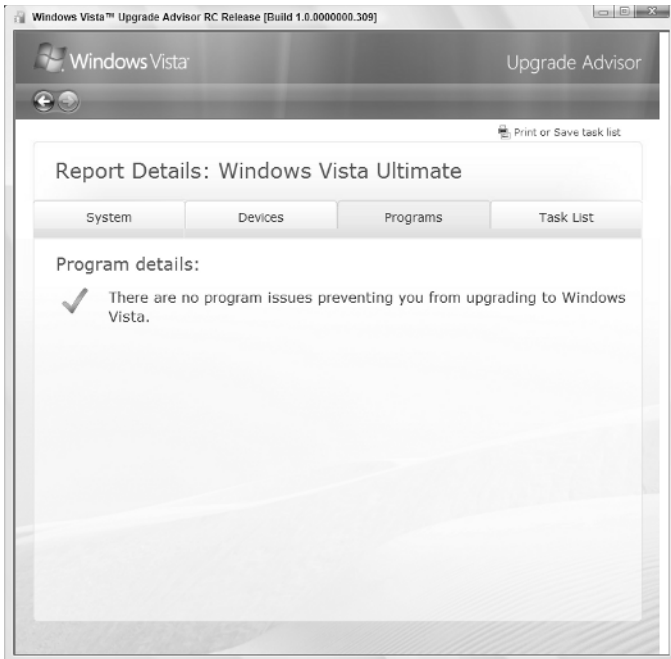


Figure 1-8: The Programs tab of the Windows Vista Upgrade Advisor Report Details window.

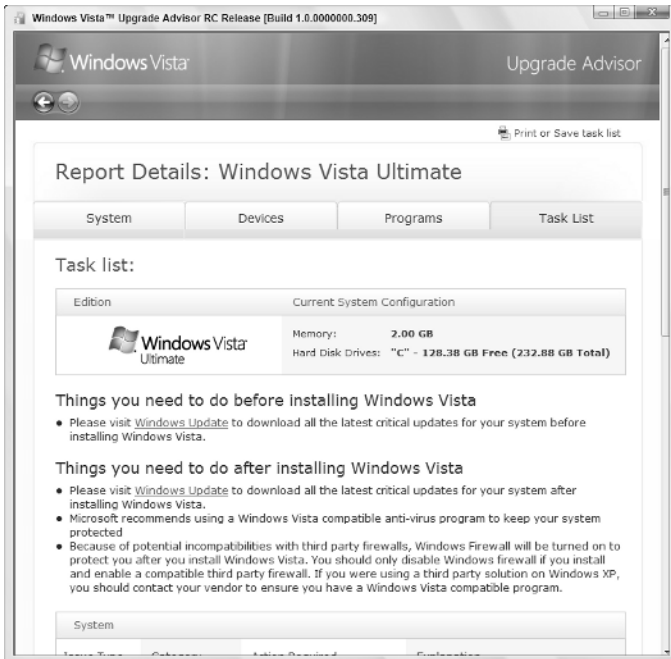


Figure 1-9: The Windows Vista Upgrade Advisor provides you with a list of suggested tasks to perform before and after installing Vista.



Information Kiosk

If you are technically inclined, visit the Microsoft Tech Net site at

www.microsoft.com/technet/windowsvista/default.aspx/

Here you can get information on up-to-date hardware requirements before you install Windows Vista.

Windows Vista, as with any new operating system, might not be compatible with every device or every program. As you can now see, though, you are not necessarily at a complete loss because of that. The Windows Vista Upgrade Advisor can spell out quite explicitly what you need to do *before* you install Windows Vista.

Preparing your computer for installation

If you are installing Windows Vista to a computer that already has another operating system installed on it — Windows XP, for example — you need to take a few precautions before beginning the Vista installation process. The following suggested tasks ensure that all your previous files and programs are not irrevocably lost should something go awry during the installation process.

First, you need to do some routine maintenance and housekeeping. This makes room for Vista on your hard drive and ensures that the software and files stored on your PC are not lost in case something goes wrong during installation. Begin with the following:

1. Back up all your files offline.

Your backup media can be CDs, DVDs (if you have a DVD burner), or another hard drive, preferably an external drive. Floppy disks are also a possibility, but their limited storage capacity and slow speed make them unfeasible — unless you don't mind endless disk swapping and tall stacks of floppies. Also be sure to back up programs for which you do not have original distribution disks. You might have downloaded these and saved the original file in a special directory on your internal hard drive.

2. Clean up and clean out your drives.

Use Windows' own Add or Remove Programs utility (Start → Settings → Control Panel → Add or Remove Programs) or a program's own uninstall facility to get rid of obsolete programs you no longer want. Then run Disk Cleanup (Start → Programs → Accessories → System Tools → Disk Cleanup), which gets rid of all sorts of temporary files, cache files, and other bits and pieces that Windows unfortunately scatters all over your drives. You can also use third-party utilities, of which there are many, to perform these tasks. These might or might not be more thorough than the built-in Windows utilities, especially in removing Registry entries and shortcuts left behind by departed software.



Watch Your Step

Although literally dozens of programs are out there that purport to remove all leftover bits when you uninstall a program — some free, some not — the more established programs out there are CClean (a free download from www.ccleaner.com), Macecraft Software's JV16, and Innovative Solution's Uninstaller PRO. Most do not do the job completely and it is usually necessary to use several in tandem.

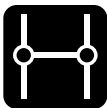
3. Defragment your hard drive.

As you use your PC, files are added according to the space allotments located on your hard drive. When you install new software, you want to make sure your files are as close to each other as possible so that your system does not have to jump from one location to another to perform a desired task. This is especially important with a new operating system. Having all of Vista's components in one contiguous space requires less traveling time for the drive read/write heads. And the faster your system runs, the longer your drives will last.

The Disk Defragmenter is another Windows system tool. Choose Start → Programs → Accessories → System Tools → Disk Defragmenter to access it.

4. Run the Check Disk utility.

In My Computer, right-click the drive you wish to check, choose Properties from the contextual menu, choose Tools, then choose Check Now. Be sure to select the check boxes that force the utility to check the drive for physical errors and attempt to correct any that are found. This prevents existing errors from interrupting (or corrupting) Vista's files.



Transfer

For more on the Check Disk and Disk Defragmenter system utilities, see Chapter 11.

5. Ensure that the partition in which you plan to install Windows Vista is large enough.

Remember that the minimum drive size is 40GB and the minimum free space is 15GB. In My Computer, right-click the drive you wish to check and choose Properties from the contextual menu. An icon shows you the total capacity of the drive and the amount of free space. Bear in mind that even though you might have only one hard drive, it may be divided into several partitions, each of which has a drive letter. Normally, the C: drive is where the operating system resides. If C: is just one of several partitions on your single drive, you must ensure that the C: partition is both large enough and has enough free space for a Vista installation. You

must also ensure that it is an *active* partition — the primary partition on a hard drive that contains and boots the operating system. A system may have several active partitions. The installation process itself provides you with the information and the means to make necessary changes.



Information Kiosk

In previous versions of Windows, when upgrading from an earlier version (say, Windows 98) to a newer (say, Windows XP) version, you could install the newer version on top of the older one, but the results could be disastrous. It was usually best to ignore the existing version, rename the directory in which it resided, and do a clean install from scratch of the newer version. Then you could move what you wanted from the old directory and reinstall all your other software and hardware. Windows XP provides a Files and Settings Transfer Wizard that brings the new installation up to the installed level of the old operating system. However, that utility is really intended to transfer information from an old computer to a new one, and not from one directory to another in the same computer. The older installation process also required significant input from the user during the installation. You cannot just set it and forget it, letting it install itself without further input from the operator.

Windows Vista greatly improves upon this process. It asks all its questions up front and then gets on with the installation, without bothering the user.

You still have the option of either installing on top of the old system, thus preserving your settings and configuration, or doing a clean install to which you then import your desired configuration. However, both these processes are quite different from those of earlier Windows versions.

Starting the installation process

To begin the installation process, turn on your computer and insert the Vista installation DVD into your PC's DVD (or CD) drive. Restart your computer — which automatically initiates the Install process — and then complete the following steps:

- 1. In the first screen that appears (see Figure 1-10), select the language you want to use to install Vista, the time and currency format, as well as the keyboard or input method you wish to use and then click Next.**

Use the drop-down menus provided to make your selections.



Information Kiosk

When you first boot up the Windows Vista installation setup, the setup program actually installs a mini-operating system (Windows Preinstallation Environment, or *Windows PE*), which puts the computer into Windows mode so that the entire installation takes place in what looks like a Windows environment, not the DOS environment of previous version installations.



Figure 1-10: Installing Windows Vista.



Information Kiosk

The Install Windows welcome screen offers you two options: to check your computer's Vista compatibility online or to install Vista now. (See Figure 1-11.) If you haven't already checked whether your PC is capable of running Vista, do so now. After you are sure that your PC can handle the system requirements of Windows Vista, you can begin the installation process. Refer to the "Evaluating Your System Requirements" and "Checking upgrade compatibility" sections earlier in this chapter to determine whether your computer is compliant with Vista's minimum standards.

2. Click the Install Now link in the Install dialog box, as shown in Figure 1-11.

A new screen appears, asking you for the product key provided with your Vista installation software, as shown in Figure 1-12.

3. Enter your product key.

Type the alphanumeric key into the text box provided. (Dashes are added automatically; you do not need to enter these items.)

If you are not sure where to find your product key, check on the back of your installation DVD envelope case.



Information Kiosk

If you have an always-on Internet connection, choose the Automatically Activate Windows When I'm Online option. Clicking in the check box next to this option saves you from having to manually activate Vista later.



Figure 1-11: Installing Windows Vista.

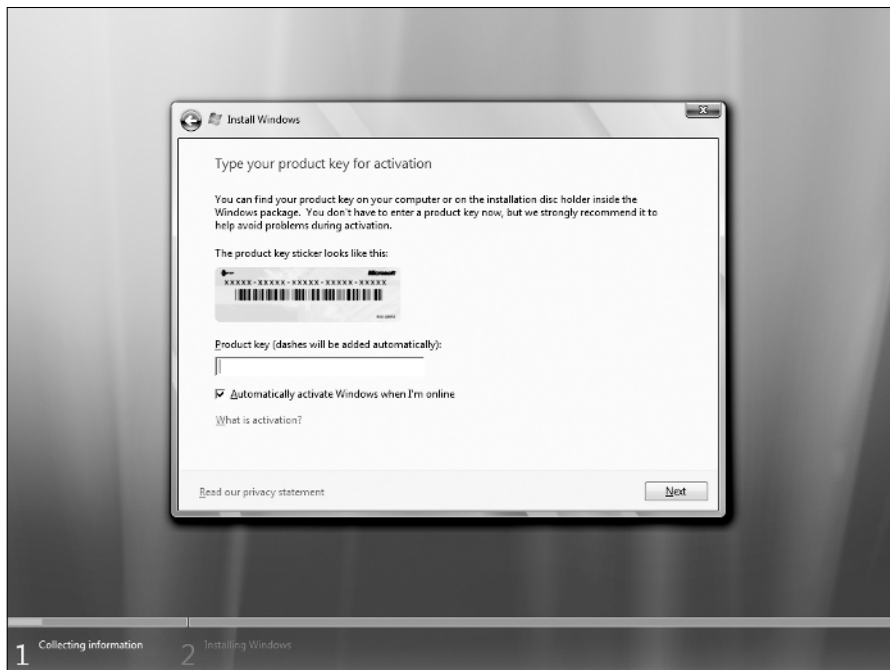


Figure 1-12: Enter the product key for Vista.

4. Click Next.

The EULA (End User License Agreement) appears.

5. Read through the licensing agreement, place a check mark in the box to the left of the I Accept the License Terms option, and then click Next.

Note: You must accept these terms if you wish to continue.

After you accept the licensing terms, two new boxes, Upgrade and Custom (as shown in Figure 1-13), appear.

- *Click Upgrade* if you want to install Vista on top of your present operating system.

This preserves your existing settings and configuration.

or

- *Click Custom* if you want to do a clean install from scratch.

If you choose Custom, you can hand-select where you would like to store the Vista operating system on your hard drive. If you select this option, the installer first shows you a list of available partitions. Click Drive Options (Advanced), and the program shows you the unformatted partitions or unallocated space.

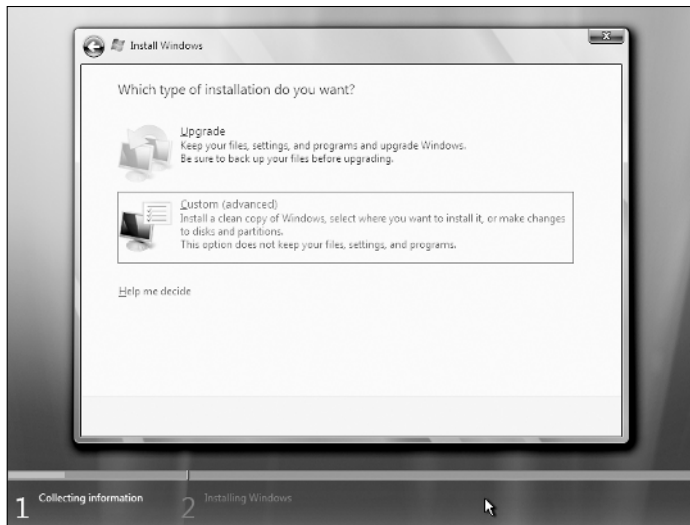


Figure 1-13: Choosing between an Upgrade and Custom install.

In actuality, these two options do not differ all that much because all new Vista installations are essentially clean installations. In the Upgrade mode, the program simply shoves the existing operating system aside in a renamed directory and proceeds to install Windows Vista in the Windows directory on drive C:. When the process is complete, it then copies your settings and configuration from the old system into the new one.

6. Choose the installation method (Upgrade or Custom) you wish to use.

The Installation Wizard shows you where on your hard drive you have enough space to save the Vista operating system.

Or you can also choose to hand select its location by using the Drive Options (Advanced) if you choose the Custom installation option.

7. Select the drive you wish to use for the installation and click Next.

Doing so opens a warning dialog box letting you know that if this partition contains files and folders from your previous version of Windows, they are going to be moved to a folder titled `Windows.old`.

8. To dismiss the warning dialog box, click OK.

The warning dialog box disappears and the installation process begins. The installer begins copying Vista to your hard drive. It installs Windows Vista in the partition of your choice without further input from you until the process is complete.

Note the green status bar located at the bottom of your screen. This tool provides you with a visual image of how far along in the process your PC is. This information is also provided in parentheses during each phase of the installation outline listed in the white box above.

Depending on how fast your PC is, this process could take a half hour to a full hour or more. After Vista has been installed, you might be prompted to select the operating system you wish to use at this time.

9. Select Windows Vista (not your previous version of Windows) and press Enter.

Your PC reboots automatically.



Watch Your Step

Be sure to remove the installation disc before the reboot occurs; otherwise, you are taken back to the beginning of the installation process.

After your computer has rebooted with Vista, you are prompted with a number of setup windows. These boxes allow you to configure the system to your liking and include designating country or region; setting date, time, and time zone; entering a username, password, and user picture for your account; giving the computer a name and a desktop image; and telling Vista how it should handle updates. The instructions that follow walk you through this setup process.

1. The first setup window you see asks you to choose a username and password, as shown in Figure 1-14.

Type in the name and password you want to use for your user account.



Figure 1-14: Choosing a username.

2. Click Next.

This opens the computer name and desktop page, as shown in Figure 1-15.

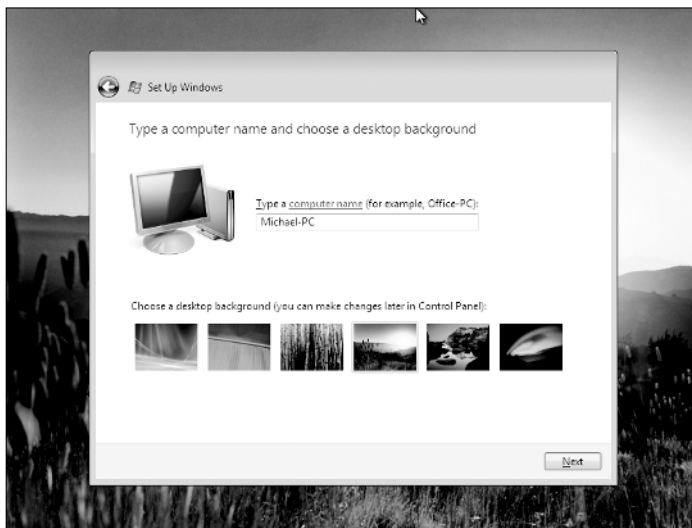


Figure 1-15: Choosing a name for your computer.

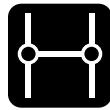
3. Choose a new name for your PC.

A default setting — usually *your name-PC* — is provided, but you can select any title you like.

4. Select the picture you would you like to use for your account's desktop background.

Clicking the thumbnail image of your preference gives you a full screen preview.

Note: You can always change this image later — you can even use a personal photo if you prefer — but you must first choose from one of the options provided.



Transfer

See [Chapter 2](#) for more information on how to personalize your desktop background.

5. Click Next.

Doing so opens up the Windows Updates page. From here you can choose how often you would like Windows to complete automatic update downloads for your PC.

6. Select an automatic update option and click Next.

You can choose to use the recommended settings, to install important Windows updates only, or to be asked later.

It is recommended that you select the first option because it helps protect you and your PC from unwanted harm or damage.

If you choose to only upgrade the important Windows updates, you might lower your chances of having your PC become damaged by possible viruses or security breaches, or you might simply miss out on new and improved functionality features of Vista. However, if you find that the upgrades are impeding your workflow, you may want to choose this option instead of the recommended option.

If you choose the Ask Me Later option, you might be leaving your computer exposed to potential dangers lurking online. It is recommended that you select one of the other two options, preferably the first (recommended) settings.

After making your selection, you are prompted with the time and date settings page.



Transfer

See [Chapter 4](#) for more information on how to protect your PC from potential security risks and [Chapter 11](#) for more on Windows Updates.

7. Select the correct time zone for your area.

Use the drop-down menu provided to select the correct time zone, as shown in Figure 1-16.

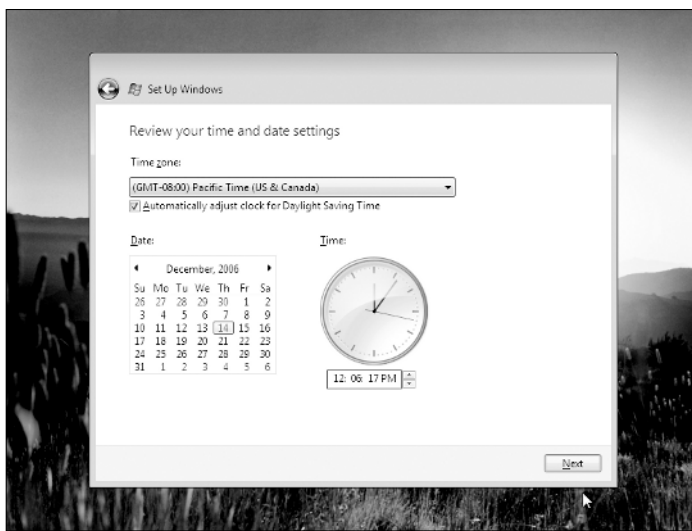


Figure 1-16: Setting the correct time zone, date, and time.

8. Choose the current date.

Today's date should already be selected; however, if you need to adjust the date setting, simply use your mouse to click on the correct date.

9. Set the time.

Use the time box (or arrow key buttons) provided to enter the correct local time for your PC, if it is not already selected. Simply type the correct time into the box provided or click the arrow buttons to the right to adjust your PC's time settings.

10. Click Next.

A new window appears, thanking you for selecting your PC settings.

11. Click Start.

This sets the wheels in motion for Vista to check your PC's performance levels. During this process Vista highlights some of its new and improved features.

Note the green status bar at the bottom of your screen. This line shows how far along in this stage your PC is.

After this process is complete, Vista automatically begins running on your PC.

Booting your computer with more than one version of Windows

There are several reasons why you might want to have two different versions of Windows running on the same machine. You might want a little time to get used to the

strange new Vista before moving entirely away from a well-known and comfortable earlier version. Perhaps some of your existing software or hardware does not work very well or at all with Vista, and you do not want to upgrade or replace it at this time. Or, maybe you want to take your time transferring programs and data from the old operating system to the new one.

It is not difficult to set up a *dual boot* machine — a machine running two different operating systems — but doing it correctly is critical, or you can end up with no boot at all.

To install Vista as a dual boot, you need two active primary partitions, with one of them designated as drive C. You are going to install Windows Vista to this partition. The second partition may have any drive letter you like.

Do a clean install of the older operating system to the second directory. The earlier system *must* be installed first (before you install Windows Vista). Make sure that the earlier install is up and working properly. Because it is a clean install, you have to reinstall and set up all your settings, programs, and configurations. Make sure the new installation of the earlier operating system is working properly.

Then follow the directions earlier (see “Starting the Installation Process”) for a custom installation of Windows Vista. Use the partition labeled drive C: for the Vista installation.



Watch Your Step

Do not install Windows Vista on any other drive than C:. If you install it on drive G:, for example, it renames drive G: to drive C: and renames all your other partitions, too. Drive C:, for example, might become drive D:; this can wreak havoc with both systems because most of the data and programs you already have in the computer are identified to the operating system by their paths.

Even if you don't change the drive letters, programs that have to be installed won't run until they are reinstalled under Vista.

Programs that don't have to be reinstalled and reside on drive C: in your older system are now on drive D:, and get schizophrenic. They can't find themselves or their data. Programs that have to be reinstalled in Vista, be that a fresh installation or a settings and applications move, end up divorced from their data and perhaps essential parts of their operating code. So be safe: Always install Windows Vista on the real drive C:.

If all has gone well and the installations of both operating systems are successful, a black-and-white window automatically appears onscreen the next time you boot your computer, as shown in Figure 1-17. This new welcome page offers you two choices: to boot your PC with “Microsoft Windows” (Windows Vista, in other words) or “an earlier version of Windows” (whatever older system you had been running).

Select the operating system you wish to use at this time and press Enter. This instructs your computer to run the desired operating system. As mentioned earlier, this feature can be quite useful if you wish to prolong the process of completely upgrading your PC to Vista. This allows you to still run programs that are not yet compatible with Vista on your current PC and provides you with more time to accustom yourself to the new user interface and features of Microsoft's visually enhanced operating system.

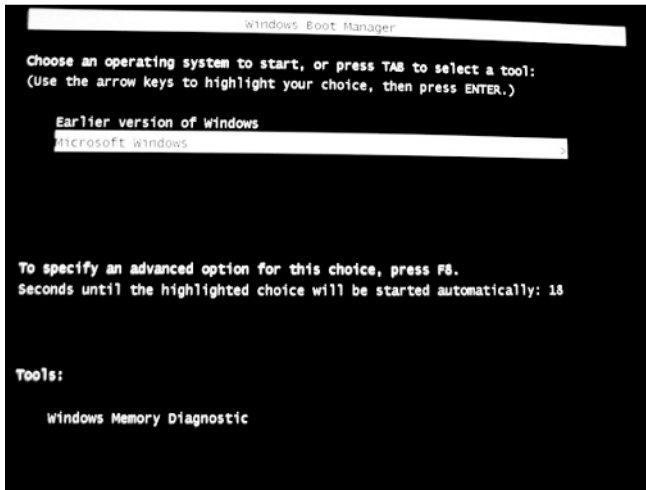


Figure 1-17: The Windows Boot Manager.



Transfer

In Chapter 11, you'll learn more about the technical aspects of customizing, enabling, and disabling different features of Windows Vista.

Street Jargon

CPU (central processing unit) speed: Determines how quickly your computer's processor can decipher and perform specified tasks. CPU speed is measured in megahertz (MHz). The more MHz a machine has, the faster it runs.

continued

Street Jargon *continued*

dual boot computer: A machine onto which are loaded two (or more) different operating systems (OSes), such as Windows XP and Windows Vista. The OSes do not run simultaneously. At bootup, a white-on-black screen offers the user the option of running, say, Windows Vista or an earlier version of Windows. To run a version other than the one currently in use, the user must first close that version and reboot. The benefit of using a dual boot system is that you can run different systems on the same machine. This option saves you from having to immediately reinstall all your existing third-party software and reset your personalized settings on the new OS. Using a dual boot setup also allows you to familiarize yourself with the new system before committing to it completely.

EULA (End User License Agreement): A standardized contract imposed by software manufacturers on users. This agreement typically includes copyright, permitted usage, and limited warranty information. Most software products require that users read and consent to the terms outlined in the EULA before they can download or install the specified product.

gigabyte (GB): A unit of measurement used to calculate a computer's storage capacity. One GB of RAM stores one billion bytes of information.

megabyte (MB): A unit of measurement used to calculate a computer's storage capacity. One MB of RAM stores one million bytes of information.

megahertz (MHz): Measurement used to calculate frequency. One hertz (Hz) refers to one cycle per second. One MHz refers to one million cycles per second. The number of MHz a computer processor is capable of achieving is an indicator of how fast the machine can retrieve data and perform specific actions.

OEM (Original Equipment Manufacturer): A company that builds products or components used in products sold by another company. For example, a computer's operating system (such as Windows Vista) can be manufactured by a corporation separate from the company that markets and sells the computer.

operating system (OS): The software program responsible for managing the hardware and software resources of a computer, including controlling and allocating memory, prioritizing user requests, controlling input and output devices, facilitating networking, and managing files.

RAM (random access memory): The amount of memory your computer has to run all the files and programs, including the operating system, stored on its hard drive.

WDDM (Windows Vista Display Driver Model): A new driver from Microsoft, included as part of the Windows Vista Operating System to support video cards in use with Vista.

Windows Vista Upgrade Advisor: A downloadable application that tells you whether your computer can install and run Windows Vista properly. This automated tool can be found on the Microsoft Windows Vista Get Ready Web page.



Practice Exam

- 1. Name the five standard versions of Windows Vista.**

- 2. What is the best version of Vista to install if you plan to do only word processing, check e-mail, and watch the occasional video clip?**

- 3. What are the benefits of creating a dual boot installation of Vista with a previous version of Windows?**

- 4. Why does Microsoft require 15GB of free disk space when installing Vista?**

- 5. Is it possible to install Windows Vista with only 256MB of RAM?**

- 6. If you want to install Windows Vista on a drive partition, which steps should you take to prepare the drive?**

7. What are the potential problems you need to be aware of when upgrading to Vista from a previous version of Windows?

8. What precautionary steps do you need to take before installing Vista on your current PC? What are the reasons for these actions?

9. What is the best version of Vista to use if you plan to play video games with enhanced graphics or engage in other home entertainment activities?

10. How can you tell whether your current PC is capable of running Windows Vista?

11. What are the bare minimum requirements for running Vista? What are the optimal system requirements?

12. What's the difference between a Vista Capable and a Vista Premium PC?

13. Explain why Windows Vista now comes on a DVD installation disc rather than a CD.

