Microsoft Vista is the latest in the series of Microsoft operating systems released to the public in January of 2007. Many of the features discussed in this section will not be clearly understood until you have more experience in the course of study. It is highly recommended that you review this section again after completing most of the textbook and related lab activities.

In general, the two most significant changes are its greatly enhanced security and the enhanced user interface. The enhanced security has made many previous versions of software applications incompatible with Microsoft Vista. Software manufacturers must now upgrade their software to allow compatibility with Windows Vista. The most common problem is that Vista will not allow software applications that have not been modified to run on Windows Vista. The software application companies must rewrite part of their software applications to meet Microsoft's security features.

For example, software applications cannot directly access restricted data storage areas such as hard disk drives, without going through the Microsoft hardware access program. Software applications cannot automatically download and install updates without following Microsoft's strict guidelines. All of these restrictions on software applications are intended to prevent hackers from directly accessing critical areas of storage and operating system files. This has resulted in many software applications not being able to run properly or to even prevent them from being properly installed and configured on the computer. This has proven to be very annoying to consumers.

The second major difference is the enhanced appearance of the user interface. The new AERO desktop has a greatly enhanced visual effects user interface, which uses transparent and shadowy 3-D screen images for navigation. The enhanced user visual interface is the main reason for the required increase in hardware performance requirements, such as a faster processor, more RAM and better graphics capabilities than previous versions of Windows. Many existing computers cannot meet the minimum hardware requirements needed to run the visual effects thus requiring the purchase of a new computer or a hardware upgrade before you can install the new Vista operating system. Microsoft has released a software utility called Windows Vista

Upgrade Advisor, which will do a complete scan of the existing hardware and software on a PC to determine if it can be successfully upgraded to Windows Vista, as well as identify which edition would be the most appropriate.

Figure 1 - Vista Business Edition desktop. Note the Gadgets toolbar on the right side of the desktop.

Vista Business Desktop1

Microsoft Vista desktop has added a new feature referred to as "Gadgets" which resides on the right side of the desktop by default. Gadgets are an improved desktop icon feature that allows the user to configure mini software programs that will provide services such as online dictionaries, notepads, clocks, calendars, weather, hardware device monitoring such as CPU performance and temperature, stock market reports in real time, and of course, games are also available gadgets. There are third party software vendors continuously creating new gadgets for the gadgets tool bar.

Six Editions of Vista

There are six editions of Vista operating system, but only four editions are commonly available for off-the-shelf purchase. They are Home Basic, Home Edition, Business, and Ultimate. Two additional versions are Vista Starter and Vista Enterprise Edition. The various additions can be broken down into two broad classifications, home editions and business editions. Home editions, as you might guess by the name, are mainly intended for home users, and business editions are intended for the corporate world of business. Within each of these two broad classifications there is again a hierarchy based on the number of various enhancements desired. You can look at the Vista version feature chart to make a quick comparison of the major features available by edition. *This is only a partial chart of the many new or improved features of the operating system.*

The very basic version called Windows Vista Starter edition is designed for emerging third-world countries or older less powerful computers. Windows Vista Starter is a very limited operating system similar to Home Edition with built in tutorials for first time PC users. You will not see it advertised, nor will it be available in the United States.

Windows Vista Enterprise Edition is designed for Global or very large organizations. It contains all the features found in Ultimate plus several global business enhancements such as multiple language support, UNIX application support, and virtual PC support. Multiple language support allows more than one language to be configured on the desktop for multiple users with different native languages such as Spanish and English. UNIX application support allows for direct UNIX connection and running of native UNIX programs. Virtual PC support will allow a PC to be configured with more than one operating system that can run concurrently on the same PC. For example, a Windows Vista Enterprise edition and Linux operating system can be run on the same machine simultaneously.

While these same features can be configured on other operating system, the other operating systems would require additional software applications and additional configuration. Vista Enterprise incorporates these three features into the one Enterprise Edition. Enterprise edition must be purchased directly from Microsoft or one of their authorized partners. You cannot purchase a boxed version of Windows Vista Enterprise Edition through typical software outlets, such as chain stores.

The remainder of this introduction will only focus on the four commonly encountered versions, Home Basic, Home Premium, Business and Ultimate. Below is a chart matching some of the most common operating system features to the Windows Vista version. You can use the chart to compare editions. You will see that the features are basically divided into two main user groups - home users and business users.

Comparison chart of common Vista features.

Feature	Home Basic	Home Premium	Business	Ultimate
Aero Desktop		XXX	XXX	XXX
Media Center		XXX		XXX
Mobility Center		XXX	XXX	XXX
Windows Meeting Space		XXX	XXX	XXX
64 bit processor support	XXX	XXX	XXX	XXX
Join a Domain			XXX	XXX
Remote Desktop Support			XXX	XXX
Bit Locker				XXX
Parental Controls	XXX	XXX		XXX
Max RAM	4 GB	4 GB	4 GB	4GB
Max RAM 64 Bit	8 GB	16 GB	128 GB	128 GB
Schedule Backups		XXX	XXX	XXX
DVD Maker		XXX		XXX
Movie Maker		XXX		XXX
P-2-P Network Connections	5	10	10	10
Bit Locker				XXX

Previous File Version			**XXX**	**XXX**
Hard Drive Encryption			**XXX**	**XXX**
Ready Boost	**XXX**	**XXX**	**XXX**	**XXX**
Windows Defender	**XXX**	**XXX**	**XXX**	**XXX**

New Features in Vista

There are many new features introduced in the Windows Vista operating system. A few of the most important new features will be introduced. Not all the new features are available to all versions of Vista. You can use the chart provided to identify which version of Vista includes the new feature integrated into the operating system. For a much more detailed list of features, check the Microsoft Vista home page at:
http://www.microsoft.com/windows/products/windowsvista/default.mspx or you can do an Internet search using the keywords "Microsoft Vista".

Aero

Areo is an enhanced graphic user interface which is more sophisticated than previous operating system GUI. Aero is designed to have a glass like appearance with various degrees of transparency. The aero feature is one of the main reasons a greater amount of RAM and a quality 3D graphics card or motherboard is required for this operating system feature. The AERO graphical user interface is also one of the main reasons for the slower performance of Windows Vista, when compared to the previous version of Windows XP loaded on the sample physical machine.

Media Center

Media Center is a collection of media (audio, photo, animation, movie, etc.) manipulation utilities or tools. You can edit digital movies, modify or adjust digital photos, record, copy, and create DVDs. You can also watch live television on your PC if you install a television tuner card first. As you see in the feature chart, media center is only available in Home Premium and Ultimate editions of Vista.

Mobility Center

The mobility center feature is new for laptops and provides one central location to access the most commonly used features of laptops, such as presentation configurations, like power point through a projector, energy conservation configuration to save battery life, and it automatically configures common network connections such as the home connection and the office or work location connection. "Hot Start" is new for laptops which is a technology that allows the laptop to instantly start a selected program with the touch of a single button. There is no need to wait long periods of time while the program is located, opened and loaded into memory. Since data theft has become problem for laptop users, enhanced security features incorporated into the operating system. The security features will be covered in more depth later in the textbook.

Windows Meeting Space

Windows Meeting Space is designed for a network collaboration allowing users to communicate face-to-face. The meeting can vary from a simple two, up to nine persons, using their personal computers connected by cables or wireless. The users can share documents, power point presentations, audio and video images, and anything else that might share in a typical meeting session.

Automatic Network Configuration

Setting up a home network is easier than ever before. Vista will automatically detect and configure a home network or home office in most cases, and automatically setup a share and Internet connection. It will also allow files to be shared much easier in a home network environment, while still providing security from the Internet. The main exception arises if there is a router or gateway being used that is not compatible with the new Windows Vista automatic networking features.

Vista Networking and Sharing Center

Look at the screen capture of the Network and Sharing Center. Look at the "Network discovery" option in the "**Sharing and Discovery**" section of the dialog box which is one of the many new features available.

Previous File Version

One of the newest features that will prove to be invaluable is the Previous File Version also referred to as shadow drive or shadow file protection. Previous version automatically makes a copy of files before they are saved with changes. This will allow a user to go back and open an earlier version of a file. When you open the properties dialog box of files saved on the system you will see a previous version option. The previous file version was first introduced in Windows 2000 server, and now has been incorporated into Vista versions business, enterprise, but not the Home Editions.
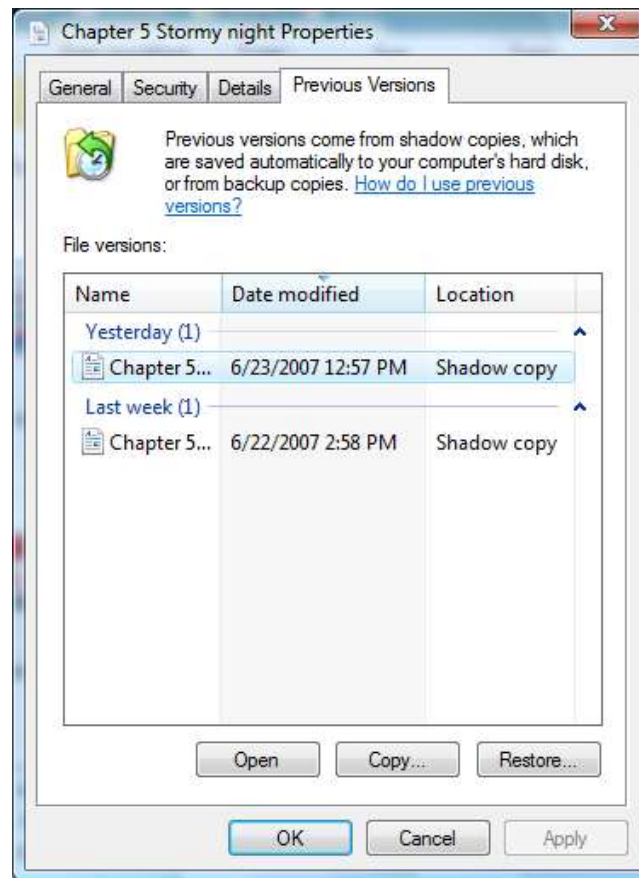
PreviousVersion1

As you can see in the screen capture, under the Previous Version tab, there are two earlier version of the document titled **Chapter 5** that can be restored with simply one click of the mouse.

BitLocker

BitLocker differs from earlier versions of NTFS encryption in the fact that is encrypts the entire volume, including the Windows System files required for startup and logon, not just files and directories as experienced in NTFS encryption. BitLocker ensures that data remains encrypted even when the operating system is not running. For example, if someone removes a hard disk drive and then attempts to access the data from another machine using a different operating system or software utility, Bit Locker would prevent the data being accessed. The data will still remain encrypted.

BitLocker is transparent to the user after it is activated. BitLocker is designed to be used with a machine that has a Trusted Platform

Module (TPM) and BIOS. The TPM is actually a microchip designed to work with the BitLocker software. The TPM ensures that encryption will be intact throughout the startup operating of the machine. If the TPM is missing or has changed, the user will be required to supply a password to access the data encrypted on the volume. If BitLocker is configured on a system that does not have a TPM, a startup key is required when it is first configured.

Ready Boost

Many software programs require a great deal of RAM to operate efficiently, otherwise the program responds slowly, it may not work at all, or the system will seem to freeze up. Computers have used the hard disk drive to temporarily store limited amount program information when the RAM is full. For example, a computer with 1GB RAM memory may use 500 kB of memory referred to as a "page file" to temporarily store information when the RAM is full in order to keep the program working reasonably well. As far as accessing and manipulating data, the hard disk drive is notoriously slow when compared to normal computer RAM memory. The technology referred to as Ready Boost is integrated into all editions of Vista. The RAM can now be supplemented by inserting a USB flash drive device. Using a USN memory storage device it is much faster than a hard disk drive and is a great improvement to overall performance when a system is over worked. This is an excellent feature for laptop computers which typically have much less memory than a desktop.

Vista Defender

Vista Defender works directly with Internet Explorer 7, or later, to protect the computer from spyware. Defender scans files as they are downloaded to the computer through the Internet browser. Defender will identify what appears to be spyware, but allows the user to decide what action to take. The possible actions are Ignore, Allow, Quarantine and Always Allow. Quarantine will isolate and store the suspected spyware file allowing the user the opportunity to install it at a later date if it is found not to be spyware, but actually a desired program.

Clean Install or Upgrade

An Upgrade means that you can install Vista on an existing operating system and retain files, settings, and applications. A clean install means

that the previous operating system is completely replaced, and you will loose all files, settings and applications installed on the system. You can save your settings and files by using Microsoft Easy Transfer, and then reload your applications after a clean install to retain most of the previous software you want to retain.

	Home Basic	Home Premium	Business	Ultimate
XP Pro	Clean Install	Clean Install	Upgrade	Upgrade
XP Home	Upgrade	Upgrade	Upgrade	Upgrade
XP Media	Clean install	Upgrade	Clean Install	Upgrade
XP Tablet	Clean Install	Clean install	Upgrade	Upgrade
XP Pro 64X	Clean Install	Clean Install	Clean Install	Clean Install
Win 2000	Clean install	Clean Install	Clean Install	Clean install

Previous versions of Windows operating system require a clean install, but you should be aware of the fact that hardware used for the previous operating systems will most likely not support Vista, especially the advanced features.

It is recommended that in most cases you should do a clean install after partitioning and reformatting the hard disk drive. This will eliminate any file fragments, and most registry corruption, from the previous operating system version. Before you perform a clean install, be sure you have all hardware device drivers available and a copy of all previously install applications. **Backup all files.**

Before performing an upgrade, run the **vista upgrade advisor** program utility to ensure compatibility with hardware devices, and also turn off any antivirus programs.

Hardware Requirements

Requirements may change after final release. Currently they are:

- Processor - 1 GHz recommended, 800 MHz minimum.

- RAM – 512 1GB recommended
- HDD – 5 GB min. 40 GB recommended with 15 GB free space.
- DVD recommended, CD minimal, no floppy disk installation.
- Video Card support for DirectX -9, 64 MB of memory and 128 MB recommended. 1,600

Microsoft uses two broad classifications of Vista computer hardware, Vista capable and Vista premium.

The chart below is provided so that you can easily compare the two.

Hardware Device	**Vista Capable**	**Vista Premium**
Processor	800MHz	1 GHz
Memory	512 MB RAM	1 GB RAM
HDD	20 GB	40 GB
HDD free space	15 GB	15 GB
Installation Media	CD-ROM or DVD-ROM	DVD-RW
Graphics Card	DirectX 9 SVGA 800x600	DirectX9, 128 MB RAM
Optical Drive	CD-ROM	DVD-ROM drive

Vista Premium hardware requirements are used to describe hardware that will support advanced Vista features, such as Aero, and 3-D desktop effects like translucent windows and transition effects. A Vista capable computer will run vista, but without special GUI effects, and limit some software capabilities.

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Review Questions

1. What are the four main editions offered in the United States?

2. Which editions(s) would you select to have the capability of using remote desktop?

3. A customer wants to connect their laptop to their office network at work.

4. Which edition of the basic four offers the least features?

5. Which edition will work best for a laptop?

6. What type of optical drive is required for Vista Premium?

7. What is the name of the Vista technology that supplements the system RAM?

8. What feature will allow you to open a previous copy of a document?

9. What is purpose of Vista defender?

10.   Which two versions offer the Previous Version feature?

11.   Which two editions offer Media Center?

12.   What is the minimal amount of RAM required and the recommended amount of RAM for a Vista Installation?

13.   What is ready drive feature?

14.   What does the acronym TPM represent?

15.   Is TPM required for BitLocker?

Answers

1. What are the four main editions offered in the United States? Home Basic, Home Premium, Business, Ultimate.
2. Which editions(s) would you select to have the capability of using remote desktop? Business and Ultimate.
3. A customer wants to connect their laptop to their office network at work. The office is using a Microsoft client/server network. Which operating system will allow you to connect to the office network domain? Business and Ultimate.
4. Which edition of the basic four offers the least features? Home Edition
5. Which edition will work best for a laptop? All but Home edition.
6. What type of optical drive is required for Vista Premium? DVD-ROM
7. What is the name of the Vista technology that supplements the system RAM? Ready Boost.

8. What feature will allow you to open a previous copy of a document? Previous version.

9. What is purpose of Vista defender? To prevent spyware from being downloaded and installed on a computer.

10. Which two versions offer the Previous Version feature? Business and Ultimate.

11. Which two editions offer Media Center? Home Premium and Ultimate.

12. What is the minimal amount of RAM required and the recommended amount of RAM for a Vista Installation? Minimum is 500 MB and recommended is 1GB.

13. What is ready drive feature? Using a flash memory device such as a USB flash drive to supplement the computer RAM.

14. What does the acronym TPM represent? Trusted Platform Module.

15. Is TPM required for BitLocker? No, it is optional.