

MCTS/MCITP Exam 620

Troubleshooting Windows Vista

Exam objectives in this chapter:

- Troubleshooting Media Applications
- Troubleshooting Performance Issues
- Using Diagnostic Tools

Exam objectives review:

- ☒ Summary of Exam Objectives
- ☒ Exam Objectives Fast Track
- ☒ Exam Objectives Frequently Asked Questions
- ☒ Self Test
- ☒ Self Test Quick Answer Key

Introduction

An important part of any IT professional's life is the ability to troubleshoot issues for the end user. Microsoft has always worked on providing assistance with this. As each release of Windows has come and gone, it has brought further improvements. Microsoft's Windows Vista has added many new features to the Windows family of operating systems (OS). Probably one of the most unnoticed improvements is in the area of troubleshooting. Windows Vista has made improvements in what users can troubleshoot and fix themselves. Moreover, it has improved what the OS will automatically troubleshoot and repair on its own.

Since the premise of the 70-260 exam is configuring the Windows Vista client, it makes sense that we would need to talk about how to troubleshoot client issues. In this chapter, we will look at specific areas of troubleshooting covered in the 70-260 exams. These will be troubleshooting media applications and improving system performance. We will then look at how to use the diagnostic tools to troubleshoot various issues with your Windows Vista installation.

Experience has taught us that not everything that is presented for the certification exams is necessarily what we would call "real world." Nevertheless, we will focus on the information needed to pass the 70-620 exams. Throughout this chapter, we will offer some thoughts on issues you may encounter in the enterprise, but perhaps not on the test. This will be presented in the shaded boxes titled "Configuring & Implementing" and "New & Noteworthy."

As the chapter goes on, we'll consider some test-day tips, exam warnings, and exercises to help you prepare for the 70-260 exams.

Troubleshooting Media Applications

A large part of the new operating system design for Windows Vista is the inclusion of five media applications in Windows Media Center. Some of these applications have been updated such as Media Player and Movie Maker. Others such as Windows DVD Maker and Photo Gallery make their premiere in Windows Vista. Still, others such as Media Center go from being separate applications in XP to becoming integrated in Media Applications in both the Windows Vista Home Premium and Vista Ultimate editions.

In this chapter, we will focus primarily on Windows Media Center and Media Player. Any questions on troubleshooting that may appear on the exam will be centered on these two applications. For the other three applications, the exam will probably only contain configuration questions.

Windows Media Center

Both the Home Premium and Ultimate versions of Windows Vista now include Windows Media Center. Introduced in Windows XP, Windows Media Center is now poised to bring together home entertainment and the PC. Designed to be the media hub for all digital entertainment, Media Center has been vastly improved in Windows Vista. Whether you want to listen to music, watch a DVD, or record your favorite show on cable or satellite TV, Media Center is ready to do the job. But that's not all. You can use Media Center to view your latest photos or to burn those recorded TV shows to DVD. In addition, if you really need more, you can always access an endless supply of Internet media that's available.

The beauty of Media Center is that all this can be done sitting in front of your TV. With the help of a TV tuner card, a remote control, and media extenders, Media Center can allow five TVs to display content that resides on your PC simultaneously.

EXAM WARNING

It's hard to say if you will come across any questions on the test about Media Center. We did not come across any on the exam or the practice exams beforehand. However, questions are added to the pool from time to time, so it would make sense to be familiar with configuring Media Center and troubleshooting some of the possible issues. At the very least, you should be familiar with which versions of Vista contain Windows Media Center.

These improvements are not without challenges, so let's begin examining how to troubleshoot various Media Center issues. We'll look at the three most common issues with Media Center. These are also the three most likely to appear on the exam if you were to see any questions about troubleshooting Media Center.

Audio Problems

When we talk about issues with digital media and a need for troubleshooting, we look first to audio issues. So we begin by looking at some troubleshooting tips for audio problems. We will look at issues such as:

- No sound
- Music files that do not play
- Audio CDs that will not play

There are the obvious issues to help you troubleshoot issues of *no sound*: Check the volume, mute, and if the speaker cable is unplugged. This is not what we're talking about when we speak about troubleshooting audio in Media Center. Rather, we are looking for situations such as incorrect speaker configuration.

To make sure your speakers are set up correctly, click **Tasks** on the Start screen, click **Settings**, click **General**, click **Setup Windows Media Center**, and finally click **Set up your Speakers**. Check here to ensure you have the correct speaker configuration. If you have two speakers or laptop speakers and the system is set for 5.1, you will not get any sound.

Another common issue with audio is no sound when playing DVDs. Once again you will click **Tasks** and **Settings**, but you will also click **DVD** and **DVD Language**. At this point you would choose the correct **audio track** using the – or + buttons, and finally you may need to configure **DVD Audio** settings.

In the case where *music files do not play*, we have several issues to troubleshoot. The file extension may not be supported by Media Center or the file may be corrupt. The media may be located on a network share that is currently not available or the media usage rights may need to be updated on the PC.

To troubleshoot audio CDs that will not play, check to make sure the CD-ROM is not disabled in the device manager. Another reason the audio CD may not start is that the AutoPlay setting may need to be adjusted. To adjust the AutoPlay settings, open the **Control Panel**, click **Hardware and Sound**, and then click **AutoPlay**. After you check that AutoPlay is enabled, check if the Audio CDs option is set to No Action, and then change it either to prompt each time or to use Media Center for playback.

Media Extenders

The use of media extenders allows us to share the content located on our PC to various locations. This can be done through either a wired or a wireless connection. Several products can be purchased to extend your media to a TV or another computer. Users who own the Xbox 360 already have a media extender built into the game console.

When considering issues that may arise with media extenders, we must first consider the configuration of the extenders. This is the area where we would find most of our issues. Let's consider a few common errors:

- **Valid IP Address not found** Although Media Center and the Media Extender may be connected to the same router or hub via a wireless or wired connection. Communications between the two will fail if the media

extender does not acquire a valid IP address. To troubleshoot these issues, check the network setting on your router, hub, or switch. Ensure that IP addresses are available in DHCP. Also, you may try to restart the media extender or the Media Center computer.

- **Media Center cannot detect the extender during setup** Some common issues during setup have to do with wireless networks. Make sure the extender is within range of the wireless router or access point. It is important to make sure you have not only the correct security key, but also the correct method of authentication being used for the key.
- **Media extender cannot connect to the Media Center** If you are using the Microsoft Firewall, check under exceptions to see if **Media Center Extenders** is selected in the check box. If you use an external firewall, you will need to check that the appropriate ports are open in the firewall. Table 8.1 shows some of the needed settings for a non-Microsoft firewall.

Table 8.1 Non-Windows Firewall Settings for Media Extenders

Application	Protocol	Traffic Direction	Network Segment
ehshell.exe	TCP 554	Both	Local Subnet
ehshell.exe	UDP 5004, 5005	Both	Local Subnet
ehshell.exe	TCP 8554-8558	Both	Local Subnet
ehshell.exe	UDP 50004-50013	Both	Local Subnet
ehshell.exe	UDP 7777-7781	Both	Local Subnet
svchost.exe	TCP 2177 UDP 2177	Both	Local Subnet
system	TCP 10244	Both	Local Subnet
svchost.exe	UDP 1900	Inbound	Local Subnet
svchost.exe	TCP 3390	Inbound	Local Subnet
mcx2prov.exe	Random	Both	Internet
mcrmgr.exe	Random	Both	Internet

- **Network Performance Tuning** If you receive Network Issue notifications or experience slowdowns while using a Media Extender, try the following to correct the issue:

1. Start your Media Extender.
2. Scroll to **Tasks**, and then choose **Tune Network**.
3. Finally, follow the steps outlined in the **Network Performance Tuner** wizard.

If after running the Performance Tuner you determine that you do not have sufficient bandwidth, consider the following alternatives:

- Connect to the network using a *wired* Ethernet connection.
- Purchase a faster wireless router.
- Check the amount of resources being used on the Media Center computer.

Recording TV

Probably the most troubleshooting issues we see within Media Center are in the area of recording and watching TV. Recording TV in Media Center works similar to TiVo or DVR recorders. To create an automatic recording we simply choose the program we want to record in the guide. Alternatively, we can create an automatic recording by choosing the time and channel for the recording. While this is a great way to record to a centralized media location, recording issues will arise.

Setting Media Center to record programs automatically presents several possible troubleshooting scenarios. The first issue to consider is running out of space on your hard drive. To correct this issue you can try to adjust the recording quality. Using a lower quality for recording will create a smaller file size on your hard drive. Recorder storage can be adjusted to allocate more space on the volume used to store your recordings. It is important not to over-allocate space when choosing the recording volume. Along with the space needed for live recordings, you will need to allocate space for the Live TV pause buffer. Adjusting the settings for recorded TV storage can also help the following options can be adjusted:

- **Until I Watch** Once the amount of space allocated for recoding is reached, programs will be deleted after they are viewed.
- **Until I delete** All programs have to be manually deleted.

- **For One Week** Programs are automatically deleted after one week.
- **Until Space is needed** Once the amount of space allocated for recording is reached, programs will be deleted based upon age of recording.

Issues can also arise with scheduled recordings in Media Center. To troubleshoot recording issues, check that the system running Vista has the correct time. Update the guide to ensure that the schedule is accurate. You can change the advanced recording settings to begin early and end after the scheduled time (up to three hours).

Media Player

Windows Media Player has been around since Windows 98. The successor to Media Center, Media Player appeared in 1991 in Windows 3.0, and has undergone quite a transformation since its inception. Now in version 11 on Windows Vista, Media Player has grown into a formidable alternative to products like WinAmp and iTunes. For the 70–620 exams, it is important that you are familiar with some configuration settings for Windows Media Player. It is important to note the similarities and differences with Media Center and Media Player. Both products can *play* movies, music, recorded TV, and even slideshows of your photos. Both, of course, can burn CDs and DVDs. As for differences, Media Player can “rip” audio, while Media Center can playback that audio. Media Center can record TV and, as mentioned earlier, Media Player can play it back. Media Center is available in only Home Premium and Ultimate editions, while Media Player is available in all Vista versions.

In the area of troubleshooting for Media Player, you should be familiar with a few key items. To begin with, Media Player does not allow you to back up your media usage rights. Therefore, the only way for you to correct issues with media usage rights is to contact the vendor from whom you purchased the media. Another frequent user issue is the loss of original media information. To correct this issue on any of the five usage tabs click **more options**. On the Library tab under **Automatic media information updates for files**, you can choose to change the option from **Overwrite all media information** to **Only add missing information**. Alternatively, you can choose to disable this function altogether. Figure 8.1 shows settings for updating only missing information.

Figure 8.1 Library Options for Media Player

TEST DAY TIP

Microsoft recommends enabling the following two privacy options:

- Download Usage Rights Automatically When I Play or Sync A File
- Automatically Check If Protected Files Need To Be Refreshed

By default, both options are enabled. Enabling these options will allow Media Player to check periodically for usage rights that will soon expire and update them automatically from the Internet.

One final troubleshooting tip for Media Player is in the area of media sharing. In Windows Vista, you will need to choose the correct network type in order to share files. If you find the sharing settings grayed out (Figure 8.2) when you go to configure sharing, you will need to change your network settings first to enable media sharing.

Figure 8.2 Media Sharing Disabled for Public Networks



EXERCISE 8.1

CONFIGURING RECORDING OPTIONS FOR MEDIA CENTER

In this exercise, we will look at how to set the general recording options for Media Center. We begin by launching Windows Media Center from the Programs Menu. To set recording options, follow these steps:

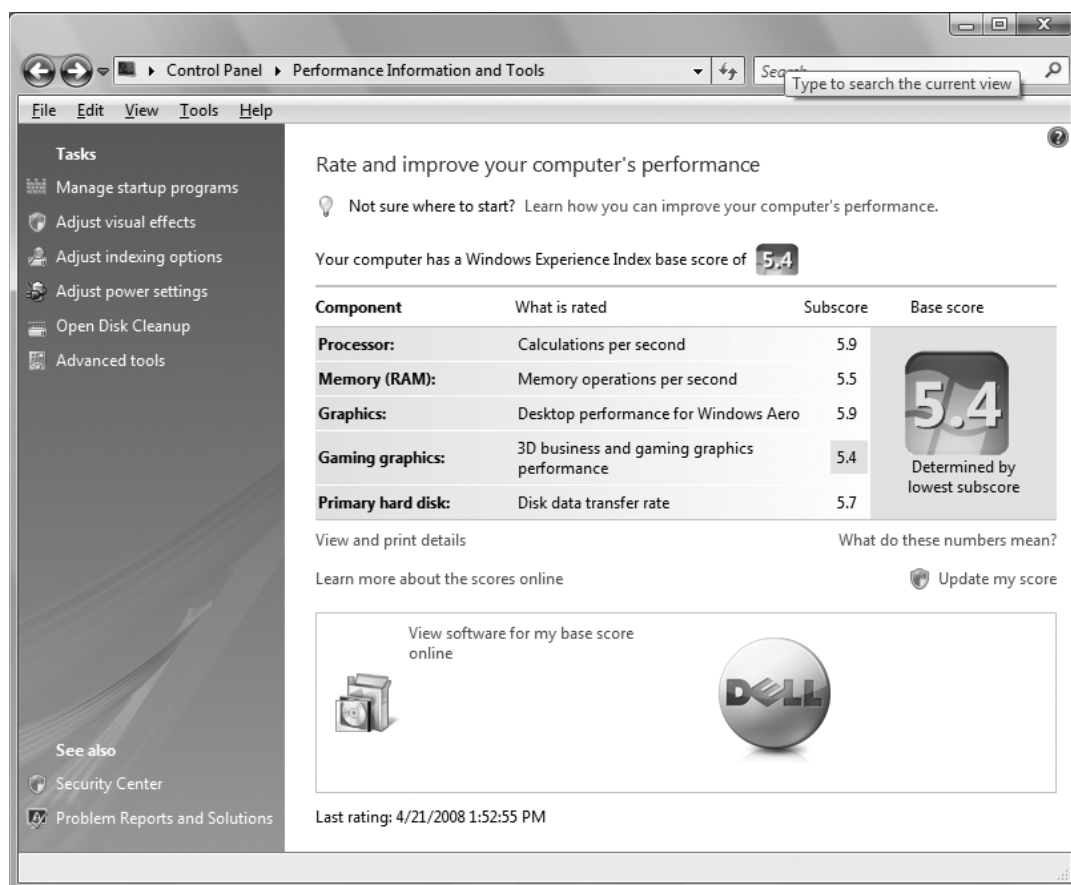
1. Scroll to **Tasks** and click **Settings**.
2. Next, click **TV | Recorder | Recording defaults**.
3. In the Keep section, click – or + and choose one of the following options:
 - **Until Space is needed**
 - **Until I watch**
 - **Until I delete**
 - **For one week**

4. In the Quality section, click – or + and choose the **Quality** you prefer.
 5. In Start when Possible, choose to start **On Time** or up to 4 minutes before the scheduled time.
 6. In Stop when Possible, choose to stop **On Time** or up to 4 minutes after the scheduled time.
 7. Choose your **Preferred Audio Language** settings.
 8. **Save and Exit** the recording options setup.
-

Troubleshooting Performance Issues

If there is one thing that remains constant in the computing industry it is that your systems will be relatively slower today than they were just a few months ago when you first bought them brand new. Now the fact that hardware is moving at such a rapid pace has something to do with that. It is tough to be satisfied with a Dual Core processor and 2 GB of RAM, when your friend just got the new Quad Core system with 4 GB of RAM. That is not the only reason why we have performance issues. Installing, removing, downloading, and Web browsing cause a build up of data over time. Several thousand writes to a disk location will fragment it. Temporary files, especially temporary Internet files, will swell. Applications that run your business and allow you to edit and create movies and photo galleries will overtime take a toll on your computer. Over all, that brand new machine you loved so much will begin to show its age. Moreover, it seems the more you add the faster it deteriorates.

Microsoft has addressed this problem better than ever before in Windows Vista. With the help of the Windows Experience Index in the Performance Information and Tools control panel, you can troubleshoot and easily correct many common performance issues. The Windows Experience Index gives you a quick look at the overall performance of your computer as it pertains to running Vista's newest features. Figure 8.3 shows the Windows Experience Index base score for a computer.

Figure 8.3 Performance Information and Tools Dialog Box


The Performance Information and Tools control panel allows you to access the following options:

- Manage startup programs
- Adjust visual effects
- Adjust indexing options

- Adjust power settings
- Open Disk Cleanup
- Advanced tools

Let's look at each of these tools and see how we can troubleshoot performance issues by using them.

Manage Startup Programs

In the Manage Startup Programs dialog box, we can open up Software Explorer in Windows Defender and check which software applications launch whenever Windows Vista starts up. There are many applications that start up automatically when Windows Vista starts. Systems that come with Vista pre-installed in many cases have many *extras*, especially OEM systems which often include their own productivity tools that, ironically, can often cause more harm than good. Too many of these startup programs will cause Windows Vista to hang and act sluggishly during startup.

Using Software Explorer, we can remove or disable these startup programs and also check to make sure they are from legitimate sources. Elevated privileges are not necessary for changing startup settings unless you are trying to adjust settings for all users. Disabling the startup application rather than removing it is a good way to check if the program in question is actually the cause of the system slowdown. In this way, you can actually avoid removing a startup program that may be needed to run Vista correctly.

Adjust Visual Effects

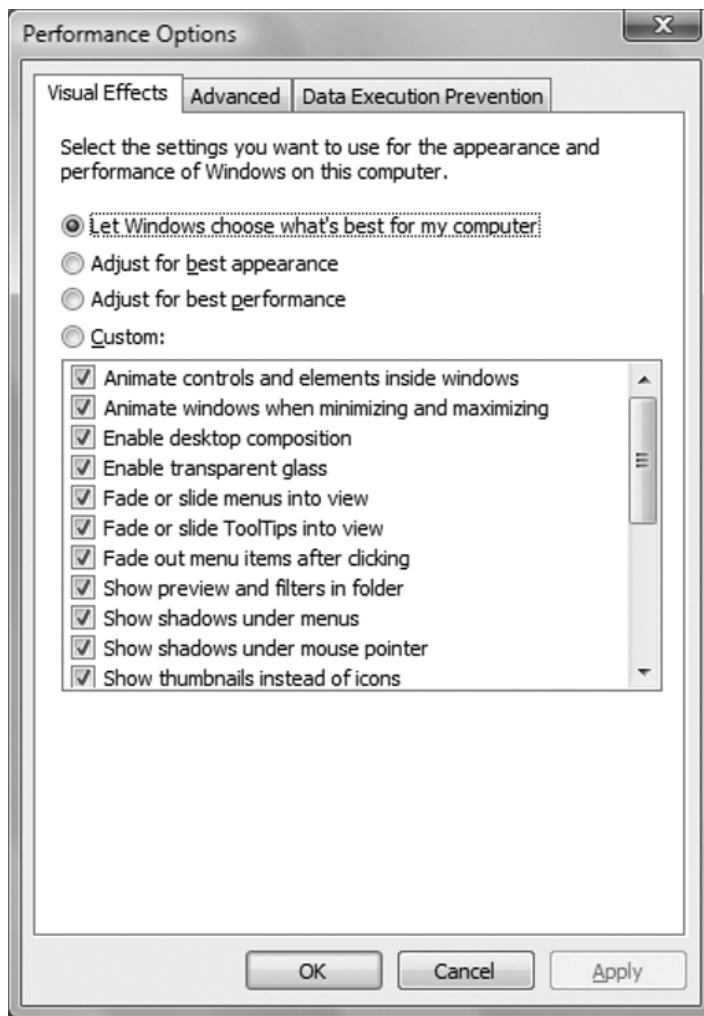
Adjusting how Windows appears and how it handles menus can help increase performance. For most systems, the setting **Let Windows choose what's best for my computer** is the best selection. However, when troubleshooting performance issues, you may want to choose one of the following options:

- Adjust for best appearance
- Adjust for best performance (this would correct performance issues related to visualization)

On the other hand, if you prefer to take a more granular approach, you can choose custom settings. In the Adjust Visual Effects tab, we can use a best of both worlds approach by choosing the most important appearance options while selecting options that will improve performance.

It is important to note that elevated privileges will be needed to change the settings on the Visual Effects tab. This task is somewhat misleading since it claims to adjust visual effects; but, as shown in Figure 8.4, there are tabs that allow us to adjust advanced settings and data execution prevention (DEP) settings.

Figure 8.4 Performance Options Dialog Box



In the Advanced tab, we can change how we prioritize processor resources. In general, it is best to set end user machines to *adjust for best performance of programs*. On this tab we can also adjust the virtual memory for Windows Vista. (By default Vista manages the paging files for all volumes.)

The Data Execution and Prevention (DEP) tab allows us to choose to turn on DEP for either essential Windows programs and services or for all software and services except those we specify. Again, from a troubleshooting standpoint it is best to leave the default for the paging file and for the DEP settings.

Adjust Indexing Options

Indexing improves performance by allowing for quicker searches. Setting up an index search to focus on folders and file types you frequently use will increase system performance. However, care should be taken about how much data you index. An index's file size can grow dramatically and may have the opposite effect on your searches from the one you desire. Indexing calls for very little maintenance; however, the advanced indexing options allow users with elevated privileges to rebuild and restore default indexes as part of the index troubleshooting function.

Changing the location of an index file can also improve performance. Moving index files to a volume with more disk space will help maintain good search performance.

Adjust Power Settings

In Windows Vista, the power settings go beyond merely saving energy. They can be set to improve performance. Vista has three preset options to choose from:

- Balanced
- Power saver
- High performance

Conversely, you can create a power plan that works for your needs. This performance task also includes the following options:

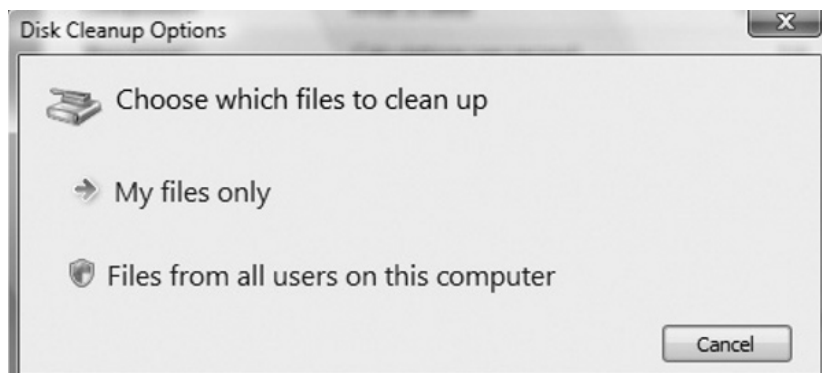
- Require a password on wakeup
- Choose what the power buttons do
- Choose when the display shuts off
- Choose when the computer go to sleep

Advanced settings allow for additional adjustments to USB settings, PCI Express link states, wireless adapters, search and indexing, and Windows Dream Scene behavior (only available in Vista Ultimate).

Open Disk Cleanup

Disk Cleanup is a familiar tool, which has been updated in Windows Vista. Besides choosing which volume you want to perform a cleanup on, you can choose to clean just your own files or all users' files on the computer. In fact, as Figure 8.5 shows, this is the first choice you need to make when launching Disk Cleanup.

Figure 8.5 Disk Cleanup Dialog Box



Advanced Tools

The Advanced tools setting in the Performance Information and Tools control panel has more to do with diagnosing serious system issues than with tuning performance. However, the Disk Defragmenter and the Adjust appearance and performance settings are useful in performance tuning (we will consider Ready Boost separately). Disk Defragmenter is a familiar Windows tool, which is used to rearrange data on your hard drive to lessen the amount of time the disk needs to perform data seek operations. By default, Vista runs Disk Defragmenter on a schedule, which was a wise choice for Microsoft. Anyone who has been in IT for any amount of time knows that it is folly to leave it up to the user to defragment his or her drives. The old method of setting the defragmenter worked if the user did not cancel the process before it ran.

The second tool in the Advanced tools area is actually a repeat of the Adjust Visual Effects tool, which we considered earlier.

Configuring Ready Boost

A new way of increasing performance in Windows Vista is the use of Ready Boost. Utilizing USB (and even an SD card), flash memory technology users can

quickly add a performance boost to their systems. Ready Boost does not add physical memory to the computer; rather, it acts as a cache for random I/Os, taking advantage of the quick speeds of USB and SD technology. The upside of Ready Boost is that information sent to the device is encrypted (128bit AES) so no security issues exist. Another great feature is that data stored on the device is still written to disk because ready boost is a *cache*. Therefore, if you're Ready Boost device is unplugged or if the device fails, nothing is lost. Ready boost is also designed to your available space on the device. Therefore, you don't need to erase all your files just to use Ready Boost. USB and flash memory devices being relatively inexpensive, we would recommend a dedicated device for Ready Boost.

Ready Boost does have a few drawbacks, however. First, because of the FAT32, file system used by the devices, Ready Boost is limited to minimum of 256 MB and a maximum of 4 GB. Second, not all devices are Ready Boost "ready," so your USB key drive may not work with Ready Boost. Another drawback, if you can call it that, is that you can add only one Ready Boost device to your system.

Other Performance Issue Tools

Windows Vista includes two other technologies that are not configured or directly manipulated for troubleshooting purposes, but bear mentioning nevertheless: the Windows SuperFetch and ReadyDrive technologies.

SuperFetch is a memory preloader that improves performance by intelligently preloading information. SuperFetch tracks when applications are used and tracks time of day and other statistics to make SuperFetch even more intelligent.

ReadyDrive allows systems equipped with hybrid drives or flash memory caches to boot faster and resume from hibernation more quickly. ReadyDrive also saves battery power.

EXERCISE 8.2

MANAGING STARTUP PROGRAM ISSUES

In this exercise, we will look at how to manage startup programs in Performance Information and tools dialog box.

1. Open the **Control Panel** and click **System and Maintenance**.
2. Scroll down and click **Performance Information and Tools**.

3. From the left pane Tasks menu click **Manage Startup Programs**.
 4. Highlight the application you wish to change and choose **remove** or **disable**.
 5. Close **Performance Information and Tools**.
-

Using Diagnostic Tools

In addition to the tuning of performance issues, you sometimes need to diagnose serious system malfunctions. Windows Vista again has several built in diagnostic tools to help you troubleshoot those issues and resolve them.

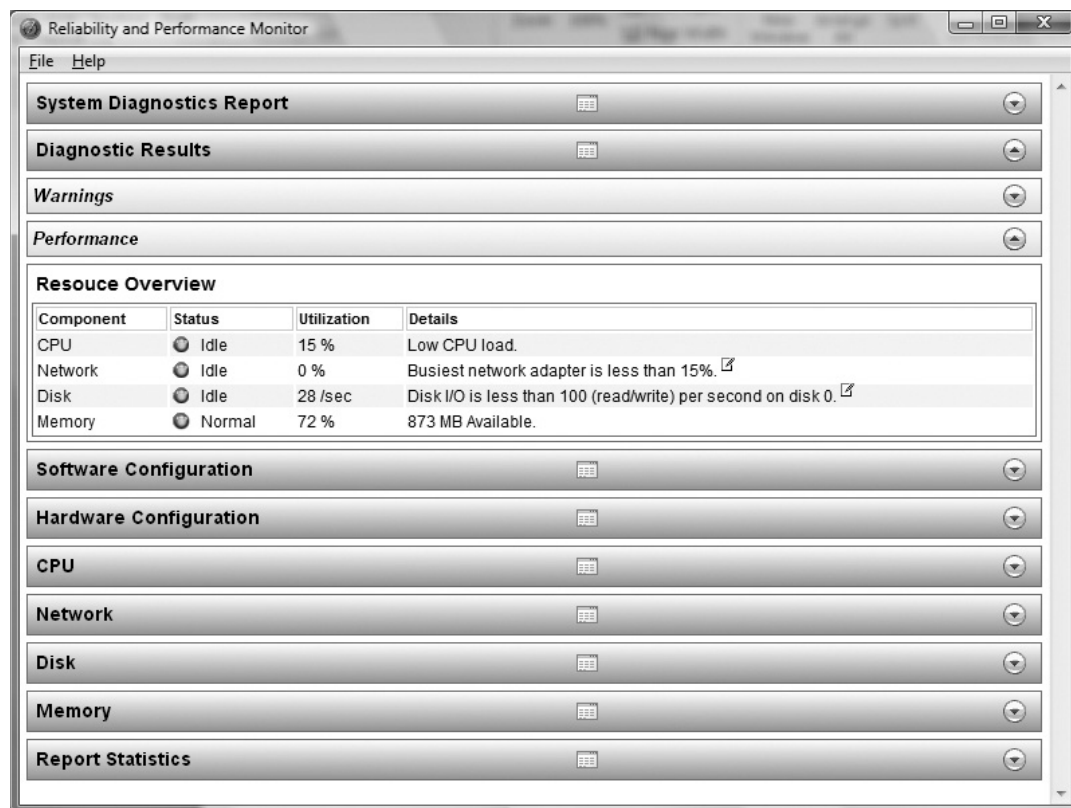
We will look at the advanced tools, which we skipped in the section titled “Troubleshooting Performance Issues,” because these tools have more to do with diagnosis of serious problems than with overall performance.

Advanced Tools

We have already looked at how the advanced tools in the “Troubleshooting Performance Issues” section can be used to troubleshoot issues with performance. Now, we will consider how to use the advanced tools to troubleshoot issues that go beyond speed as well as look and feel. First, we need to establish a system health report, so let’s look at that tool now.

Generating a System Health Report

The system health report is actually part of the reliability and performance monitor. The advanced tools dialog box provides a shortcut for running a full system health report. Once the test is finished, you will get a full systems diagnostics report. Figure 8.6 is a condensed view of the areas that are tested.

Figure 8.6 System Diagnostics Report

This report can give you information about possible problem areas that exist. It also can serve as a baseline for referencing system performance later.

Reliability and Performance Monitor

The Reliability and Performance Monitor is a comprehensive tool for monitoring your Vista system. The reliability monitor was born out of Microsoft's "Trustworthy Computing" initiative. It is the third pillar that focuses on of course reliability. The idea behind the reliability monitor is to provide a traceable point-in-time indicator for issues that affect system reliability. The reliability monitor is made up of the system stability chart with a numeric index ranging from 0 to 10. A system stability report (Figure 8.7) that tracks the following events:

- Software installations and uninstalls
- Application failures
- Hardware failures
- Windows failures
- Miscellaneous failures

Figure 8.7 The System Stability Report Shows Several Application Failures

System Stability Report			
+ Software (Un)Installs for 4/14/2008			
- Application Failures for 4/14/2008			
Application	Version	Failure Type	Date
CCU_Engine.exe	1.7.548.0	Stopped working	4/14/2008
iexplore.exe	8.0.6001.17184	Stopped working	4/14/2008
iexplore.exe	8.0.6001.17184	Stopped working	4/14/2008
+ Hardware Failures for 4/14/2008			
+ Windows Failures for 4/14/2008			
+ Miscellaneous Failures for 4/14/2008			

As noted in Figure 8.7, Internet Explorer stopped working several times. The information provided helps to troubleshoot the issue. The version is 8.0.6001.17184; this is in fact Internet Explorer 8, which we are beta testing. The information provided easily explains the failure because it is not fully supported by all our usual Web sites yet. The information provided in this report can include the following data:

- Installation or uninstalling of applications
- Updates to the OS (security patches, hot fixes, etc)
- Installed or modified drivers

The performance monitor was previously called system monitor, and it has been greatly expanded to include more than the basic information (Resource Overview) you glean when first opening the Reliability and Performance Monitor. Using the data collector sets, administrators can create custom monitors that can be viewed in an easily readable report right within the reports section. The Reliability and Performance monitor has several predefined data collector sets and reports;

it also can create user-defined data collector sets. Unlike previous versions of system (performance) monitor, these data collectors can be added to answering wizards about your monitoring needs rather than learning what each collector does by trial and error.

Event Viewer

Another long-standing troubleshooting tool that has been updated is the event viewer. For easy administration, you should access the event viewer by logging in with an account with full admin rights. Standard user accounts that require you to provide admin credentials will limit what you can view. Under the Windows Logs selection, the standard events are logged in the event viewer:

- **Application** Stores events relating to programs
- **Security** Stores events relating to security such as Audit success/failure
- **System** Stores events relating to Windows Vista and Vista Services

Some new arrivals are:

- **Setup log** Stores events relating to setup. This log is used for Domain Controllers in an Active Directory environment.
- **Forwarded Events** Stores events forwarded from other computers. These event levels are as follows:
 - Critical
 - Warning
 - Information
 - Audit success (security log only)
 - Audit Failure (security log only)



TEST DAY TIP

The setup log files refer to the setup of domain controllers for Active Directory. Because Windows Vista is the client operating system, it is safe to say that the 70–620 exam will not have questions on the setup logs because they do not pertain to the Windows Vista client.

Besides the normal windows logs there are the custom views, applications and services logs, and the subscriptions logs. The applications and services logs provide information for many specific Windows areas in need of troubleshooting, such as the following:

- DFS Replication
- EFS Debug
- Hardware Events
- Internet Explorer
- Key Management Service
- Media Center
- Microsoft (numerous Windows logs)
- Various Microsoft diagnostics (e.g., Microsoft Office Diagnostics, Windows Powershell)

If you need to initiate tasks such as starting a program, sending an e-mail message, or displaying a message, simply attach a task to the event using the Action menu to the right. To attach a task to an event select the event and then in the action menu click **attach a task to this event**. Follow the wizard to complete this task.

Task Manager

Another familiar Windows tool that has been *souped up* is the Window Task Manager. Task Manager now has six tabs: Applications, Processes, Services, Performance, Networking, and Users. The Services and Users tabs are new in Windows Vista. So let's begin with these tabs.

Services

In the Services tab you can not only see which services are available on the system but also actually start or stop a service. If you need to go to the service management console to make additional changes when troubleshooting (such as changing the login account or startup type), you can do this directly from the Task Manager. Another neat feature is the ability to right-click on a service and choose **Go to process**, which will bring you not just to the Processes tab but directly to the process associated with the service running.

New & Noteworthy...

From Service to Process

The ability to troubleshoot the exact process that is causing issues with your Vista system is a big step in the right direction. Administrators often find themselves in situations when a service or process does not respond and freezes a system. When this problem occurs, two things are bothersome to administrators. First the process and service weren't so easily traced back to one another. Second, some services actually use a Windows process such as `svchost.exe`, which can be listed several times. Trying to figure which one is the process to end is a nightmare. Most times, it was actually easier to restart the machine.

Users

Another new tab in Task Manager is the User tab. This tab allows you to view all users connected to the system. It also shows the status and the client name if this is a remote session. The User tab allows you to connect, disconnect, log off, or send messages to users. As an added bonus (if security settings allow), you can use the remote control feature. For an administrator this is a great way of seeing who exactly is connected to that machine and perhaps even support a remote user connected to a user share without having to be physically present.

Applications

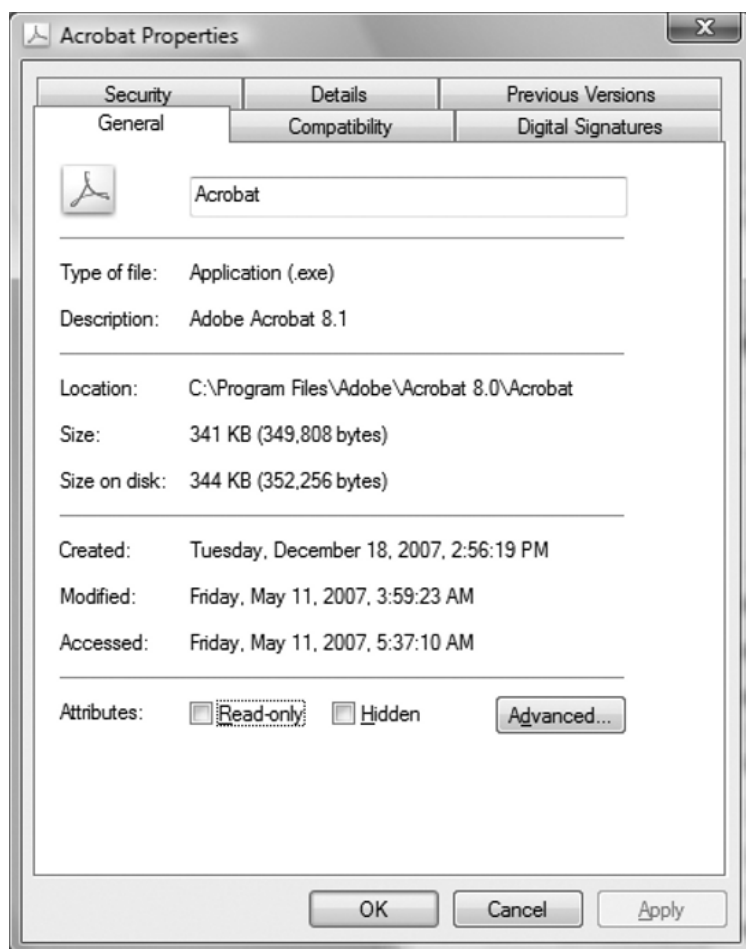
A well-known Task Manager tab, the Applications tab allows you to see the task's status. Here, you can end a task that is nonresponsive, switch to another task easily, or launch a new task—all things that you could do in Windows XP. However, this tab has been upgraded so that you now have the option to go to the related process for the application. In addition, if a program is nonresponsive, you can not only end the task but also create a dump file to figure out why the program froze in the first place.

Processes

The Processes tab functions pretty much the same as in Windows Vista. Just as you did with the Applications tab, you can use the Processes tab to create a dump file

for a frozen process to understand why a process stopped working. Two notable new features are the option to open the file location for a process and the properties page (Figure 8.8) for the process.

Figure 8.8 Properties Page Launched from Processes Tab in Task Manager



Likewise, you can set the processor affinity for a particular process; however, this is not something that should be readily changed. It should be done as a last resort to improve performance issues. That being said, processor 25.00*20 affinity could be defined as the behavior settings of multiprocessor systems. In layman's terms, you can choose which processor would be responsible for executing the process. Figure 8.9 shows the standard affinity settings for a process on a Quad-Core system.

Figure 8.9 Process Affinity on Quad Core System

Performance

The Performance tab shows system performance in a graphical representation. Here, you can troubleshoot issues such as CPU usage, memory usage, and CPU and memory usage history. The bottom half provides you with information on memory, such as how much memory is used for caching. You can also see the systems uptime and size of the paging file in use. The Performance tab also allows you to launch the resource monitor from Task Manager.

Networking

The Networking tab provides you with information about your network connections. Here, you can see the percentage of utilization and connection state. Using this tab, you can also see which adapters might have issues

Other Built-in Tools

Besides the tools that are included in the Advanced Tools, Windows Vista has diagnostic tools to help further troubleshoot problem areas in your system. Let's look at the other built-in tools and how they keep Vista running.

Memory Diagnostic Tool

The Memory Diagnostic tool allows you to troubleshoot memory issues such as failing memory and memory leaks. The tool is automated, so once it is launched the first time, there is nothing much else to configure. The only decision to make is to restart and run the memory test immediately or run the memory test after the next restart.

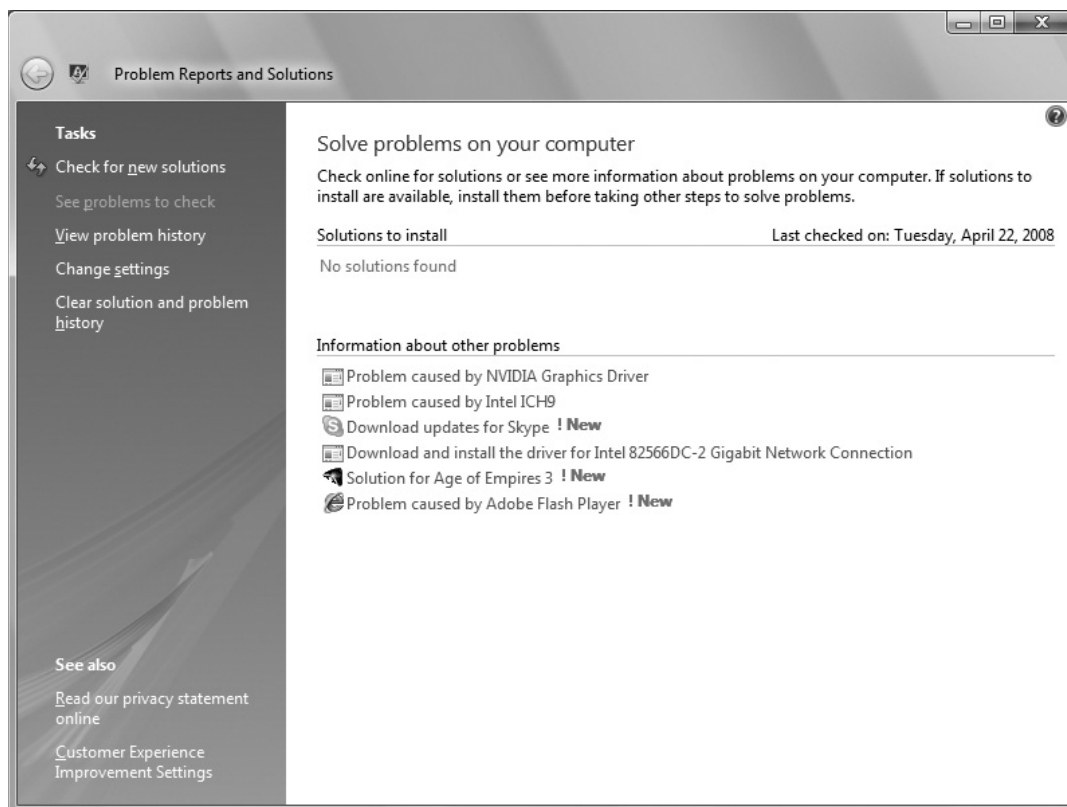
Problem Reports and Solutions

Found in the control panel the Problem Reports and Solutions tool is an automated solution that helps us resolve issues. The right pane shows what the reported problems are, and to the left in the tasks section, you can choose from a few options:

- Check for new solutions
- See problems to check
- View problem history
- Change settings
- Clear solution and problem history

Figure 8.10 shows the Problem Reports and Solutions dialog box for Windows Vista.

Figure 8.10 Automatically Fix Problems with Problem Reports and Solutions



EXERCISE 8.3

SETTING AFFINITY AND CHECKING PROPERTIES IN TASK MANAGER

In this exercise, we will look at how to check the processor affinity settings and check the properties page for a process running in Task Manager.

1. Click **ctrl + alt + del** or go to Performance Information and Tools and click **Advanced Tools**. In the Advanced Tools section click **Open Task Manager**.
 2. Click the **Processes** tab.
 3. Choose your process and then right-click and choose **Set Affinity**.
 4. The Process Affinity dialog box will pop up. Check your settings and make the changes for improved performance. Click **OK**.
 5. Next, right-click the process and click **Properties**.
 6. Review the Properties page for the process and then click **OK**.
-

Summary of Exam Objectives

Troubleshooting users' computer problems has historically been an arduous task. However, Windows Vista has made strides in taking much of the labor out of the process. Troubleshooting has become more automatic. And reporting on these issues has been simplified. By adding easy-to-read reporting capabilities, a problem area can be spotted and corrected easily. Using Media Center and Media Player with an internet connection, user rights management can be maintained with almost no intervention. Understanding that ReadyDisk and SuperFetch improve responsiveness of the operating system is important, but you will not necessarily see exam questions on these tools. ReadyBoost questions are likely to show up in the exam, so be sure you understand how to configure ReadyBoost and know what factors may not cause it to work. The Reliability and Performance monitor brings together old and new technologies. Combining performance (*formerly* system) monitoring together with the Reliability monitor to help track and maintain a system that runs at optimal levels. There will be quite a few questions on the exam on this tool, so know it well. Improving on old technologies such as disk defragmenter and disk cleanup to keep Vista running at peak performance is a big advancement. And again there is a good chance you will come across exam questions about how to use both of these technologies.

The return of other very reliable diagnostics, such as the Event Viewer and Task Manager, which have both been upgraded to include new functionalities, helps you not only to track the processes services and applications running but also to link these all together to find better ways to troubleshoot and repair issues. For the exam be sure you know at least the main event viewer logs and the event levels that correspond. Task Manager is almost definitely going to appear on the exam, so be ready to field questions on going from a process to the service or from the service to the application.

With the way these tools are advancing makes, it makes us wonder just how much we will need to support end users in a few more years. Tools like Problem Reports and Solutions take the guess work out of troubleshooting and also take the troubleshooting out of troubleshooting. Vista has facilitated probably one of the most frustrating parts of administrators' jobs: trying to figure out why something is not working.

Exam Objectives Fast Track

Troubleshooting Media Applications

- ☑ A common issue with Media Extender failures is the firewall. For Microsoft-based firewalls make sure the Media Extenders are added to the exceptions list. For third-party firewalls, you will need to open the necessary ports.
- ☑ Troubleshoot Media Center TV recording by checking that guides are up-to-date and by checking that the volume used for recording has enough space. Changing the recording quality will allow you to record more programs.
- ☑ Media Player will not back up your media usage rights. Privacy settings, however, do allow you by default to download usage rights automatically and check if protected files need to be refreshed.
- ☑ To share files in Windows Media Player, make sure your network settings are set to private for all adapters. Any adapters that show up as being on a public network will disable media-sharing capabilities.

Troubleshooting Performance Issues

- ☑ Performance Information and Tools contains the Windows Experience Index score as well as several performance-tuning tasks.
- ☑ The Windows Experience Index measures the following components.
 - Processor Calculations per second
 - Memory operations per second
 - Graphics Desktop Aero performance
 - Gaming Graphics 3D graphics performance
 - Primary hard disk Disk Data transfer rate
- ☑ ReadyBoost is not a paging file or physical memory; rather, it is a caching technology that utilizes USB 2.0 and flash memory devices. Minimum acceptable size for a ReadyBoost device is 256 MB. Maximum is 4GB.

Using Diagnostic Tools

- ☑ The Reliability and Performance Monitor has predefined data sets for testing reliability and performance in the following areas:
 - LAN Diagnostics
 - System Diagnostics
 - System Performance
 - Wireless Diagnostics
- ☑ By right-clicking on an application in the Application tab or a service in the Services tab, you can select the Go To Process, this will open the corresponding process in the Processes tab. You can conversely, right-click a running process and by right clicking to use the Go To Service tab to view the dependant service for the process.
- ☑ From the processes tab you can right click and view the properties page for a running process. You can also improve performance by changing the processor affinity in multi core systems.

Exam Objectives

Frequently Asked Questions

Q: What is needed to extend Media Center to a TV?

A: A TV tuner card on the Media Center PC, A Home Network and a Media Extender such as Xbox 360 or other media extender device.

Q: Which versions of Windows Vista contain Windows Media Center?

A: Media Center is available in Windows Vista Home Premium and Vista Ultimate.

Q: Does Media Player 11 support ID 3 tags?

A: Yes, Media Player 11 supports both ID3 v1 and ID 3v2 tags.

Q: Is it possible to add locations to the search Index?

A: Yes, Microsoft advises that you exercise caution, particularly in the area of indexing an entire volumes as this would create a large index database and can cause significant performance issues.

Q: Are there any components of SuperFetch that I could configure?

A: No, SuperFetch is an algorithm that Vista uses to handle memory requests; there are no configurable components to SuperFetch.

Q: I have a 4GB USB thumb drive with 2.5 GB available. Can I use it for ReadyBoost without losing the data I have stored on the device.

A: Yes, ReadyBoost includes a throttling function to set how much memory to allocate. ReadyBoost will use only available space by default.

Q: Can I send messages to users connected to a share on my PC?

A: Yes, in Task Manager under the users tab you can select users that are connected to your Vista computer. Then just right-click to send a message.

Q: Can I create my own reports in the Reliability and Performance monitor?

A: Yes, Vista provides two methods of creating data collection sets that are used to create reports. You can either choose the data collection set templates, which use base information needed to monitor your system. These can be expanded to include additional performance counters. Or you can manually create a data collection set and save it as a template for later use.

Self Test

1. Windows Media Player contacts Internet data services to update information about the media files that are stored in the library. You want to use this feature, but notice that all the information you have manually added about your files is being overwritten, and this is information you would like to keep. What can be done to correct this behavior?
 - A. You have forgotten to enable the Ask Before Overwriting check box under Media Player's Retrieve Additional Information From The Internet link while configuring More Options.
 - B. The Media Player is currently configured with the Automatic Media Information Updates For Files Setting, and this setting will update the player with any available information.
 - C. The Media Player is currently configured to Overwrite All Media Information.
 - D. The Media Player is currently configured to Only Add Missing Information to files.

2. Alicia has an older desktop computer that is capable of running Windows Aero. At present, the Visual Effects in Performance Options are configured to Let Windows Choose What's Best for My Computer. Alicia has seen Windows Aero running on other people's computers and is disappointed that Transparent Glass, Menu Shadows, and Shadows Under Mouse Pointer are not displayed. She would like these features enabled. Alicia has tried the Adjust for Best Appearance setting, but has found the responsiveness to be too slow for her taste. What can she do to have the best performance while enabling the desired features?
 - A. Select the **Adjust For Best Appearance** option
 - B. Select the **Custom** option and enable the desired features
 - C. Select the **Adjust For Best Performance** option
 - D. Select the **Let Windows Choose What's Best For My Computer** option

3. Your home cable Internet connection is located in a room at the other end of the house from your PlasmaTV. The room with the Internet connection is where your computer running Windows Vista Ultimate is located.

Your computer has a TV tuner and is attached to an outside antenna. You regularly record television programs on your computer. Your brother plays with his Xbox 360 on the Plasma regularly. His Xbox 360 is equipped with wireless capability, which allows him to sign into Xbox Live using a WiFi connection to your home cable Internet connection. What steps must you take to play the recorded TV programs that reside on your computer, on the Plasma TV in the other room?

- A. Connect the Xbox 360 to your computer using coaxial cable.
 - B. Install Windows Media Center on the Xbox 360.
 - C. Configure the Xbox 360 as a Windows Media Center extender.
 - D. Configure your computer running Windows Vista as a Windows Media Center extender.
4. Your computer running Windows Vista has been performing sluggishly for the last few hours. You suspect that a single process is consuming all of the processor's resources. Which of the following tools can you use to sort all active processes on the computer by processor usage?
- A. Task Manager
 - B. Application Log
 - C. Software Explorer
 - D. Reliability Monitor
5. Which of the following tasks can be carried out using Vista's Problem Reports and Solutions utility? (Choose all that apply.)
- A. Install critical Windows Updates that might fix a problem with Internet Explorer 7.
 - B. Set a Restore Point to a date before a given problem that was reported to Problem Reports and Solutions.
 - C. Discover which application on your computer is having the most Instability problems.
 - D. Automatically detect and install application patches and fixes that have been released by the application vendor.
 - E. See what computer problems were most prominent immediately following an application update three weeks ago.

6. You recently installed an application, the application starts up automatically; automatically starting this application may cause your computer to run slower, you need to prevent it from automatically starting without uninstalling the application. What should you do?
 - A. Open Task Manager and End the Task
 - B. Uninstall the application in the Control Panel and then reboot the system
 - C. Use software explorer to disable the application and then reboot the system
 - D. Use the service application, disable the application experience service & then launch the application
7. Which of the following are capabilities of the Windows Media Center? (Choose all that apply.)
 - A. On a Vista Business, it can be configured to prevent logging off or shutting down of the system through the Media Center interface.
 - B. On a system that is connected to a television, it can be configured to automatically start up so that it will be the main interface for that television.
 - C. You can select the type of media application used by the Media Center to handle files—QuickTime can handle movies, Media Player can handle music, and Microsoft Office Picture Manager can handle JPEGs, for example.
 - D. You can select from multiple folder locations to define your Media Library.
 - E. You can use the Parental Controls to filter certain TV shows from being viewed.
8. Emma's laptop computer is running Windows Vista Ultimate and has been progressively getting slower. She checks the volume where Windows Vista is installed, and finds that the volume is nearly full. Emma's computer only has a single volume. Emma knows that having very little free disk space available can slow down Windows Vista. What can Emma do to increase the amount of available disk space?
 - A. Format the volume.
 - B. Perform a disk cleanup.
 - C. Select "Index This Drive for Faster Searching" option.
 - D. Perform a disk defragmentation.

9. Ronnie records many programs using Windows Media Center that he never gets around to watching. His Dad notices that Ronnie either watches a recorded program within 24 hours of its original broadcast or forget about it entirely. Dad and Mom watch recorded programs within 7 days of the original broadcast. Several times Dad has had trouble with scheduled recordings because Windows Media Center has run out of space to store recorded programs. Which Keep setting could Dad configure in Windows Media Center given the family's viewing habits?
- A. Until I delete
 - B. Until I watch
 - C. Until space is needed
 - D. For 1 Week
10. You are troubleshooting the performance of a Vista Business edition computer on your corporate network. The user reports that she has experienced a lot more problems in the past week, especially when compared to when she first received the computer 2 months ago. How can you quickly generate a graph of system stability to double-check the accuracy of the claim? (Choose all that apply.)
- A. Use Task Manager and then choose the **Performance** tab. Open **The Resource Monitor** and then expand the Reliability button.
 - B. Open the **Reliability and Performance Monitor** and then click the **Reliability Monitor** node.
 - C. Open the **Reliability and Performance Monitor** and then expand the Reports node. Now select the **System Diagnostics** reports and then right-click and select **Generate Chart** from the context menu.
 - D. Use Task Manager and then click the **Performance** tab, where you can get a graph of current system performance. From the View menu, choose the **CPU History** option and then select a date range rather than real-time information.

Self Test Quick Answer Key

- | | |
|----------------|----------------|
| 1. C | 6. C |
| 2. B | 7. B, D, and E |
| 3. C | 8. B |
| 4. A | 9. D |
| 5. C, D, and E | 10. A and B |