This chapter examines Windows 7's on-board monitoring tools and shows you how to utilize them in day-to-day situations.

11

Managing and Monitoring Windows 7

Performance Information and Tools

The Windows Experience Index (WEI) was first introduced in Vista. It returns largely unchanged in Windows 7 (see Figure 11.1) save for a few subtle refinements. The purpose of the WEI is to measure the capability of your computer's hardware and software configuration. After testing it out, the WEI expresses this measurement as a Base score number. The higher the base score, the better.
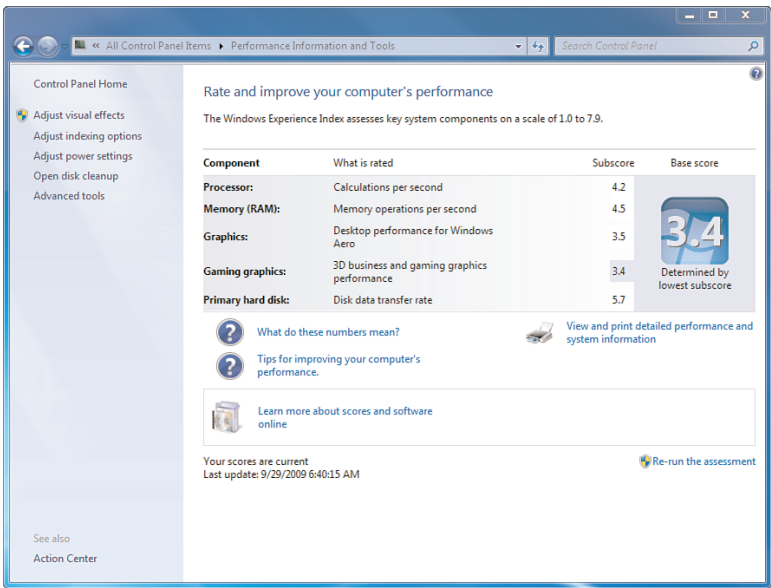

Figure 11.1   *The Windows Experience Index (WEI).*

🖱 **LET ME TRY IT**

Running the Windows Experience Index Assessment

Before starting this exercise, shut down any applications running on your system. These could potentially slow system performance and return a lower score. The following steps show you how to run the Windows Experience Index assessment (see Figure 11.1).

1. Click the Start orb.

2. Click Control Panel.

3. Click System and Security.

4. Click System.

5. Click Windows Experience Index.

6. In the lower right, select Re-Run the Assessment. If a UAC window opens, click Yes. The test runs and updates your base score.

The Base score rating is a number that is based upon the five Subscore ratings for the following categories:

- Processor
- Memory (RAM)
- Graphics
- Gaming Graphics
- Primary Hard Disk

The final rating is not, as you might expect, a compilation of all the ratings. It's actually the lowest of the Subscore ratings. For someone using basic computer functions (such as surfing the Internet), a score of 4.0 would be just fine for them to use these basic functions. On the other hand, someone playing the latest hardware-intensive games would typically need a much higher score, perhaps 7.0 or above.

WEI scores range from 1.0 to 7.9. The high score was 5.9 in Vista, so the adjustment to 7.9 accounts for faster hardware since Vista was released. In response to experience and feedback comparing closely related devices, Windows 7 updated the scoring rules that Vista used.

Can you get a higher base score on some components without upgrading your hardware? Yes. The improvement to your score won't be huge, but you can do a few things to definitely make it better. Here are a couple suggestions to improve your computer's performance. Not all of these will affect the base score, but they will contribute to improved performance overall.

Close all running applications: Before running WEI, shut down as many applications as possible. These could have an impact on performance. If you really want to prepare the machine for the test, reboot it before running WEI. During the test, don't start or use applications.

Configure visual effects: Changing how menus and windows display can have an effect on performance.

Adjust power settings: These, too, can have an effect on your computer's speed. Select the High Performance option before running the test. If you are running this test on a laptop, make sure it is plugged in. Using a laptop with a battery draining down can cause some CPUs to enable a reduced power mode that slows the calculations in an effort to save energy. This can affect your Processor Subscore.

Clean up your hard drive: This is always a good idea and there are some good hard-drive cleaning tools in Windows 7, such as Disk Cleanup and Disk Defragmenter.

By knowing your base score, you can make better software purchasing decisions. The key is purchasing titles that are equal to or below your base score. For example, the hottest game on the market might require a high-performing graphics card. By understanding your Gaming Graphics Subscore, you can determine if your machine can handle it or not. If your Gaming Graphics Subscore falls short yet you still want to try a game that requires a high-performing graphics card, your system might be sluggish it might not run at all.

Seeing exactly how your hardware rates gives you a good feel for what needs to be upgraded next. In the neverending upgrading world of computers, it's only a matter of time which component will be next on your shopping list.

Windows System Assessment Tool (WinSAT)

The Windows System Assessment Tool (WinSAT) is the behind-the-scenes application that creates your WEI.

For the most part, when you install an OS like XP, you get XP in all its glory, regardless of the box you are running it on. So, although the underlying DLLs might be different, the OS options should be the same, right? Or should they? Does it really make sense that two systems—one which is a $200 cheap-o box with cheesy hardware—should be put in the same position to handle the OS features of a mega system? Well, Windows 7 has a little underlying tool that helps to differentiate between the two, called WinSAT.

When you first install Windows 7, but before the first log-in, WinSAT runs its testing process to see what your individual system can handle. It uses that information to determine which operating system features should be enabled or disabled by default. For example, if your system cannot handle Aero features, the settings on your OS will reduce itself to basic mode.

The WinSAT utility creates its output in the system directory: %systemroot%\Performance\WinSAT\DataStore. Each time your run WinSAT, a new XML file is generated in this folder with the date of the assessment stuck at the beginning of the filename—for example, 2010-01-01 12.00.00.000 Assessment (Formal).WinSAT.xml. There is also a file in this directory with the word *Initial* inside the bracketed part of the filename.

Advanced Tools

The Performance Information and Tools page includes an Advanced Tools link to the left. Clicking this option takes you to the Advanced Tools page (see Figure 11.2).

This page displays any Performance Issues you can address to improve performance as well as a variety of tools you can use to monitor or improve your performance. These tools include the following:

- **Clear All Windows Experience Index Scores and Re-Rate the System:** Forces a complete re-run of all Windows Experience Index tests.

- **View Performance Details in Event Log:** Displays details of problems affecting Windows performance.

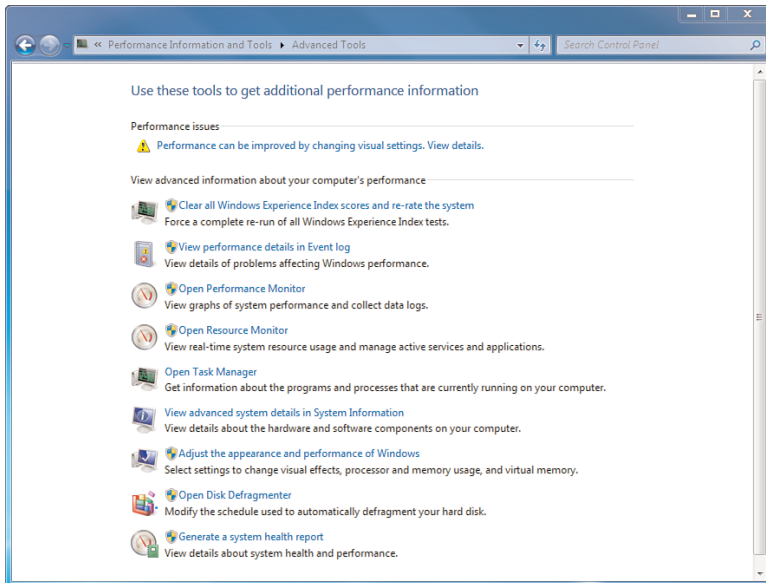- **Open Performance Monitor:** Displays graphs of system performance and collects data logs.

Figure 11.2   *Advanced Tools for performance.*

- **Open Resource Monitor:** Displays real-time system resource usage and manage active services and applications.

- **Open Task Manager:** Displays information about the programs and processes that are currently running on your computer.

- **View Advanced System Details in System Information:** Displays details about the hardware and software components on your computer.

- **Adjust the Appearance and Performance of Windows:** Provides settings to change visual effects, processor and memory usage, and virtual memory.

- **Open Disk Defragmenter:** Displays the schedule used to automatically defragment your hard disk; you can modify this schedule to better suit your needs.

- **Generate a System Health Report:** Displays details about system health and performance.

The Reliability Monitor

In Vista, the Reliability Monitor and the Performance Monitor were combined with the Resource Monitor. These have been split up in Windows 7 so that each one stands on its own. The overall functionality within each is the same, however; they just look a little differently (and have a few new features) because they have been restructured to work alone.

What is your standard method for determining the reliability of your system? Most of us determine our system's reliability by how long it has been since it has blue screened on us or forced us to reboot. Unfortunately, that isn't the most "technically sound" way to assess reliability.

The main goal of the Reliability Monitor is to keep track of "reliability events," which have been defined as changes to your system which could alter the stability or other events that might indicate system instability (see Figure 11.3). Events monitored include:

- Windows updates
- Software installs and uninstalls
- Device driver installs, updates, rollbacks, and uninstalls
- Application hangs and crashes
- Device drivers that fail to load or unload
- Disk and memory failures
- Windows failures, including boot failures, system crashes, and sleep failures

The Stability Index rating gives you a visual of how reliable your system performs over time. You are given an overall Stability Index score. Ten is perfection, one is the lowest. The Reliability Monitor retains up to a year's worth of data so you can really see how your system has been performing over time.

The Reliability Monitor displays a Stability Index rating 24 hours after installation and provides specific event information.
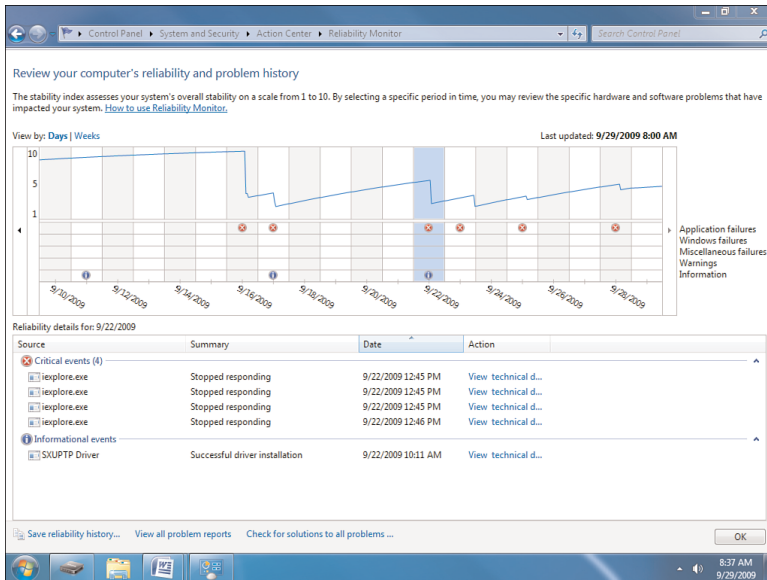
Figure 11.3   *Reliability Monitor.*

If you see a drop in stability, you can check the date the drop began and then see if the decline was due to one of the following issues:

- Application failures

- Windows failures

- Miscellaneous failures

- Warnings

- Information

Since the main purpose of the Reliability Monitor is to display data, there is limited functionality. The menu at the bottom of the page allows you to save your history as an .xml file, view all problem reports, and check for solutions to all problems. Another option is to find solutions for individual events.

SHOW ME   **Media 11.1—The Reliability Monitor**
Access this video file through your registered Web Edition at
my.safaribooksonline.com/9780768695212/media.

Using Reliability Monitor to Check for a Solution to a Specific Application Problem

The following steps show you how to run the Reliability Monitor to check for a solution to an application failure. A connection to the Internet is required.

1. Click the Start orb.

2. In the Search box, type **reliability**.

3. Click View Reliability History. The Reliability Monitor opens.

4. Select an application failure from the Stability Index.

5. Click the Check for a Solution link. Problem reporting connects with the Windows Error Reporting service to locate and provide a solution.

The Resource Monitor

The Resource Monitor (see Figure 11.4) shows a real-time view of your system's CPU, Memory, Disk and Network usage. As shown in Figure 11.4, you can select items in the CPU group to show those items in the graphs shown to the right. In addition, you can use the Resource Monitor to stop processes, start and stop services, analyze process deadlocks, view thread-wait chains, and identify processes-locking files.

LET ME TRY IT

Open the Resource Monitor

The following steps show you how to open the Resource Monitor.

1. Click the Start orb.

2. In the Search box, type **resource**.

3. Click Resource Monitor.

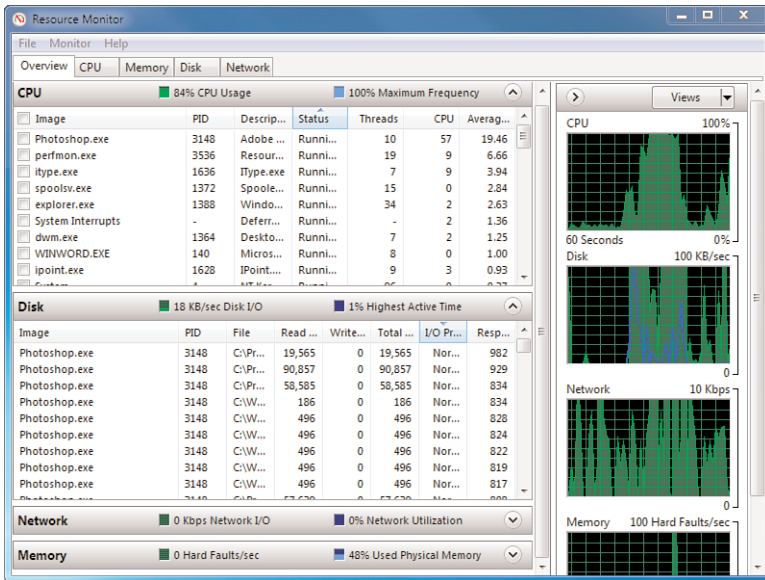4. If a UAC window opens, click Yes. The Resource Monitor opens.

Figure 11.4   *The Resource Monitor.*

When you first look at the Resource Monitor, you might not realize just how much data is available for analysis. There is a lot going on in the various tabs shown:

- **Overview:** This is the default tab shown the first time you start Resource Monitor. (On subsequent starts, Resource Monitor displays the last tab you viewed before closing it.) The center view pane displays four sections: CPU, Disk, Network, and Memory. Click the Down arrow to the right of each section to expand the section and display real-time stats.

- **CPU:** This tab contains four sections related to your processor: Processes, Services, Associated Handles, and Associated Modules.

- **Memory:** This tab shows a graphical display of your memory in use and includes a Processes tab.

- **Disk:** Click this tab to view processes with disk activity, disk activity, and storage sections.

- **Network:** Click this tab to view processes with network activity, network activity, TCP connections, and listening ports.

To the right, a view pane displays a graphical readout of CPU, Disk, Network, and Memory activity. This right pane changes as you click each tab to show a graphical representation of the data for that tab. For example, clicking the Memory tab changes the right pane to display Used Physical Memory, Commit Charge, and Hard Faults/Sec. Additionally, clicking the drop-down arrow at the top of the right pane allows you to customize the size of these graphs.

LET ME TRY IT

Identifying the Network Address To Which a Process Is Connected

You need a working network connection to complete the following steps, which show you how to find a network address that a process is connected to.

1. Click the Start orb.

2. In the Search box, type **resource**.

3. Click Resource Monitor.

4. If UAC window opens, click Yes.

5. The Resource Monitor opens. Click the Network tab.

6. Find the process for which you want to see the network address it is connected to and select its checkbox. (If you don't recognize a process, select the System process.)

7. Click the TCP Connections title bar.

8. Examine the Remote Address to see which network address the process is connected to.

You might have noticed that when you select the process checkbox, it moves that process to the top of the list. This enables you to focus on this particular process rather than search for it as the list dynamically updates.

Another invaluable use for the Resource Monitor is the ability to view applications that are not responding. You can view the Wait Chain of a process (see Figure 11.5) and end processes that are preventing a program from working properly.
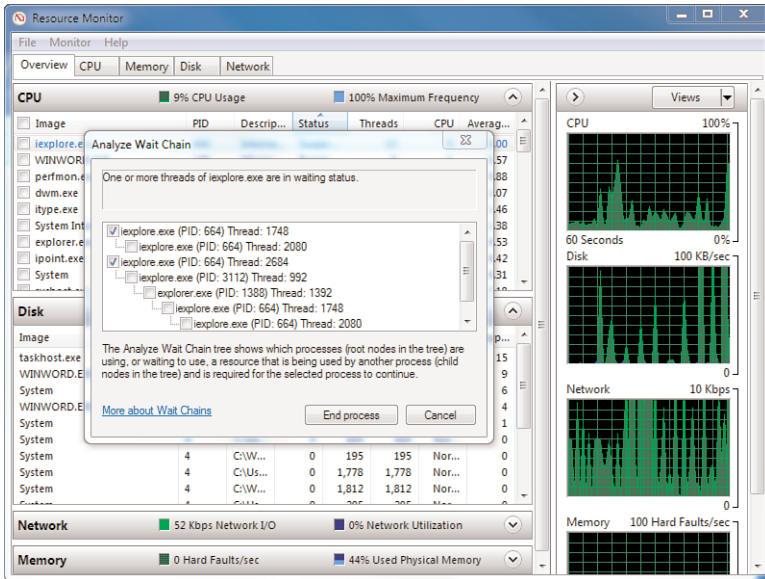
Figure 11.5 *Examining an unresponsive process wait chain.*

LET ME TRY IT

Troubleshooting an Unresponsive Application Through the Resource Monitor

The following steps show you how to use the Resource Monitor to analyze applications. Before you begin, open a couple applications—such as Notepad and Paint—without saving them. Use these applications for analysis through Resource Monitor.

1. Click the Start orb.

2. In the Search box, type **resource**.

3. Click Resource Monitor.

4. If UAC window opens, click Yes.

5. The Resource Monitor opens. Click the Overview tab.

6. Locate any process that is not responding, as noted by its blue appearance. Right-click the process and choose Analyze Wait Chain. The Analyze Wait Chain dialog box opens with a tree displaying organized by dependency.

7. Select a process and click the End Process button.

8. Repeat Step 8 until the application responds.

Under normal circumstances, if you want to end an unresponsive application, you might use the Task Manager to end a task. Use caution when you use the Resource Monitor to end a task. You should use Resource Monitor to end a process only if you are unable to close the program by normal means. By ending an application process, the application associated with the process will close immediately and you will lose any unsaved data. If you end a system process, it might result in system instability and data loss.

Working with the Performance Monitor

For many years, the Performance Monitor tool stood alone. In Vista, it was combined with the Resource Monitor and the Reliability Monitor. It was also given a new structure for collecting data. The Performance Monitor can show you performance data in either real-time or from a log file. Data Collector Sets can be set to run immediately or on a schedule to collect and analyze specific aspects of your system.

Monitoring Tools, Performance Monitor (see Figure 11.6) displays a visual representation of your system so you can inspect a variety of components, beyond what the Resource Monitor shows you. Initially, you won't see more than the % Process Time. You can add more performance metrics (called *counters*) by hitting the + sign.

When you first see the number of possible counters and instances, the task of choosing which items to monitor can seem overwhelming. There are roughly 100 different Performance objects for any given system (you can monitor the local system or a remote one). Each of those objects contains counters. (There are way too many counters to know them all.) Once you have all your counters set up, you can make changes to the way they are displayed. For example, you can change the line colors for each counter to make it easier to determine which line you are watching. You can change the format of the display to a graph, a histogram, or a report (numeric display).

Data Collector Sets allow you to use System-defined sets (there is one for System Diagnostics and one for System Performance) or User-defined sets (which is empty to start with, you literally have to create your own). You can also look at Event Trace Sessions and Startup Event Trace Sessions.

The goal is to use Data Collector Sets to collect the data and then the Report sections to view the data collected. As shown in Figure 11.6, we ran a System Diagnostics report and then viewed the results in the Reports section.
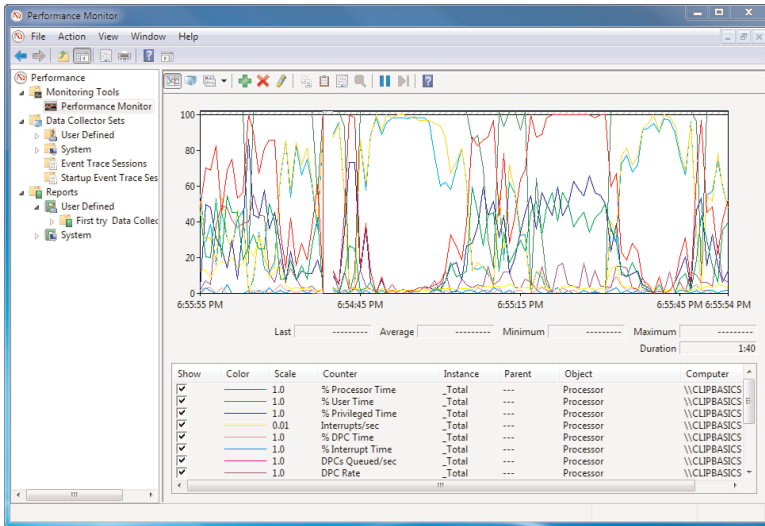
Figure 11.6   *Real-time Performance Monitor.*

LET ME TRY IT

Configuring the Performance Monitor to Display Results As a Web Page

The following steps show you how to open the Performance Monitor and configure it to save performance results for viewing in a in a web browser.

1. Click the Start orb.

2. In the Search box, type **perfmon.exe**.

3. Click Performance Monitor.

4. If a UAC window opens, click Yes.

5. In the left pane, click Performance Monitor.

6. Right-click in the Performance Monitor display area and click Save Settings As.

7. Choose where you want to save the file.

8. Type a name for HTML file.

9. Click OK.

10. Navigate to the saved HTML file and open it. It will display captured performance information in your browser.

As an admin, you would find it both time-consuming and monotonous to have to physically be at every computer to run Performance Monitor. Fortunately, network administrators or those with administrator rights can now remotely gain access to this feature and connect.

LET ME TRY IT

Connecting to a Remote Computer with Performance Monitor

The following steps show you how to connect Performance Monitor to another computer on the network. To complete these steps, you will need a working network connection and a connection to another computer on the network.

1. Click the Start orb.
2. In the Search box, type **perfmon.exe**.
3. Click Performance Monitor.
4. If a UAC window opens, click Yes.
5. In the left pane, click Performance Monitor.
6. On the top menu, click Action and then choose Click Connect to Another Computer.
7. If you know the name of the computer you want to monitor, type that name; if you don't know the name, click Browse to locate it.
8. Click OK.

There are two requirements to viewing performance counters from a remote computer. First, the Performance Logs and Alerts firewall exception must be enabled on the remote computer. Second, users in the Performance Log Users group must also be listed inthe Event Log Readers group on the remote computer.

LET ME TRY IT

Creating Data Collector Sets from Performance Monitor

The following steps show you how to use Performance Monitor to collect data. You will have the opportunity to configure settings to complete this task.

1. Click the Start orb.
2. In the Search box, type **perfmon.exe**.

3. Click Performance Monitor.

4. If a UAC window opens, click Yes.

5. In the left pane, click Performance Monitor.

6. Click New and then click Data Collector Set. The New Data Collector Set Wizard opens.

7. Type a Name for this data set.

8. Click Next.

9. Select a Root Directory for your saved data. Do not enter a back slash at the end of the directory name.

10. Click Next to define a user for the Data Collector Set to run as, or click Finish to save the current settings and exit.

After you click Finish and return to the Windows Performance Monitor, there are a few things you can do with this saved data (as you will learn in the following section).

LET ME TRY IT

Editing the Properties of a Created Data Collector Set

The following steps build on the previous steps and show you how to modify the properties of a Data Collector Set.

1. Click the Start orb.

2. In the Search box, type **perfmon.exe**.

3. Click Performance Monitor.

4. If a UAC window opens, click Yes.

5. In the left pane, click User Defined to expand it.

6. Click User Defined.

7. Right-click the data collection set for which you would like to modify the properties and choose Properties.

8. After completing your modifications, click OK.

To start the Data Collector Set immediately, right-click it and choose Start.

After you have set up your data collectors, you can save the data in the form of logs that you can review later.

Not all log files are created equal. If you create a log file in Windows 7, it is not backward compatibility with earlier versions of Windows. However, log files created in earlier versions are viewable in Windows 7.

LET ME TRY IT

Setting Up a Log Schedule for a Data Collector Set

The following steps show you how to create a log schedule for a Data Collector set.

1. Click the Start orb.

2. In the Search box, type **perfmon.exe**.

3. Click Performance Monitor.

4. If a UAC window opens, click Yes.

5. Click Data Collector Sets.

6. Double-click User Defined.

7. In the console pane, right-click the name of the Data Collector Set that you want to schedule and choose Properties.

8. Click the Schedule tab and click Add.

9. Using the drop-down arrows, configure the Beginning Date, Expiration Date, and the Start Time (under Launch).

10. Click OK.

11. Click the Stop Condition tab.

12. Select the Overall Duration checkbox.

13. Select the Stop When All Data Collectors Have Finished checkbox. (This permits the data collector to complete recording the most recent values before the Data Collector Set is stopped.)

14. Click OK.

You can also configure how your data is archived. If you log reports on a daily basis, log files will generate automatically and start to consume disk space. You can define preset limits and actions to take with these files.

LET ME TRY IT

Configuring Data Collector Sets to Delete the Oldest Log File When Starting Data Collection

The following steps show you how to configure Data Collector Sets to delete the oldest log file when starting data collection.

1. Click the Start orb.

2. In the Search box, type **perfmon.exe**.

3. Click Performance Monitor.

4. If a UAC window opens, click Yes.

5. Click Data Collector Sets.

6. Double-click User Defined.

7. In the console pane, right-click the name of the Data Collector Set that you want to schedule and choose Data Manager.

8. Select the Maximum Folders checkbox.

9. In the drop down below, choose 5.

10. Change the Resource policy to Delete Oldest.

11. Select the Apply Policy Before the Data Collector Set Starts checkbox.

12. Click Apply.

13. Click OK.

In the previous example, with the Maximum Folders checkbox selected, previous data will be deleted when the limit is reached. And since the Apply Policy Before the Data Collector Set Starts checkbox was chosen as well, previous data will be deleted before the Data Collector Set creates its next log file.

It's a good idea to know your Resource policy (Delete Oldest or Delete Largest) before making other data choices on the Data Manager tab. Minimum Free Disk Space, Maximum Folders, and Maximum Root Path all revolve around your policy. Here are some other points to understand when working with these features:

• **Minimum Free Disk:** This is the disk space that needs to be available on the drive where you store the log data. When you choose this, previous data will be deleted when the limit is reached.

- **Maximum Folders:** This is the maximum total of subfolders that can be in the Data Collector Set data directory. Like the Minimum Free Disk Space option, previous data will be deleted when the limit is reached.

- **Maximum Root Path Size:** This represents the total size (including subfolders) of the data directory for the Data Collector Set. Be advised that choosing this option causes your Minimum free disk and Maximum Folders limits to be overridden and previous data will be deleted when the limit is reached.

Unless you have a trained eye or have spent some time reading reports, you might not understand the results of the data you have collected. To help with this, Windows Performance Monitor provides assistance diagnosing your reports. These reports are easy to understand and contain a wealth of data that helps you pinpoint potential problems (see Figure 11.7).
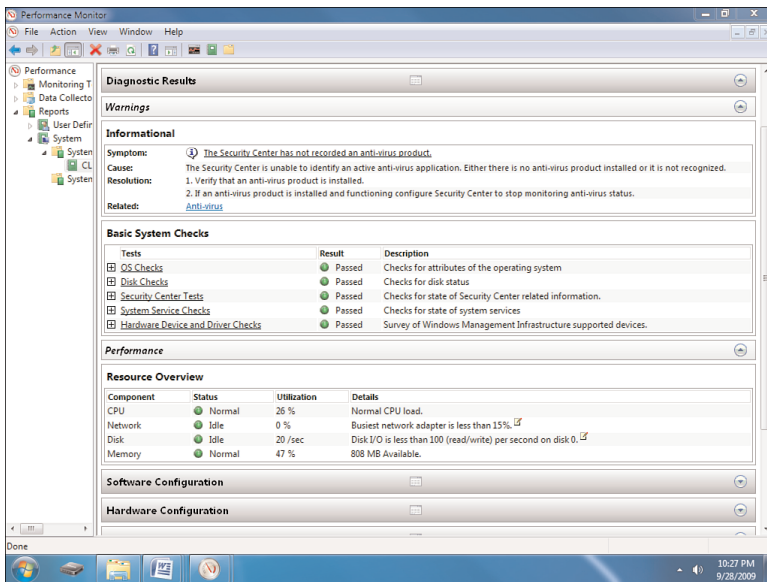

Figure 11.7 *Viewing a System Diagnostics report in Performance Monitor.*

SHOW ME **Media 11.2—Performance Monitor Data Collector Sets**
Access this video file through your registered Web Edition at
my.safaribooksonline.com/9780768695212/media

LET ME TRY IT

Enabling and Viewing a System Diagnostics Report on a Data Collection Log

The following steps show you how to enable and view a System Diagnostics report on a data collection log. The steps below show you exactly how this is accomplished.

1. Click the Start orb.

2. In the Search box, type **perfmon.exe**.

3. Click Performance Monitor.

4. If a UAC window opens, click Yes.

5. Click Data Collector Sets.

6. Double-click System.

7. Right-click System Diagnostics and choose Start.

8. The next time your data collection starts and finishes, a diagnostic report is available. View it by double-clicking Reports.

9. In the left pane, double-click System.

10. Click System Diagnostics.

11. Reports will show up in the view pane. Identify the report you would like to view and double-click it. A System Diagnostic report opens.

12. To view details on items, click the Down arrows to access the data collected and reported on.

One simple method to run the diagnostic test is to open a command prompt (elevated or non-elevated—if it is non-elevated, it will ask you for permission to proceed) and then type **perfmon /report**. If you wanted to run a different Data Collector Set, you could type **perfmon /report** *"Name of Data Collector Set"* to start it.

Task Manager

Task Manager, for many of us, is our "go-to" tool for solving problems. You have a problem, you go to Task Manager—it's almost ingrained in us. You'll see immediate information about your processes, CPU usage, memory, network, and so forth.

For one thing, the first time you start Task Manager, you'll notice that you can now choose to see processes from all the users of the system. One thing you'll notice right away is the Description aspect to the Processes tab and the Services tab (see Figure 11.8). This was added in Vista.

One of the new features of Task Manager is the ability to create a mini-dump file of an application that is running. You can right-click an application or process that is running and choose Create Dump File, which displays a dialog box that shows you where that file has been written. You can use this feature to discover why a particular application might be crashing so often. Or if a process has already crashed and is no longer responding, you can try to discover the cause.
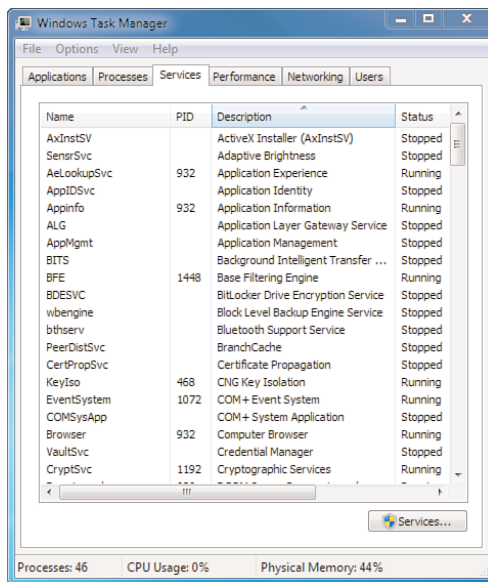

Figure 11.8 *Task Manager showing the descriptions and options for Services.*

Task Manager has six tabs:

- Applications
- Processes
- Services
- Performance
- Networking
- Users

In addition to the tabs, there is a menu at the top that serves up even more options that we'll also cover in the following section. Let's start by looking at the Applications tab.

Applications

This is the starting point for Windows Task Manager and there is more here than meets the eye. The Task column displays a list of open applications. This is a live look at your system. If you close one of the applications, it removes itself from this list.

The Status column shows whether the application is Running or Not Responding. This simple layout allows you to quickly see what application is acting up. At the bottom are three buttons:

- **End Task:** Closes an application or process.
- **Switch To:** Switches between applications or processes.
- **New Task:** Starts an application from the dialog box that opens when you click this button.

Below these buttons are real-time information regarding Processes, CPU Usage, and the amount of used Physical Memory. At a glance, you can see what resource is affected by this view in the Task Manager.

 LET ME TRY IT

Using Task Manager to End an Application

The following steps show you how to use Task Manager to end an application.

1. Press Ctrl+Alt+Del.
2. Click Start Task Manager.
3. In the Task area, locate an application that is running and click it.
4. Click the End Task button.

With this simple process, you see how easy it is to close an application. Of course, the purpose of Task Manager is to help you troubleshoot and cope with crashed applications, not ones that are working fine. So the next time an application hangs too long, follow the above steps again. When an application hangs too long, the Status column shows Not Responding. Clicking End Task should close the application.

On rare occasion, an application might stubbornly stay open despite your attempts to end it. In this situation, press Ctrl+Alt+Del again and repeat the steps to close it.

LET ME TRY IT

Using Task Manager to Start an Application

The following steps show you how to use Task Manager to start an application. In this example, you learn to end explorer.exe and restart it through Task Manager.

1. Press Ctrl+Alt+Del.

2. Click Start Task Manager.

3. Click the Processes tab.

4. In the Image Name column, locate explorer.exe.

5. Click the End Process button. Windows Explorer closes but all other applications, including Task Manager, remain open.

6. Click the Applications tab.

7. Click the New Task button. The Create New Task dialog box opens.

8. In the Open text box, type **explorer**.

9. Click OK. Windows Explorer opens.

The Create New Task button comes in handy in situations that call for you to reopen an application. If you know the path to the application, you can enter it; otherwise, you can click the Browse button to navigate to the application name.

One other option to mention on the Applications tab appears when you right-click any application. You will find Create Dump File. Dump files capture data from the application that you can share with software developers and programmers who are trying to determine why an application crashes or has other faults. The dump file is saved locally and is a copy of what the application looks like in memory. You can send it to your help and support department, which can analyze its contents.

Processes

This tab gives you a bird's-eye view of all your processes, including a button to Show Processes from all Users and the aforementioned End Process button. The Process tab is invaluable if your computer is running slow for an undetermined reason. By viewing the Image Name, CPU, Memory, and Description columns, you can focus on the precise area causing trouble.

LET ME TRY IT

Using Task Manager to Monitor an Application's CPU and Memory Usage

The following steps show you how to monitor an application's CPU and memory usage. In this example, you monitor Windows Media Player.

1. Press Ctrl+Alt+Del.
2. Click Start Task Manager.
3. Click the Processes tab.
4. While still keeping the Task Manager in view on-screen, open Windows Media Player. As the application opens, watch the CPU and Memory columns for the information it displays for Windows Media Player. (You may need to resize the column to see the heading names.)
5. Close Windows Media Player.
6. Open other applications and monitor their resource usage through the processes tab.

By viewing your process resource usage, it becomes evident very quickly which process is causing the problem. If you are looking for a specific process and you have several open, click Image Name to sort the column.

If a process is causing problem, it can be stopped by using the Processes tab—as you learn in the following section.

LET ME TRY IT

Using Task Manager to End a Process

This short exercise teaches you how to end a process through Task Manager. Use caution when doing this on applications not discussed in this exercise. Not ending a process safely can result in data loss or in rare cases, system instability.

1. Press Ctrl+Alt+Del.
2. Click Start Task Manager.
3. Click the Processes tab.
4. Look at the Description column and select a process that you know (for example, select Windows Task Manager).
5. Click the End Process button. You are asked to confirm this.
6. Click End Process again. The process ends.

A quick way to find a process associated with an application is to first locate the app on the Applications tab, right-click it, and then choose Go To Process. This takes you to the Processes tab with the associated process highlighted.

If more than one user is logged-on to your machine when you run Task Manager and you are unable to see the process you are looking for, the Processes tab includes a Show Processes From All Users button that you can click to see any processes in use by other users logged on.

You can also right-click an application and choose Properties to access the properties of that particular executable. For example, you can change compatibility options, permissions, as well as other aspects of the program.

Services

This tab shows you your services, some descriptive information regarding them (Description and Group information), and if they are running or not. You can use this tab to stop or start services.

LET ME TRY IT

Using Task Manager to Stop and Restart a Service

The following steps show you how to stop and restart a service through Task Manager.

1. Press Ctrl+Alt+Del.

2. Click Start Task Manager.

3. Click the Services tab.

4. n the Description column, scroll down to Print Spooler, right-click it, and choose Stop Service.

5. Depending on your security configuration, you might receive an access-denied message. If this is the case, click Print Spooler again.

6. Click the Services button in the lower right.

7. If a UAC window opens, click Yes.

8. In the main pane, scroll down to Print Spooler, right-click it, and choose Stop.

9. To restart the service, follow these same steps, but when you right-click Print Spooler, and choose Start instead.

Performance

This tab includes a feature that is new to Windows 7 (although you might not notice it). Under Physical Memory (MB) group, Vista features Total, Cached, and Free. Windows 7 has added Available to that group.

- **Total:** The amount of RAM installed on the system in MB.

- **Cached:** The amount of physical RAM used for system resources.

- **Available:** The total of standby and free memory for programs.

- **Free:** The amount of memory that is currently unused or doesn't contain useful information.

The Performance tab also includes the Resource Monitor button. This is a logical location since you might be coming to the Performance tab to troubleshoot a problem. You can usually find what you are looking for in the CPU and Memory Usage graphs (see Figure 11.9). If you can't find it there, click the Resource Monitor button to access a plethora of monitoring tools.
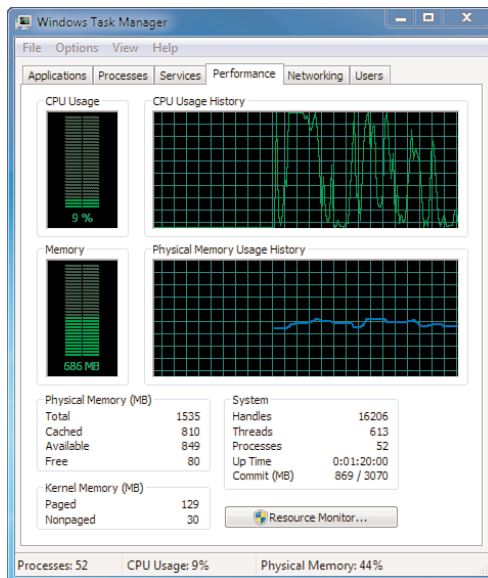

Figure 11.9   *Get real-time stats in the Performance tab.*

Networking

The Networking tab shows a graph of your active network connection, where you can view the network utilization of your connections. The bottom of this tab also includes columns showing the Link Speed and the connection State.

Users

This tab shows you the users who are logged on now. By right-clicking a user, you can Disconnect a user who is remotely connected to your computer or Log Off a local user.

LET ME TRY IT

Using Task Manager to Log-Off a Local User

The following steps show you how to log-off a local user through Task Manager. To complete this exercise, you will need multiple users logged-on at once.

1. Press Ctrl+Alt+Del.

2. Click Start Task Manager.

3. Click the Users tab.

4. Right-click the User you would like to log off and choose Log Off.

5. A warning message appears, asking you to confirm that you want to log off this user (because the user's unsaved data might be lost). Click Log Off User and the user is logged off.

Menu Items

There are a few notable selections available on the Task Manager menu:

- On the File menu, you can select New Task to open a program (just as you can by using the Applications tab).

- On the View menu, you can adjust the refresh speed of the monitoring of your incoming resources. To see faster refreshes on your incoming data for CPU and Memory, go to View, click Update Speed, and then choose High.

SHOW ME   Media 11.3—Using the Task Manager
Access this video file through your registered Web Edition at
my.safaribooksonline.com/9780768695212/media.

System Properties

The System Properties dialog box has been a cornerstone of configuring advanced Windows options. In Vista, the location for this was moved to Advanced System Settings. Windows 7 retains this location for System Properties. This link can be found on the System page in the Control Panel.

The System Properties dialog box might not look like much, but it controls some very powerful configuration options. Don't worry, all the functions that existed in previous versions of Windows are still available; they are just accessed from different areas now (mostly from the Control Panel). This section examines the five tabs that are still present along with some new features:

- Computer Name

- Hardware

- Advanced

- System Protection

- Remote

Computer Name

This tab is essential for joining a domain or workgroup. A step-by-step walk through of how to accomplish this was discussed in Chapter 9. The Change button here allows you to change your computer name. If you are working on a stand-alone machine, this may not be critical. But if you join a network or workgroup with several other computers, all of a sudden the computer name Computer-jd2d332 (or any other meaningless default name) will not distinguish your machine as yours. In that case, you need to change the computer name.

LET ME TRY IT

Using System Properties to Change Your Computer Name

The following steps show you how to change your computer name using the System Properties dialog box (see Figure 11.10). During this exercise, a reboot of your sytem is required before you can see the final result.

1. Click the Start orb.

2. Click Control Panel.

3. Click System and Security.

4. Click System.

5. In the left pane, click Advanced System Settings.

6. If a UAC window opens, click Yes.

7. The System Properties dialog box opens. Click the Computer Name tab.

8. Click the Change button. In the Computer Name box, type a new name and click OK.

9. A message appears, stating you need to restart your computer for changes to take effect. Click Close.

10. A dialog box displays, asking if you want to restart now or later. Select either option.
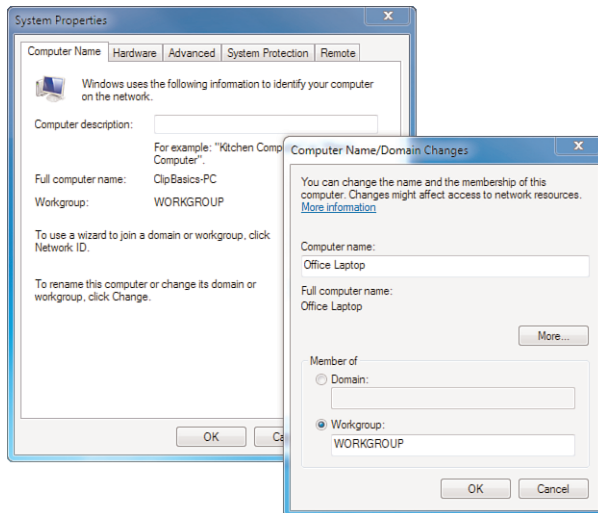

Figure 11.10   *Changing the computer name to identify a specific machine.*

After you restart your computer, verify your name change by following these steps:

11. Click the Start orb.

12. Click Control Panel.

13. Click System and Security.

14. Click System.

15. In the main pane, you will see your updated name in the Computer Name, Domain, and Workgroup Settings group.

Hardware

The Hardware tab provides access to the Device Manager button and the Device Installation Settings button. Device Manager should be a crucial part of your hardware troubleshooting routine. If a device is having problems, look here first.

Device Installation Settings includes an option to Replace Generic Device Icons With Enhanced Icons (see Figure 11.11). The new Device Stage feature of Windows 7 (discussed in chapter 10) uses these high-resolution icons to enhance your device experience. Seeing the icons of two mobile phones or two external hard drives connected to your computer helps you quickly distinguish one from the other.
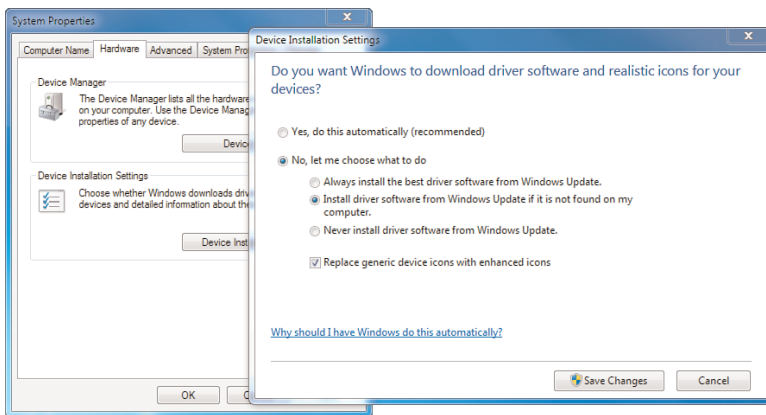

Figure 11.11 *Windows can automatically locate high-resolution icons for your devices.*

Advanced

The Advanced tab requires administrator privileges to make most of the changes on this tab. Three buttons are here-Performance, User Profiles, Startup and Recovery and Environment Variables. For the most part, these settings should be left to Windows for automatic configuration. Still, there are times when you will need to make a change. For example, if you are dual-booting Windows 7 and another OS, you might want to make changes to the dual-boot menu (see Figure 11.12).
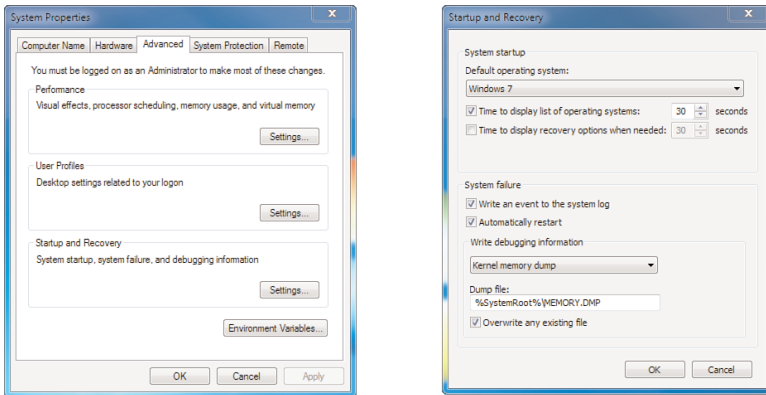

Figure 11.12   *Setting up the dual-boot startup menu from Windows 7.*

LET ME TRY IT

Using System Properties to Configure Dual-Boot Settings

The following steps show you how to configure dual-boot settings from the System Properties dialog box.

1. Click the Start orb.

2. Click Control Panel.

3. Click System and Security.

4. Click System.

5. In the left pane, click Advanced System Settings.

6. If a UAC window opens, click Yes.

7. The System Properties dialog box opens.

8. Click the Advanced tab.

9. In the Startup and Recovery group, click the Settings button. The Startup and Recovery dialog box appears.

10. In the Default Operating System group, click the drop-down arrow to select the OS you want to boot first.

11. In the Time to Display List of Operating Systems section, select 15 seconds.

If the system stops booting unexpectedly for no apparent reason, you might want to view a memory dump to isolate the issue. The Startup and Recovery dialog box includes a Write Debugging Information group; click the drop-down arrow to configure the size of the memory dump—ranging from None through Complete Memory Dump.

System Protection

This tab manages the advanced features for System Protection. This forms the backbone for System Restore. System Protection serves you in two ways:

1. If your machine is experiencing trouble (such as a malfunctioning driver or an application install gone awry) and you are unable to resolve it, you can restore your computer to a previous good working state. System Protection automatically creates restore points every seven days or just before a significant system event, such as a software installation.

2. System Protection records changes in previous files or folders, allowing you to restore them from earlier saved copies. By clicking the Configure button on the System Protection tab, you can configure the settings and disk space (see Figure 11.13).
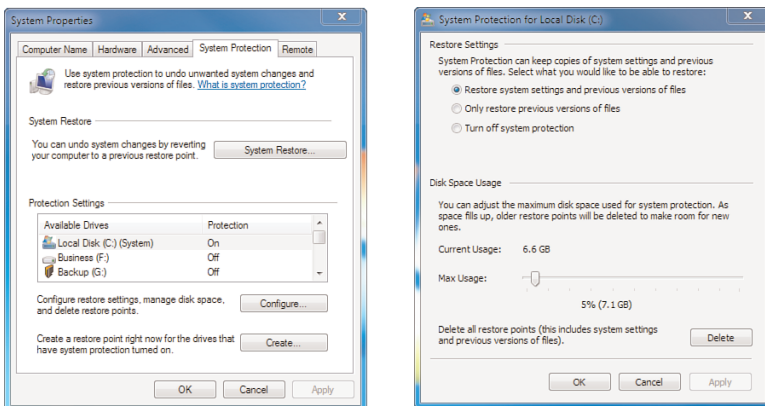

Figure 11.13 *Advanced System Protection settings.*

Remote

The Remote tab enables you to allow connections for both the Remote Assistance application and the Remote Desktop Connection application. For example, you might want to allow a user to connect to your system who has a previous version of Remote Desktop (see Figure 11.14). To do this, select the Allow Connections From Computers Running Any Version of Remote Desktop radio button.
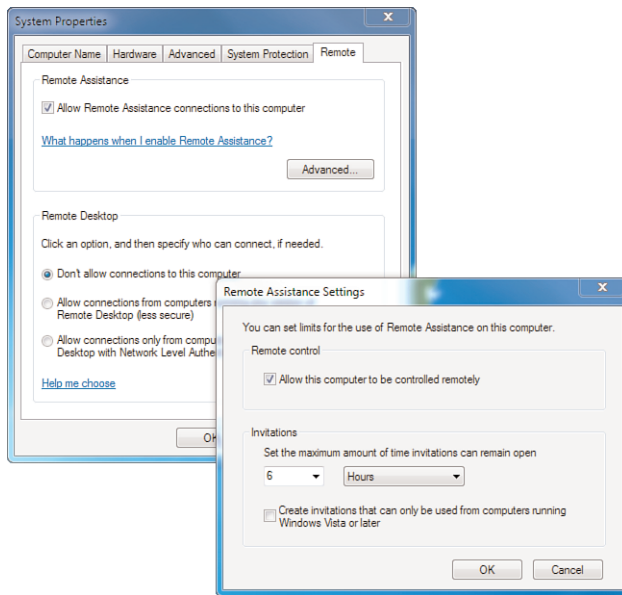

Figure 11.14   *Allow users with previous versions of Remote Desktop to assist you.*

System Information

System Information contains extensive details about your computer system (see Figure 11.15). There are four components in the left pane which, when expanded, reveal myriad specifics:

- **System Summary:** Provides general computer information, including Bios settings and System Manufacturer.

- **Hardware Resources:** Provides hardware information, includingConflicts/Sharing, DMA, Forced Hardware, I/O, IRQs and Memory.

- **Components:** Provides component information, including Multimedia, CD-ROM, Sound Device, Display, Infrared, Input, Modem, Network, Ports, Storage, Printing, Problem Devices, and USB.

- **Software Environment:** Provides software information, including System Drivers, Print Jobs, Running Tasks, Program Groups and more.
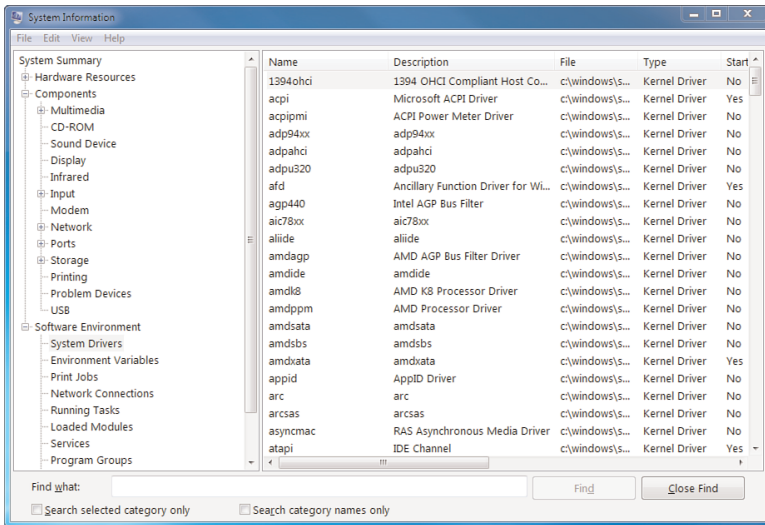
Figure 11.15   *Get the facts with System Information.*

LET ME TRY IT

Accessing System Information

The following steps show you how to access System Information.

1. Click the Start orb.

2. In the search field, type **system**.

3. Click System Information. The System Information application opens.

At the bottom of the application is a Find What search feature where you can type your search parameter and click Find to search for it in System Information. To look in a specific subcategory, use the checkbox in the lower left.

TELL ME MORE   **Media 11.4—A Discussion of the New Monitoring Features in Windows 7**
Access this audio recording through your registered Web Edition at **my.safaribooksonline.com/9780768695212/media.**