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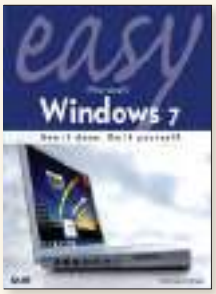

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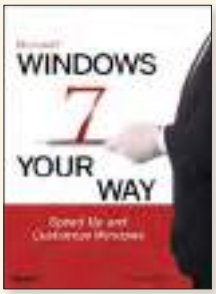

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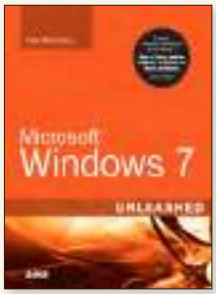

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CHAPTER 3 — Using The Windows 7 Desktop

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ABOUT THE AUTHOR

Mark Edward Soper has been using Microsoft Windows ever since version 1.0, and since 1992, he's taught thousands of computer troubleshooting and network students across the country how to use Windows as part of their work and everyday lives. Mark has contributed to Que's Special Edition Using series on Windows Me, Windows XP, and Windows Vista; Easy Windows Vista; Windows 7 in Depth, and has written two books about Windows Vista, including Maximum PC Microsoft Windows Vista Exposed and Unleashing Microsoft Windows Vista Media Center.

Chapter 3

USING THE WINDOWS 7 DESKTOP

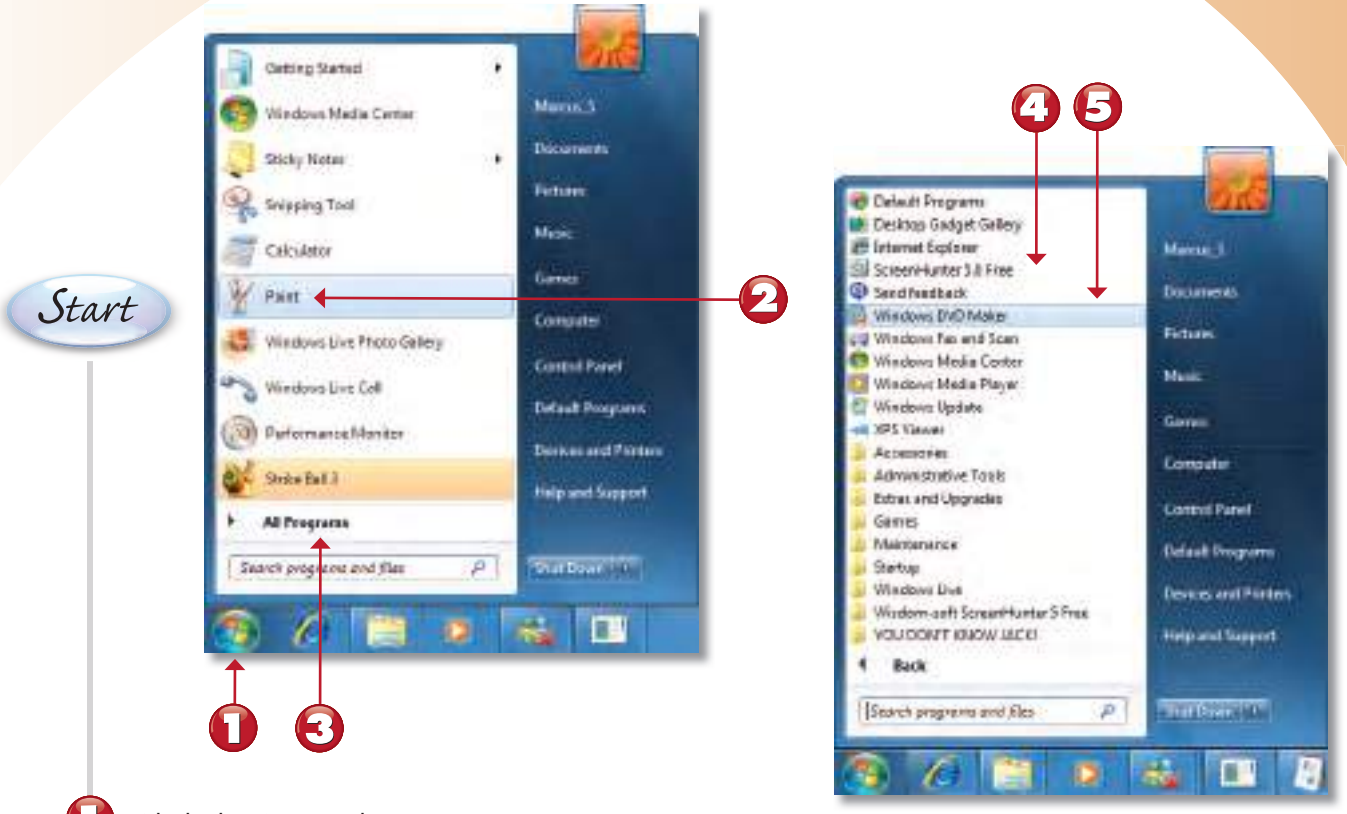
Although the Windows 7 desktop still has a taskbar across the bottom of the screen, it represents a huge departure from previous Windows desktops. The new desktop makes it easier to manage programs, switch between program windows, and find the window you want to work with now.

Hover over a taskbar icon to see a jump list of recently opened documents or dialogs

Gadgets can now be placed anywhere on the desktop

STARTING A PROGRAM FROM THE START MENU

You can start a program from a desktop shortcut, but you're more likely to start a program from the Start menu.



1. Click the Start orb.
2. If the program is listed on the left pane, click it to start it.
3. If the program is not listed on the left pane, hover the mouse over **All Programs**.
4. Scroll to the program listing.
5. Click the program listing to start it.

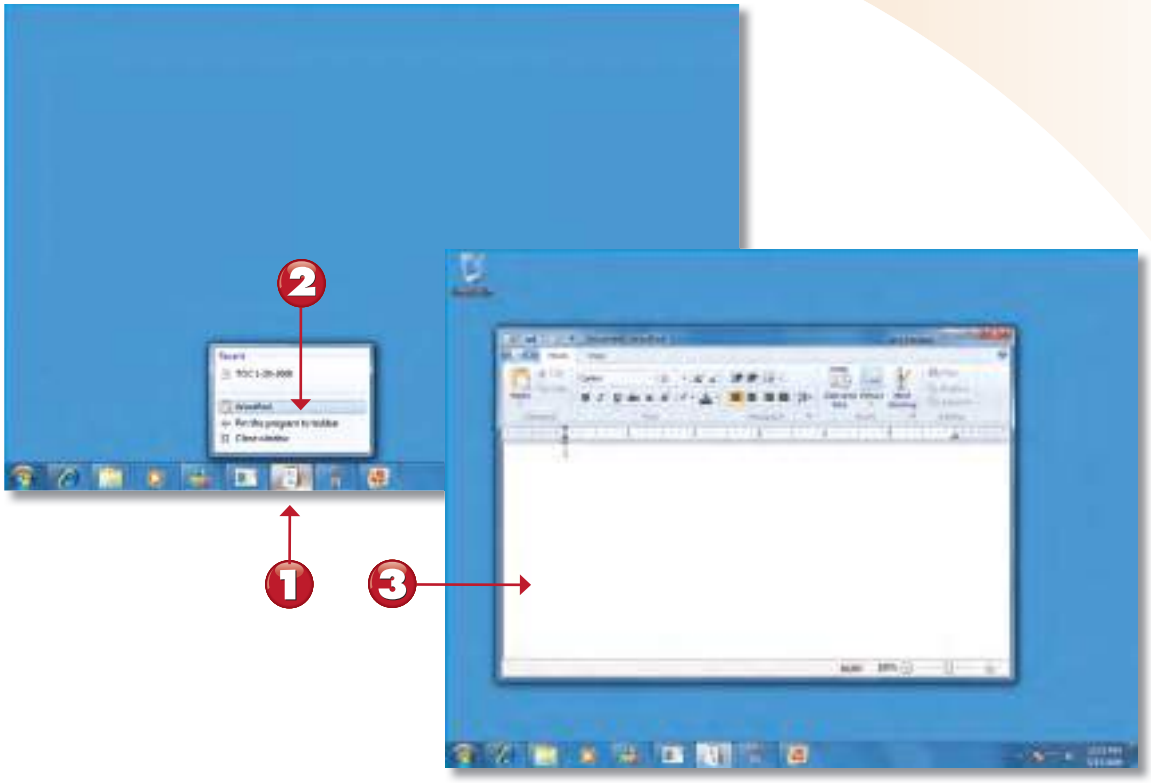
End

NOTE

If the program is within a folder on the Start menu, click the folder to open it; then click the program name to start the program. ■

OPENING A NEW PROGRAM WINDOW

Windows 7's taskbar also makes it easy to create a new program window for a currently running program.



Start

1. Right-click on an icon in the taskbar.
2. Select the program name from the jump list.
3. A new program window appears.

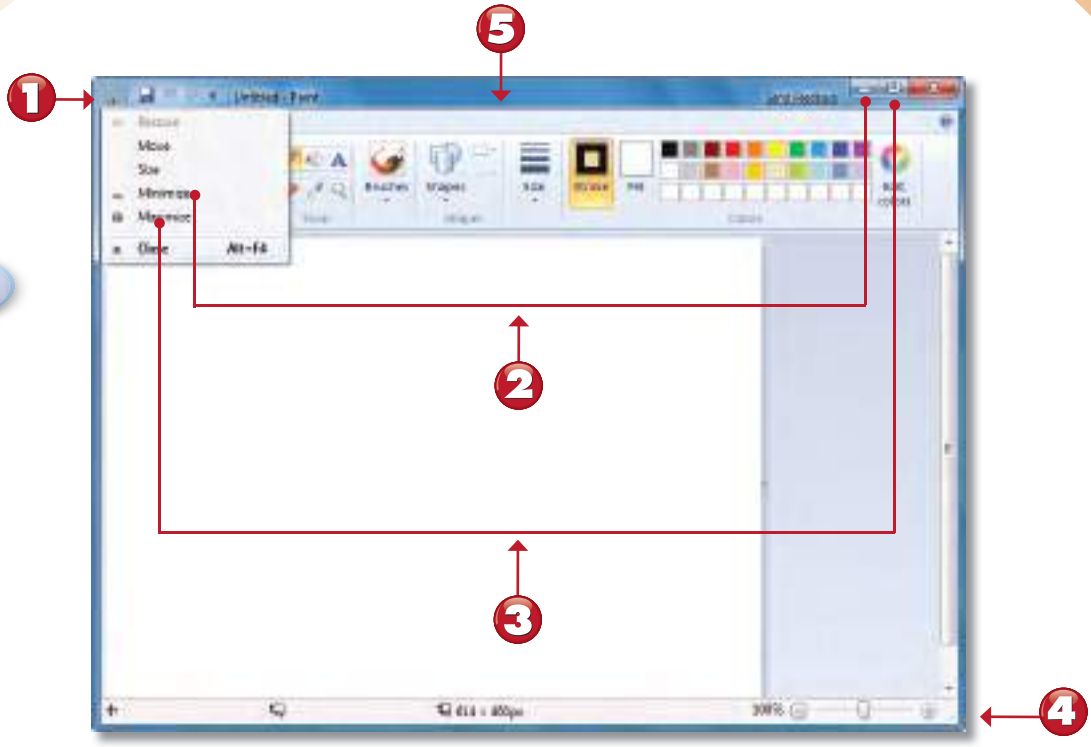
End

TIP

Use the Recent submenu to open a recently used document. Use Pin This Program to Taskbar to keep programs you use frequently on the taskbar at all times. Use Close Window or Close All Windows to close open program windows. ■

MAXIMIZING, MINIMIZING, RESTORING, AND RESIZING A WINDOW

Windows 7 provides a variety of ways to control the size and position of program windows. In this section, you learn how to use your mouse to adjust window size and position. You can also use Aero Snap (this chapter, p. 28) to adjust window position from the keyboard.



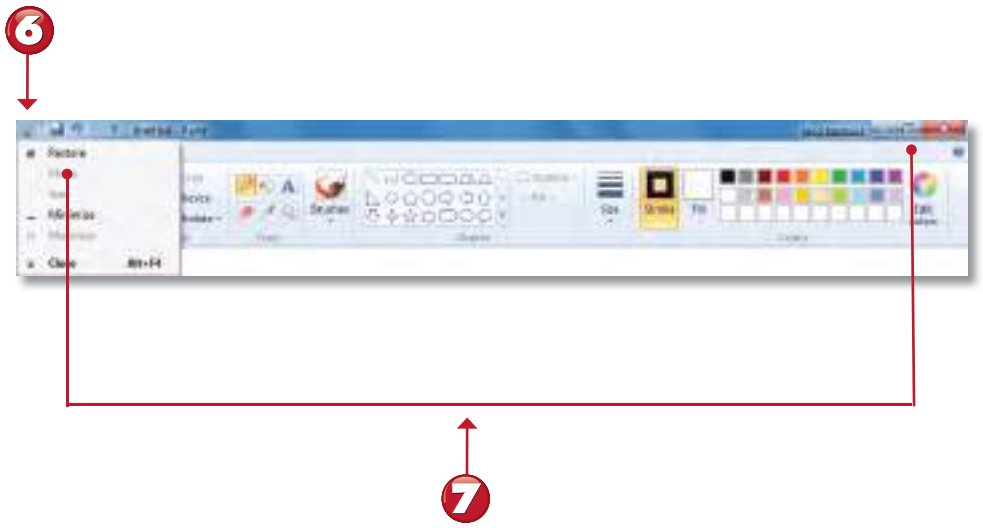
Start

1. Click the upper-left corner to display the menu (optional).
2. Click either control to minimize the window to the taskbar.
3. Click either control to maximize the window to full screen.
4. Click and drag to resize the window.
5. Click and drag to move the window.

Continued

NOTE

You cannot drag a maximized program window. ■



6 Click the upper-left corner to display the menu (optional).

7 Click either control to restore the program to its previous window size/position.

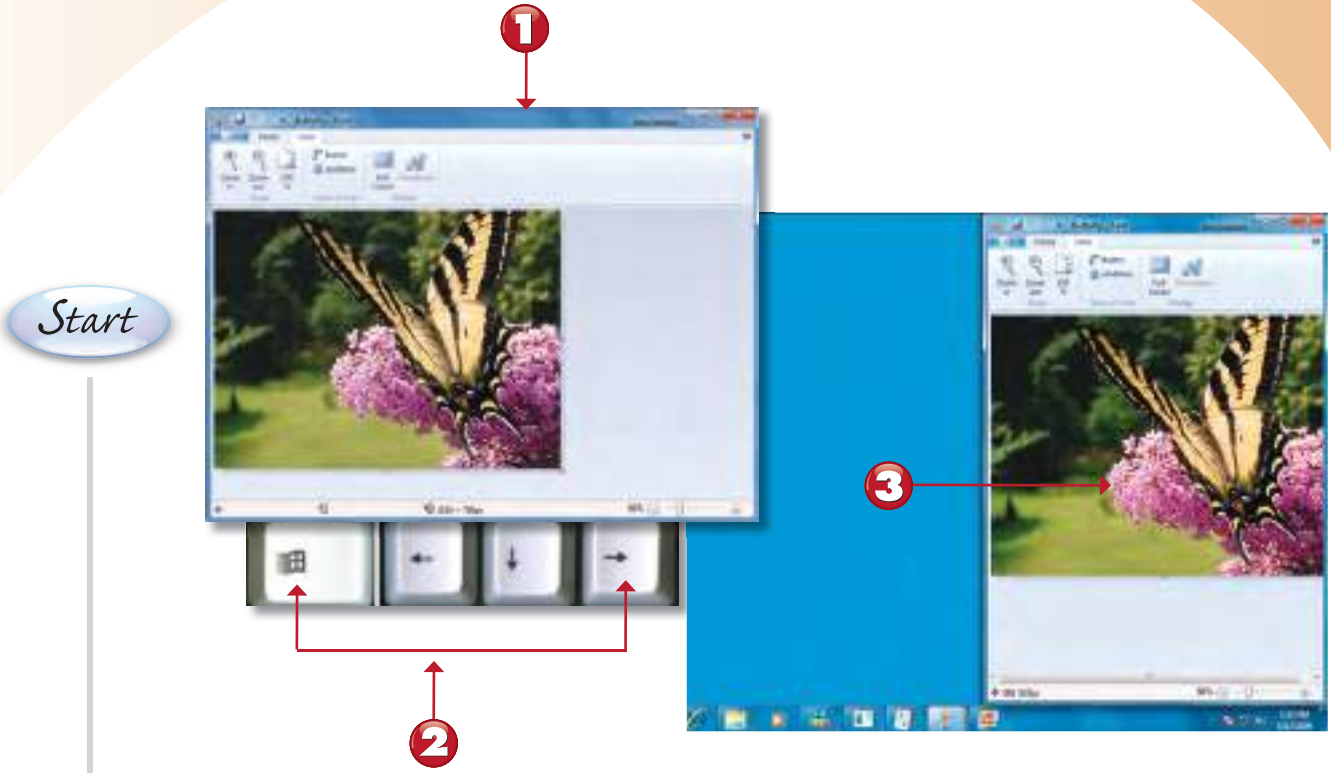
End

NOTE

As you can see from this tutorial, you do not need to open the upper-left corner menu to work with window sizing. ■

USING AERO SNAP TO MANAGE WINDOWS

If your system uses the Windows Aero desktop, you can use your keyboard to move, maximize, or minimize the active window by using a new feature called Aero Snap. Aero Snap uses the Windows key along with the arrow keys to adjust window position.

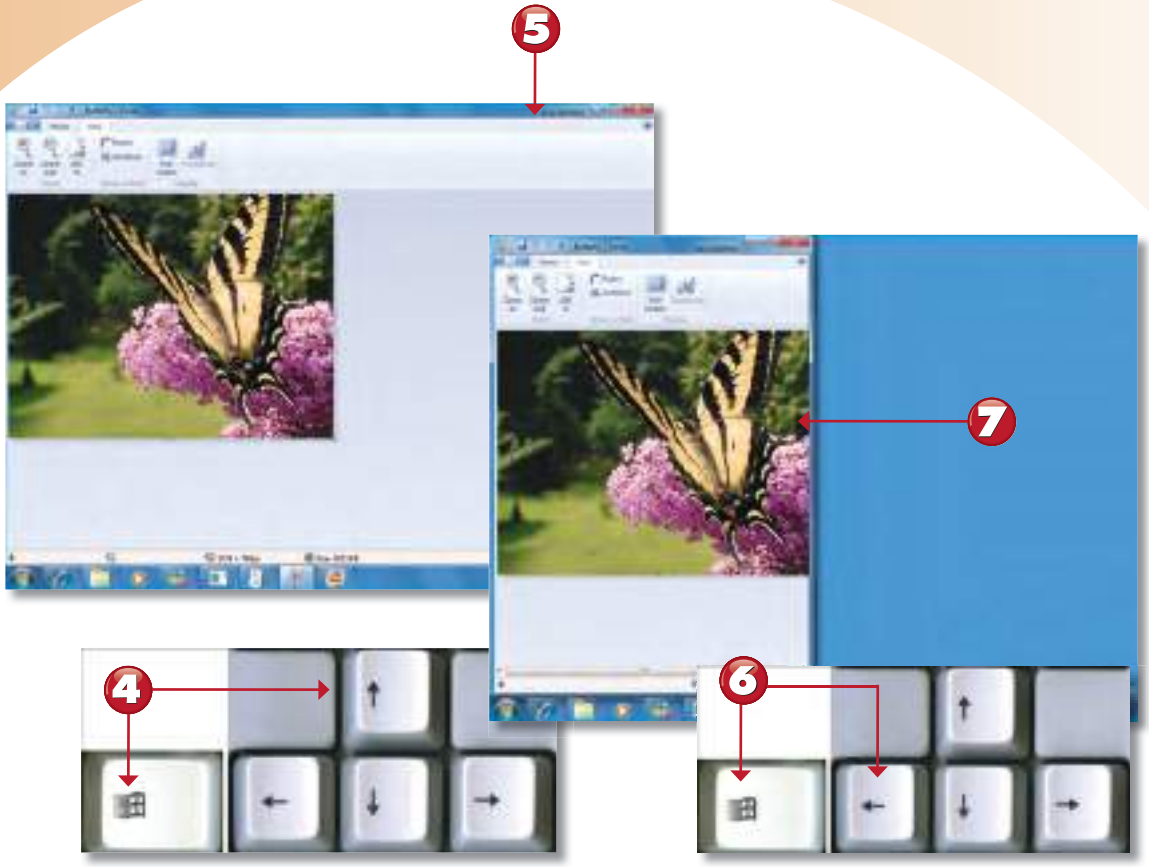


1. Program running in window.
2. Press **Window+right** arrow keys.
3. Active window moves to right of screen.

Continued

NOTE

If you are using a built-in keyboard on a portable computer, the Window key might be located away from the arrow keys. ■



4. Press **Window+up** arrow.

5. Active window is maximized.

6. Press **Window+left** arrow.

7. Active window moves to left of screen.

End

NOTE

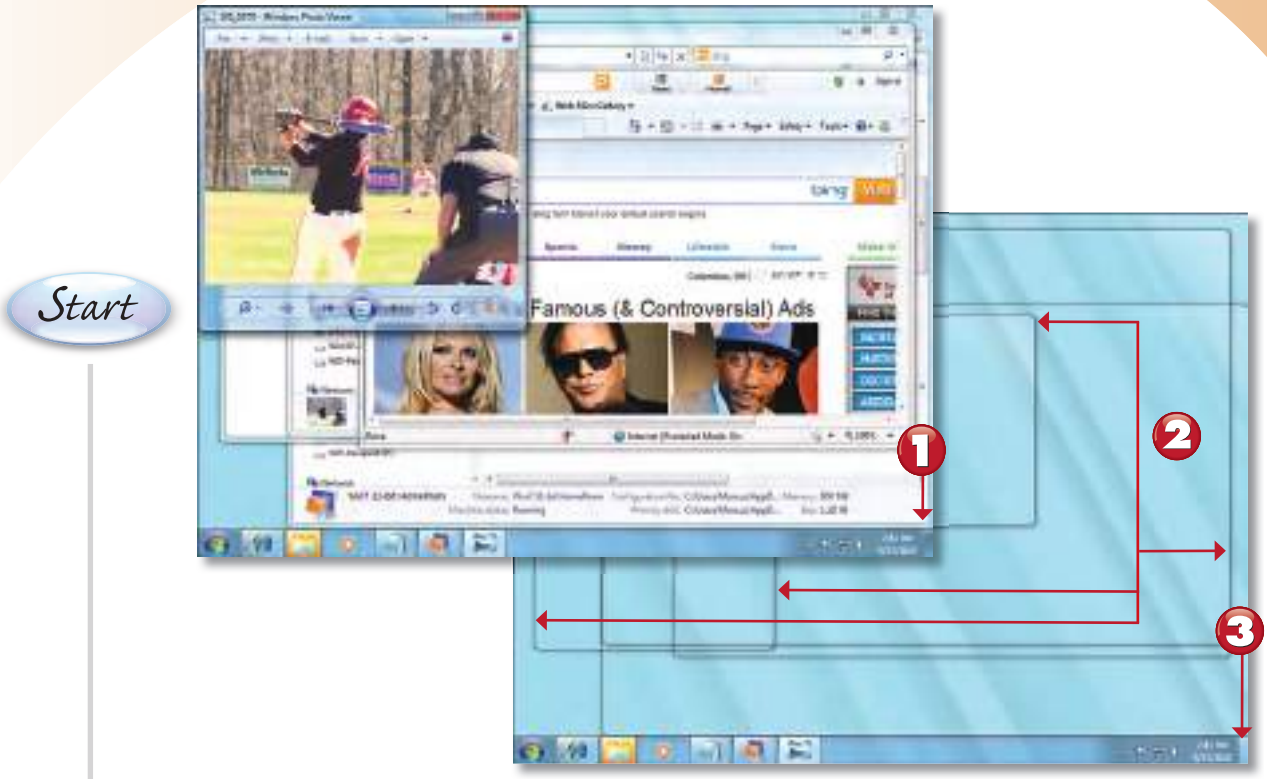
Press Window+down arrow to minimize active window to toolbar. ■

NOTE

To learn more about Windows Aero, see Chapter 12, "Personalizing Windows 7." ■

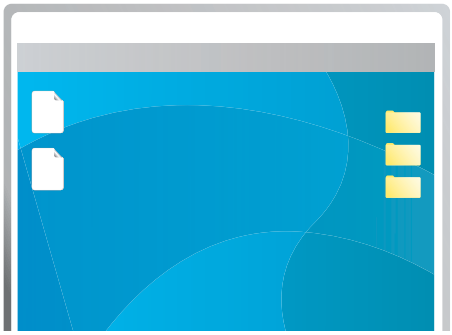
USING AERO PEEK TO VIEW THE DESKTOP

If your system supports the Windows Aero desktop (the title bar of the active window is translucent when it is not maximized), you can use a new feature called Aero Peek to see your desktop, even if you have many program windows open.



1. The Aero Peek control box. Hover the mouse over the box to view the desktop.
2. Aero Peek displays only the outlines of open windows.
3. Click the control box to toggle window display on and off.

End

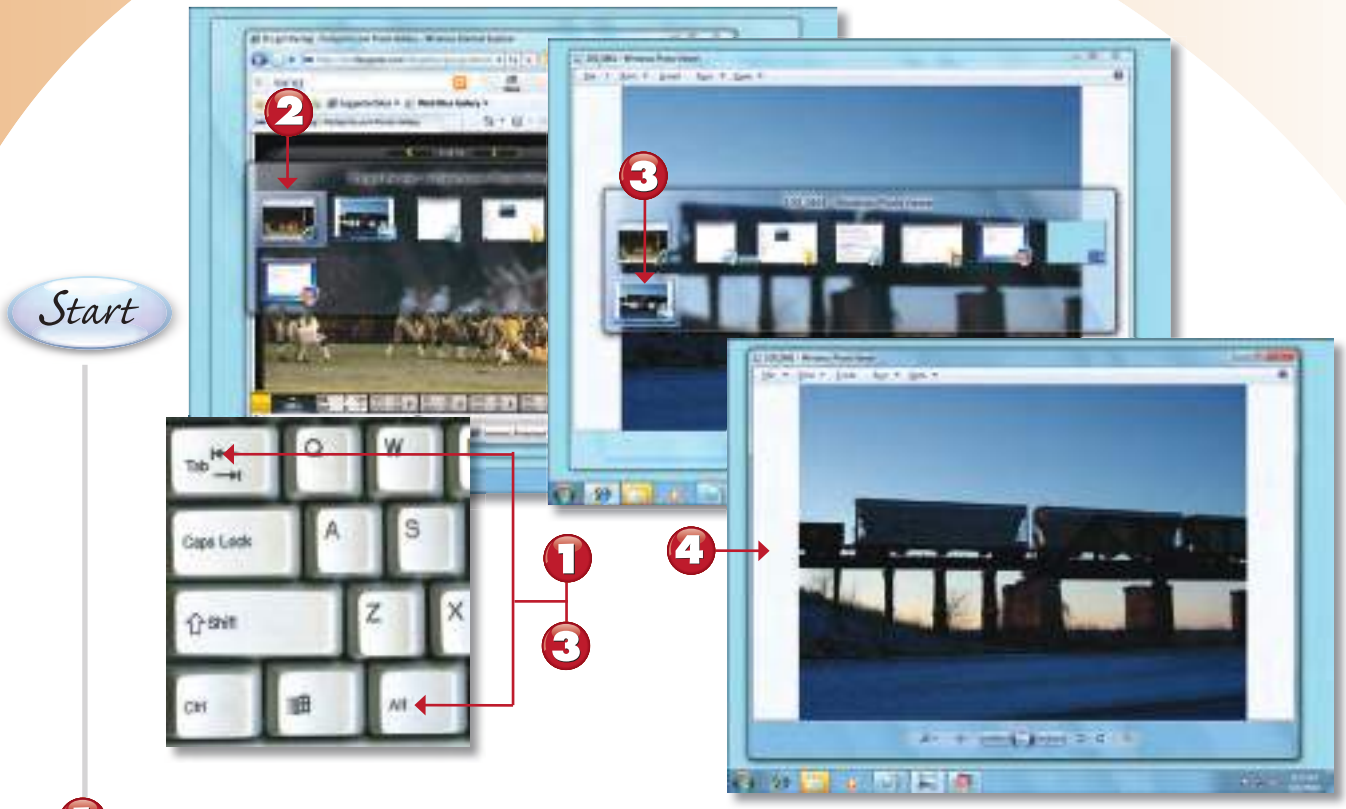


NOTE

Windows 7 Starter Edition does not support Windows Aero. ■

USING ALT-TAB TO CYCLE THROUGH PROGRAMS

Use the Alt-Tab keys (also known as "cool switching") to select which program you want to make active. In Windows 7, pressing Alt-Tab cycles through live thumbnails of each running program.



1. Press **Alt-Tab**.
2. Thumbnails of active programs appear.
3. Press **Alt-Tab** until desired program is highlighted.
4. Release **Alt-Tab**, and program becomes active.

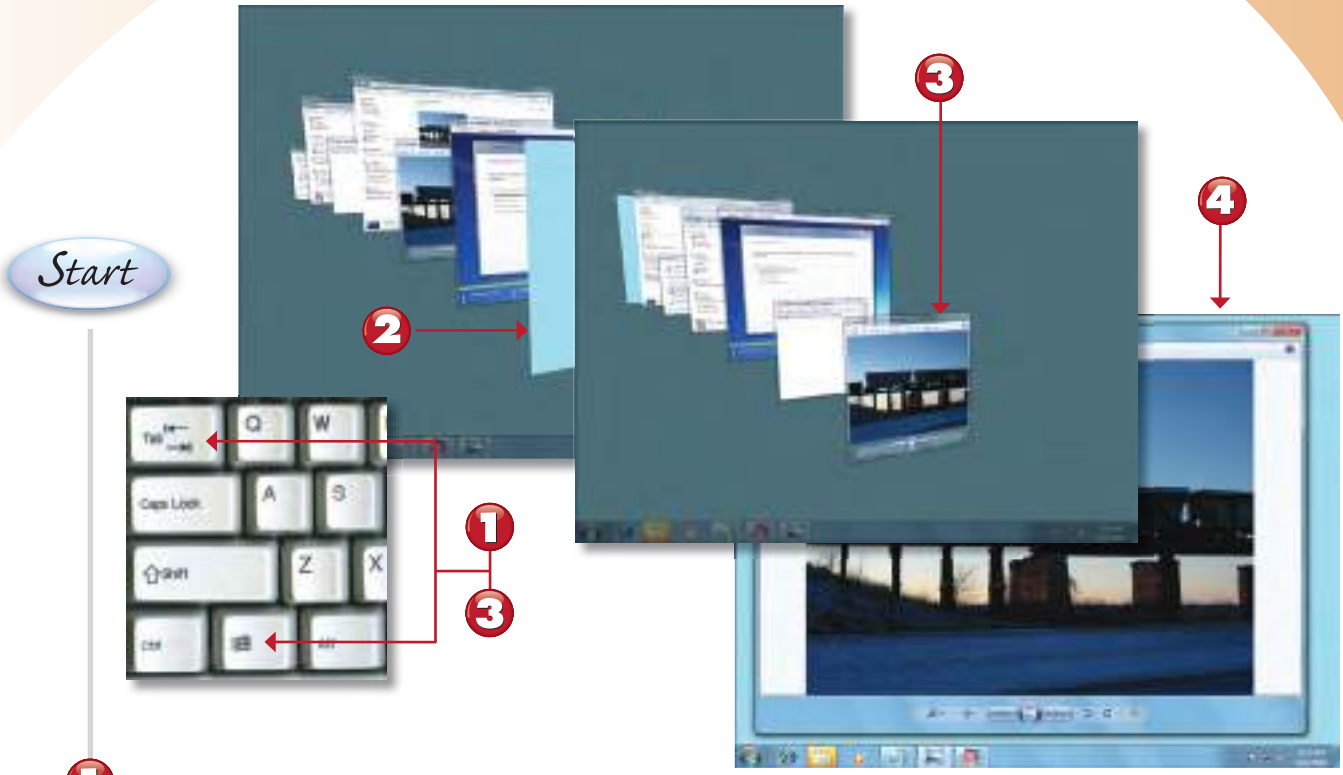
End

NOTE

In addition to the highlight shown in Step 3, the name of the program window is shown above the program thumbnails. ■

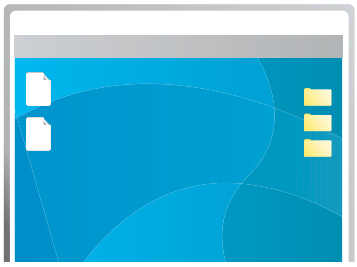
USING WINDOWS FLIP (WIN-TAB) TO CYCLE THROUGH PROGRAMS

Systems running the Windows Aero desktop can use Windows Flip to cycle through running programs and select the one they want to make active. Windows Flip uses the Windows and Tab keys.



1. Press the **Windows and Tab** keys.
2. Running programs are displayed in an overlapping arc across the screen.
3. Continue to press the **Windows and Tab** keys until the program you want to make active is at the front of the stack.
4. Release the keys, and the program becomes active.

End

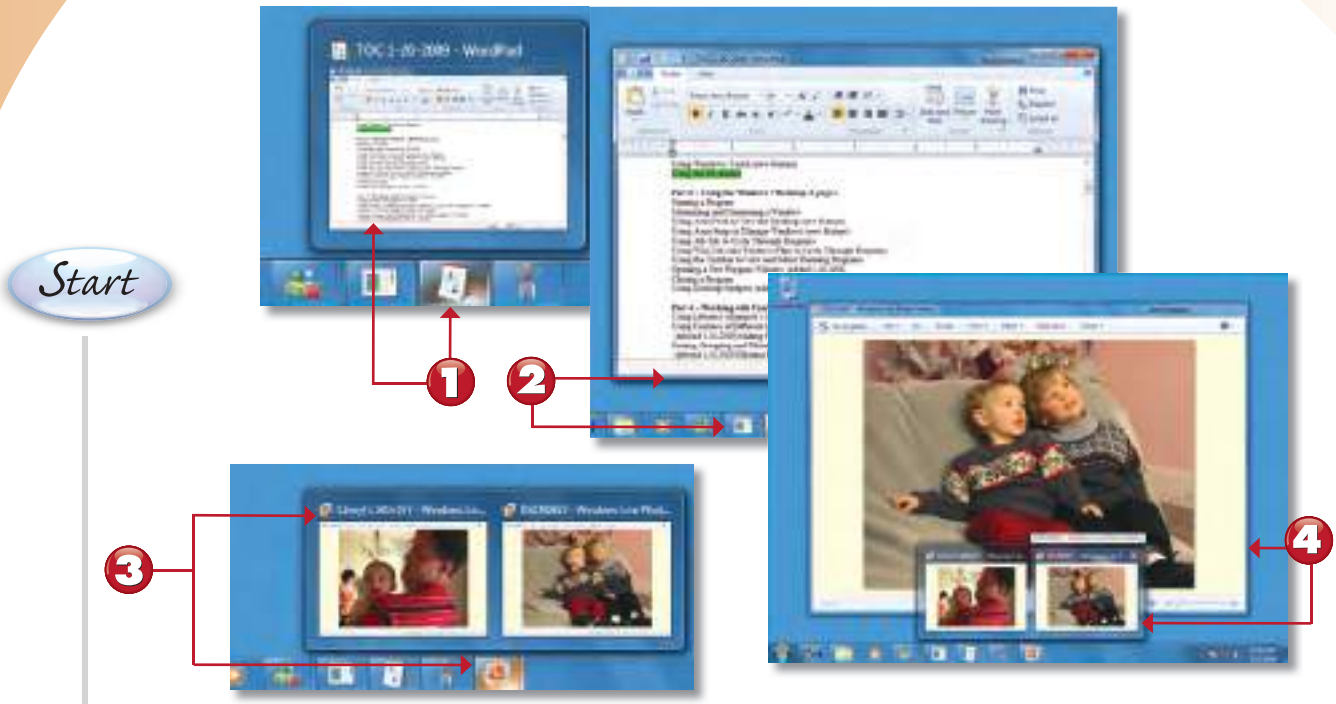


NOTE

You might see icons for minimized programs as well as program windows appear in Steps 2 and 3. ■

USING THE TASKBAR TO VIEW AND SELECT RUNNING PROGRAMS

The Windows 7 taskbar not only looks different than the one in previous versions of Windows (it uses icons, not text, by default), but it makes it easier than ever to choose the program you want to make active.

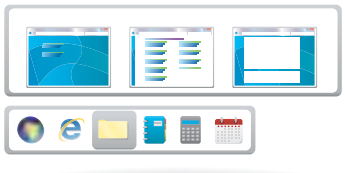


1. Hover the mouse over a taskbar icon, and a thumbnail of the running program appears.
2. Click the taskbar icon for the program, and the program becomes active.
3. A program icon on the taskbar can represent more than one window.
4. Move your mouse to highlight the window you want to make active.

End

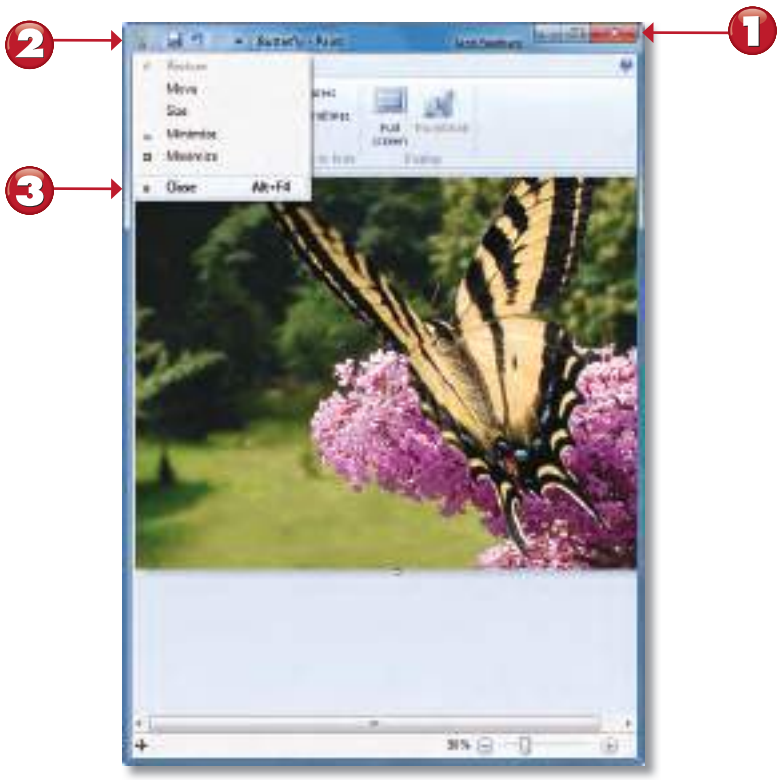
NOTE

This feature requires Windows Aero. ■



CLOSING A PROGRAM

Windows 7 offers several ways to close a program, so you can select the method that's best for a given situation.



Start

1. Click the **red X** in the upper-right corner of the program window to close the program.
2. You can also click the upper-left corner to open the window menu.
3. To close the program from the window menu, click **Close**.
4. To close a program from the keyboard, press **Alt-F4**.

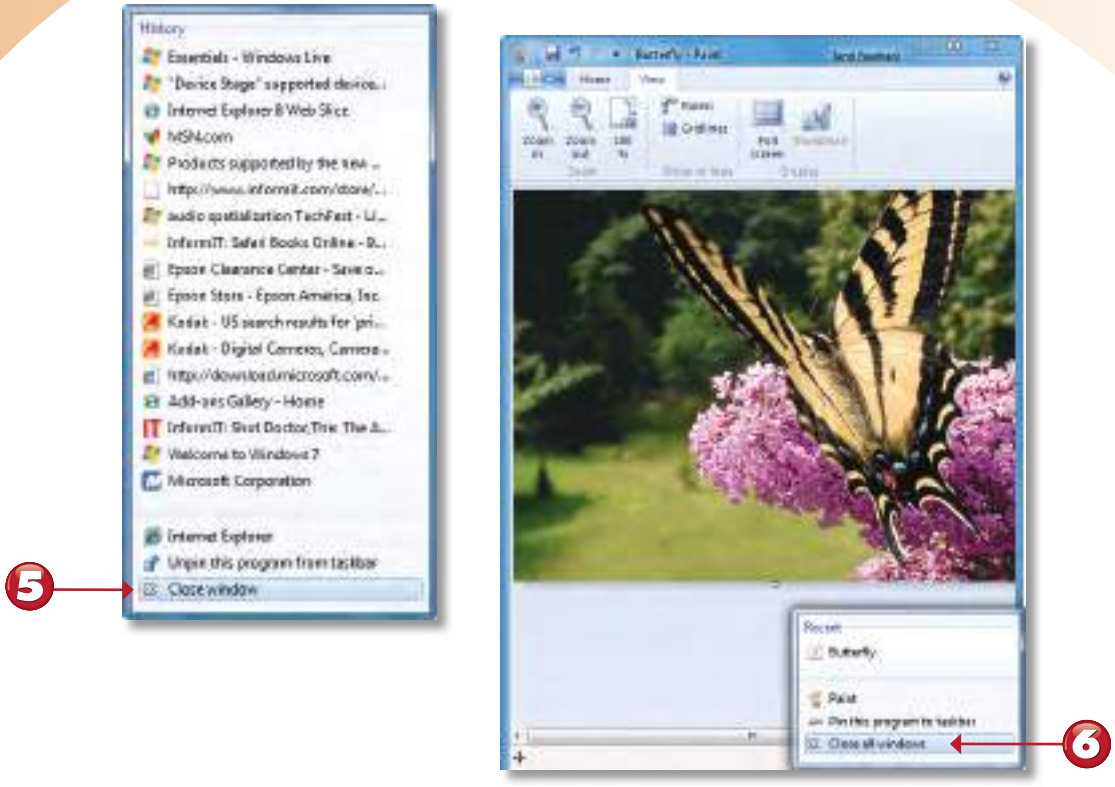
Continued

NOTE

You don't need to open the window menu to use Alt-F4 to close the program window. ■

NOTE

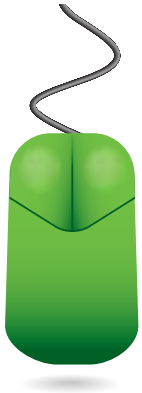
The right-click menu shown in Step 6 also allows you to pin the program to the Taskbar for faster access. ■



5 To close a program in the taskbar, right-click the program icon and select **Close Window**.

6 To close all windows for a particular program from the taskbar, right-click the program icon and select **Close All Windows**.

End



USING DESKTOP GADGETS

Windows 7 improves Windows Vista's use of gadgets (small desktop programs) by freeing them from the side of the monitor. In Windows 7, you can place desktop gadgets wherever you'd like on the desktop, and you can use gadgets developed for Windows Vista as well as those developed for Windows 7.

1. Right-click an empty portion of the desktop.
2. Select **Gadgets**.
3. The Desktop Gadget Gallery appears.
4. To place a gadget on your desktop, double-click the appropriate icon or drag the gadget to the desktop.

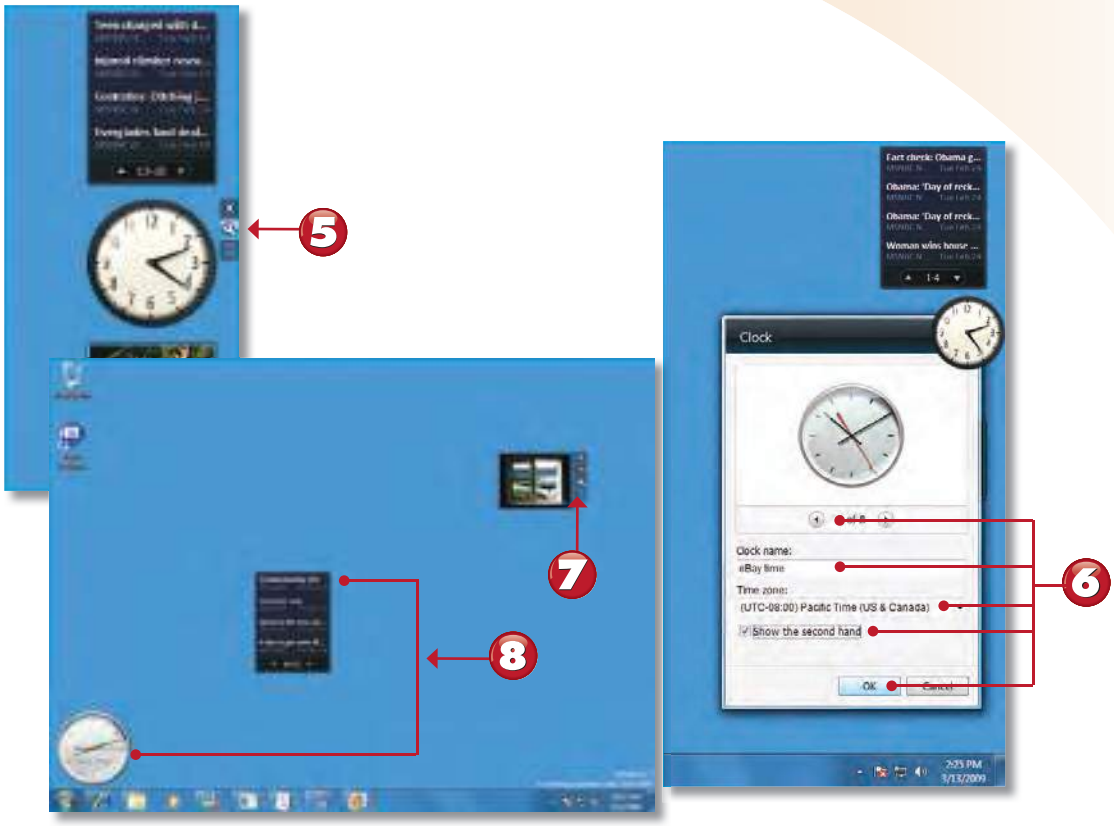
Continued

NOTE

You can also open the Desktop Gadget Gallery from the Start menu. ■

NOTE

Repeat step 4 until you have added all the gadgets you want to add to your desktop. ■



5 To adjust settings for any gadget, move your mouse to the right side of the gadget and select the setup (wrench) icon.

6 Select or enter the desired options and click **OK** when finished.

7 To drag a gadget, move the mouse to the right of the gadget and click **Drag Gadget**.

8 Move the gadget as desired, and release the left mouse button to place the gadget.

End

NOTE

Use the Get More Gadgets Online link to download additional gadgets. ■

NOTE

Select a gadget; then click Show Details to learn more about the gadget. ■

CHAPTER 10 — Creating Movies and DVD Videos

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- Share files and media on a HomeGroup or network
- Set multiple users and parental controls
- Customize, fine-tune, and administer Windows 7

ABOUT THE AUTHOR

Steve Johnson has written more than 45 books on a variety of computer software, including *Adobe Photoshop CS4 and CS3, Adobe Flash CS4 and CS3, Dreamweaver CS4 and CS3, Adobe InDesign CS4, Adobe Illustrator CS4, Microsoft Office 2007 and 2003, Microsoft Windows Vista and XP, Microsoft Expression Web 2, Microsoft Office 2008 for the Macintosh,* and *Apple Mac OS X Snow Leopard.* In 1991, after working for Apple Computer and Microsoft, Steve founded Perspection, Inc., which writes and produces software training.

Creating Movies and DVD Videos

10

Introduction

Windows Live Movie Maker (version 14) (**New!**) lets you combine video, audio, and image files with special effects to create movies and slide shows you can publish and show on your computer or CD/DVD, e-mail to others, or place on a web page or mobile device. Windows Live Movie Maker is a new program—built from scratch—that replaces Windows Movie Maker (installed by default in Windows Vista). Windows Live Movie Maker doesn't come installed with Windows 7; it's available for free online from Microsoft. You can download this program as well as other program tools from Windows Live at *http://download.live.com*.

In Windows Live Movie Maker, you create a project that contains the arrangement and timing information of audio and video clips, video transitions, video effects, and titles. You can drag video and audio clips from the storyboard. After you arrange the video and audio clips in the sequence you want, you can add video transitions, video effects, and text. After you preview your project using the monitor, you can publish it as a movie file to your computer, a recordable DVD, or send it to sharing sites on the web, such as Soapbox.

The movie you create can be watched in a media player, such as Microsoft Windows Media Player, or in a web browser. If you would rather create a DVD, you can output the movie in a DVD format (.wmv) from Windows Live Movie Maker, and then burn the file to a DVD or use it in Windows DVD Maker. In Windows DVD Maker, you can insert additional video, pictures, and audio, add DVD titles and menus, and specify publishing options before you burn the movie to a DVD.

What You'll Do

Planning a Movie Maker Project

Windows Live Movie Maker lets you combine video, audio, and image files to create movies and slide shows you can publish and show on your computer or CD/DVD, e-mail to others, or place on a web page or mobile device. You save the movie you create as a file, just as you would save a word processing or spreadsheet file, and you can play and view it at any time. However, movies and their accompanying files are larger than most other documents you create—usually exceeding 5 MB. Before you begin, it's a good idea to plan your content.

Decide the purpose of the movie

Your movie might be a promotional piece or catalog for business use, or a vacation movie to share with family and friends. Your purpose determines the subject, type, and quality of the **source material**, which is the video and audio material you will use.

Determine how to share the movie with others

You might want to show your movie on a computer projection screen at a meeting, send it as an attachment in an e-mail message, or place it on a web site. When you place a movie on a web site, viewers might download it, which means to transfer it to their computers and store it for future viewing. If your movie is very long or has many high-quality images, the movie file will be large and will take a long time to download.

Choose source material

If you have a digital video or digital web camera, you can record or capture digital images, and then import them into Movie Maker. To use existing video or audio segments, called **clips**, you must import them, or bring them into Movie Maker.

Sketch the movie

Before putting your movie together in Movie Maker, it's important to make a sketch of your movie that shows the order of the audio and video components. What audio clips do you want to play with what video clips?

Review the process used to create a movie

First, you bring clips of source material into a Movie Maker project file. A **project file**, which is the working copy of your movie, is a Movie Maker document with the file name extension .mswmm. You then use the project file to do the following: set the order of your movie segments; **trim** (delete) portions of clips you don't want to use; specify how clips display from one to the next, called **transitions**; add a video special effect to clips; add titles and credits to the beginning and end of the movie or individual clips; and, lastly, preview your work. Finally, you save your project file as a movie with the file name extension .wmv and display the completed movie using the Windows Media Player program.

Starting Windows Live Movie Maker

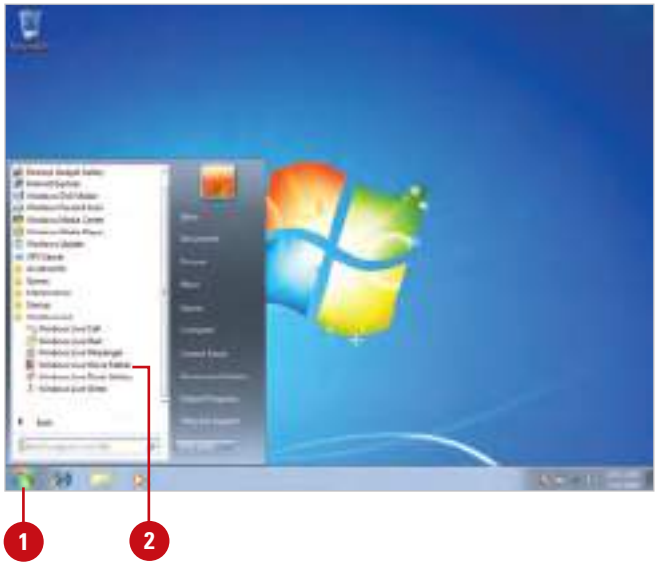
Windows Live Movie Maker (**New!**) doesn't come installed with Windows 7, so you need to download and install it from the Microsoft Windows Live. This chapter describes version 14 beta; your downloaded version with updates may differ slightly; select Options on the File menu for version information. Before you start Windows Live Movie Maker, use Display Properties in the Control Panel to make sure the screen resolution is set correctly. Windows Live Movie Maker is a program that you can start from the Start menu. You achieve the best results in Windows Live Movie Maker when the screen resolution is set to 1024 by 768 or higher. When you start Windows Live Movie Maker, a new untitled movie project is displayed. You can either create a new movie project or open an existing one.

Start Windows Live Movie Maker

1. Click the **Start** button, and then point to **All Programs**.
2. Point to **Windows Live**, and then click **Windows Live Movie Maker**.
3. If an alert appears, asking you to save changes to My Movie, click **Yes** or **No**.

   My Movie is the default movie file for Windows Live Movie Maker.
4. If you select Yes, select a location, and then click **Save**.

   A blank new movie (default My Movie) appears in the Windows Live Movie Maker window.
5. To exit Windows Live Movie Maker, click the **File** button, and then click **Exit**.



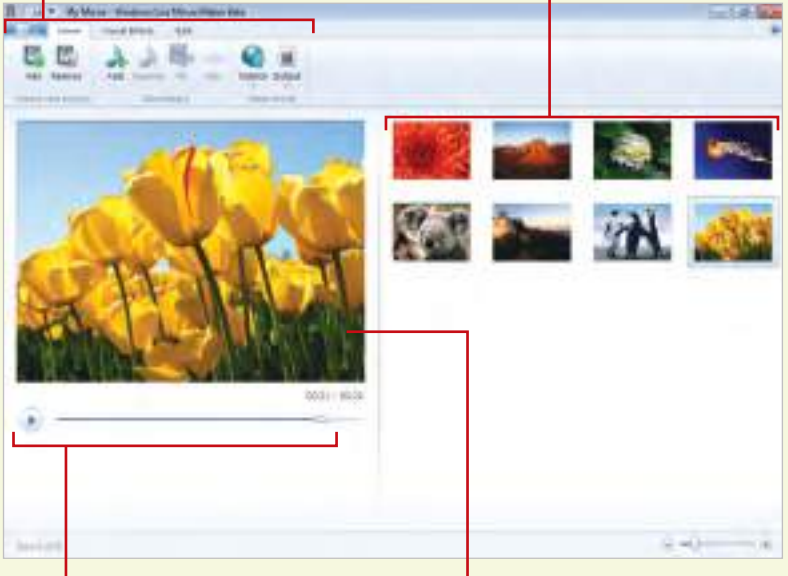
See Also

See "Changing the Display" on page 105 for information on changing the screen resolution.

Viewing the Windows Live Movie Maker Window

Ribbon
The Ribbon displays the File menu and tabs with button commands.

Storyboard
The Storyboard displays a sequence of clips and photos in your movie project.



Playback controls
The Playback controls allow you to playback the movie.

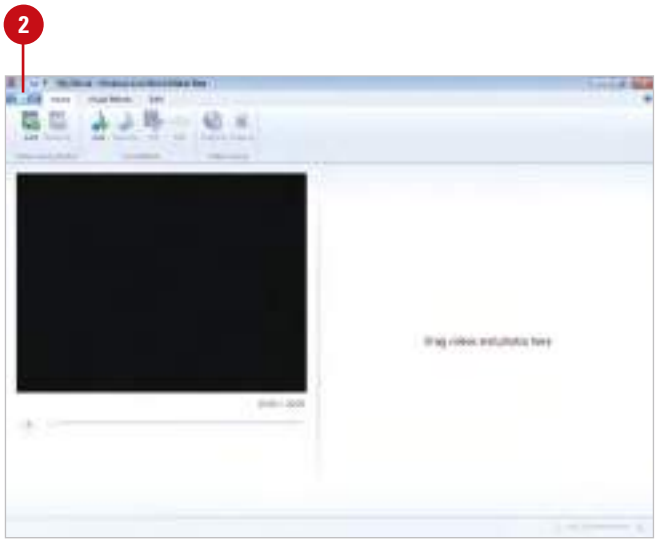
Monitor
The monitor displays individual clips or an entire project.

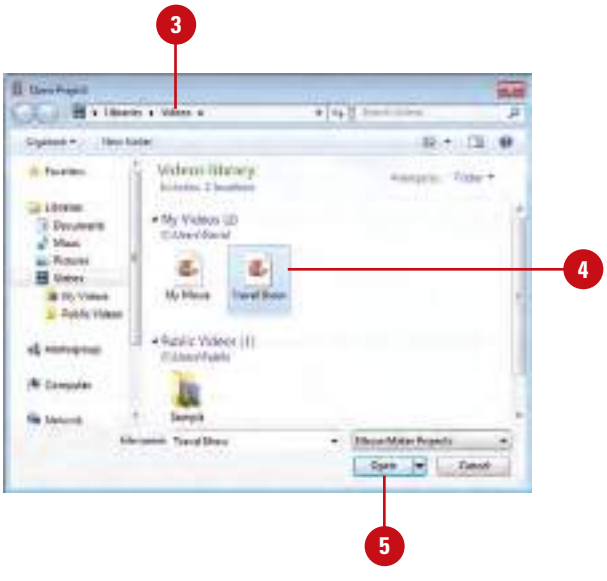
Opening an Existing Project

After you save a project in Windows Live Movie Maker, you can open it and continue to work on the project. A Movie Maker project file is saved with a .mswmm file name extension, which you can open using the Open command on the File menu. The project file's extension will change, once the project is finalized.

Open an Existing Project

1. Click the **Start** button, point to **All Programs**, point to **Windows Live**, and then click **Windows Live Movie Maker**.
2. Click the **File** menu, and then click **Open**.
3. Select the drive and folder that contains the project you want to open.
4. Select the project file.
5. Click **Open**.





Did You Know?

You can quickly reopen a recently opened movie. Click the Start button, point to Windows Live Movie Maker, and then click the movie you want to reopen.

You can create a new movie in Windows Live Movie Maker. Click the File button, and then click New.

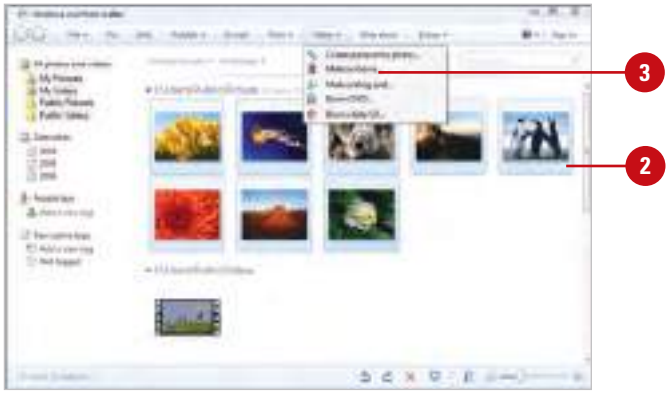
Using Photos and Videos from Photo Gallery

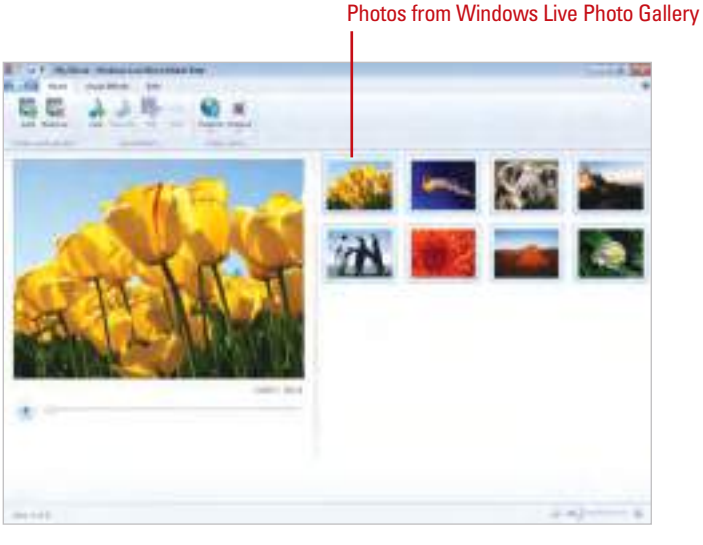
If you installed Windows Live Photo Gallery (**New!**) on your computer along with Windows Live Movie Maker, you can use the program to quickly import photos and video directly into Windows Live Movie Maker. Windows Live Photo Gallery comes with a Make a movie command on the Make menu, which connects the program with Windows Live Movie Maker. The command transfers selected photos and video to a new or open movie in Windows Live Movie Maker (**New!**).

Create a New Movie with Photos and Videos from Photo Gallery

1. Click the **Start** button, point to **All Programs**, point to **Windows Live**, and then click **Windows Live Photo Gallery**.
2. Select the photos and videos you want to use in a movie.
3. Click the **Movie** button on the toolbar, and then click **Make a movie**.

   Windows Live Movie Maker opens, displaying the photos and videos from Windows Live Photo Gallery in the Storyboard.





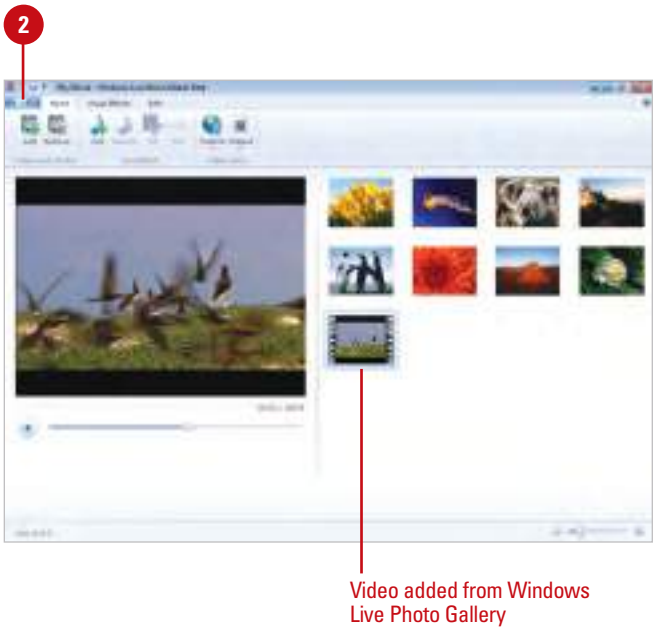
Did You Know?

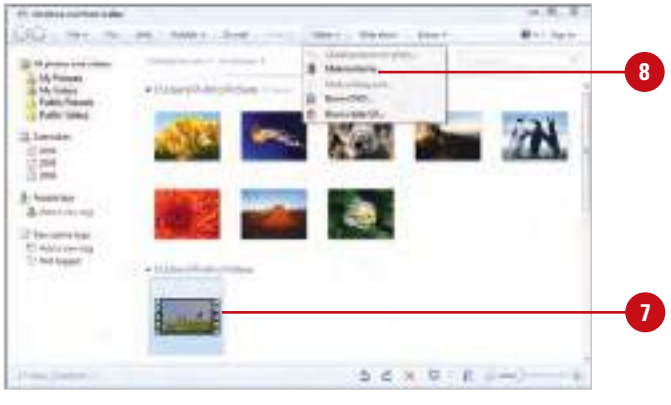
Twenty hours of video take a gigabyte of hard disk space. You can store more than 20 hours of video for each gigabyte of hard disk space on your computer.

Add Photos and Videos from Photo Gallery into a Movie

1. Click the **Start** button, point to **All Programs**, point to **Windows Live**, and then click **Windows Live Movie Maker**.
2. Click the **File** menu, and then click **Open**.
3. Select the drive and folder that contains the project you want to open.
4. Select the project file.
5. Click **Open**.
6. Click the **Start** button, point to **All Programs**, point to **Windows Live**, and then click **Windows Live Photo Gallery**.
7. Select the photos and videos you want to use in a movie.
8. Click the **Movie** button on the toolbar, and then click **Make a movie**.

   Windows Live Movie Maker appears, displaying the currently opened movie with the photos and videos from Windows Live Photo Gallery added into the Storyboard.





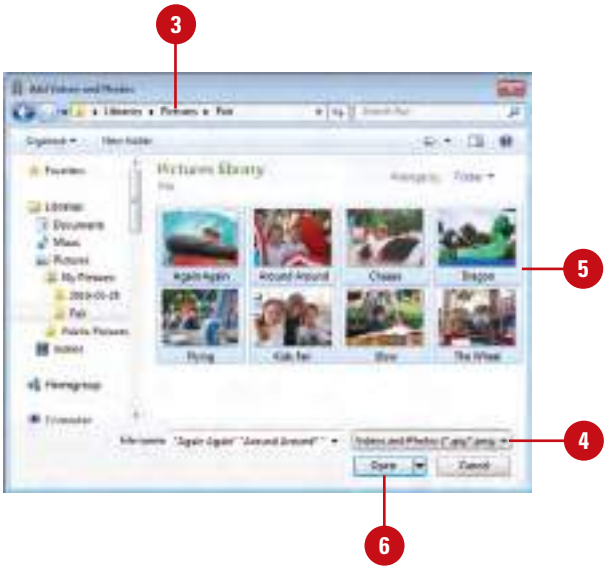
Adding Photos and Videos

If you want to use existing video and audio clips in your movie instead of recording them yourself, you can obtain them from various companies that specialize in video processing, or you can download them from the web. Commercial CDs/DVDs are excellent sources for audio clips. You can import the video and audio clips into Windows Live Movie Maker from files on your computer, from your CD/DVD drive, or from the web. You can use the Add videos and photos button on the Home tab or drag photos and videos directly to the Storyboard. If you no longer want a photo or video in the Storyboard, you can remove it.

Add Photos or Videos to a Movie

1. Click the **Home** tab.
2. Click the **Add videos and photos** button on the Ribbon.
3. Select the folder that contains the photo or video files you want to use.
4. To select a specific media type, click the **Files of type** list arrow, and then select a file type.
5. Select the files you want to use.

   TIMESAVER *To import several files at one time, press and hold down the Ctrl key, and then click each file that you want to use.*
6. Click **Open**.

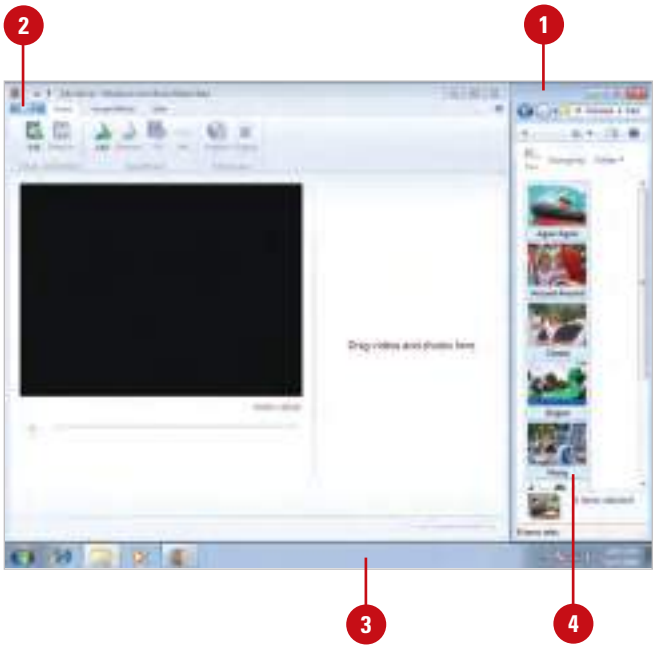


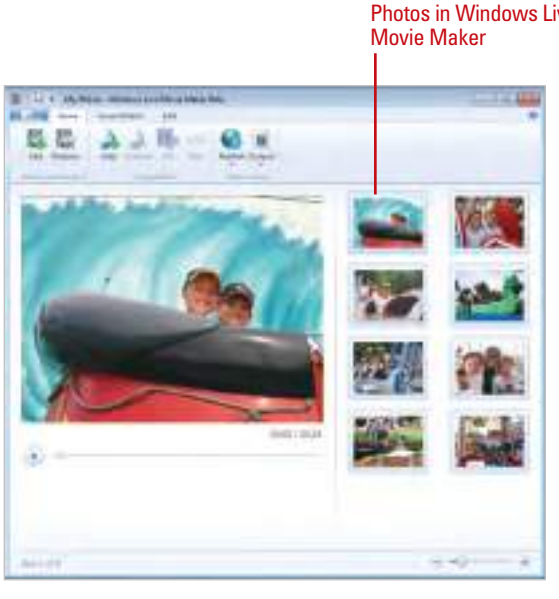
Movie Maker Import File Types

File Type	File Extensions
Video	.wmv, .avi, /dvr-ms, .mpg, .mod, .vod, .asf, .m1v, .m2ts, .mp2v, .mpe, .mpeg, .mpv2, .wm, .3g2, .3gp, .3gp2, .3gpp, .asx, .m2t, .m2v, and .m4v
Photos and Pictures	.jpg, .png, .bmp, .dib, .rle, .gif, .ico, .icon, .jpeg, .jpe, .jfif, . exif, .tiff, .tif, and .wdp

Drag Photos or Videos into a Movie

1. Open Windows Explorer and display the media files you want to use.
2. Start Windows Live Movie Maker, and then create or open the movie in which you want to add photos or videos.
3. Display the windows next to each other; right-click the taskbar, and then click **Show windows side by side**.
4. Drag the media files from Windows Explorer to the Storyboard in Windows Live Movie Maker.





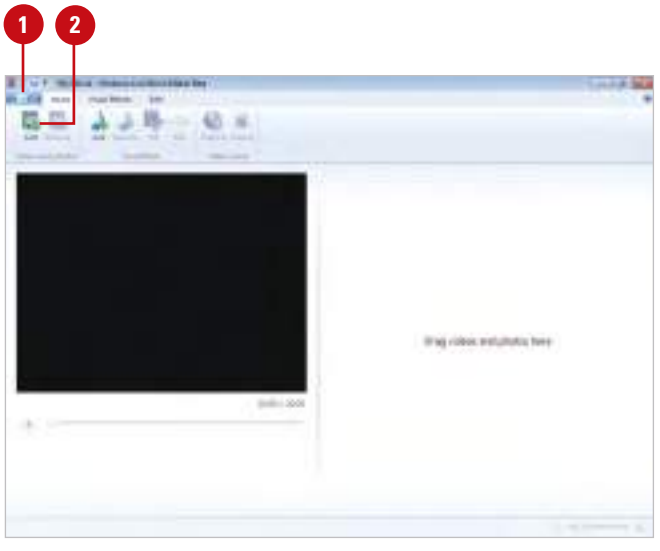
Adding Slides to a Movie

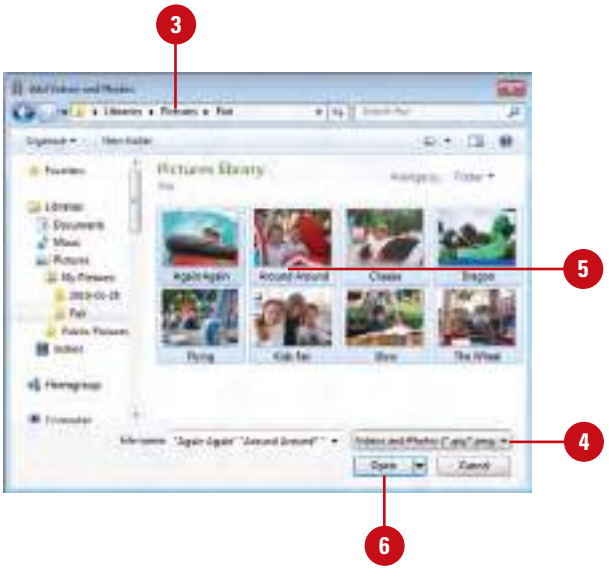
Instead of using video clips, you can create slide shows in Windows Live Movie Maker with still images that you create using a digital camera, web camera, or scanner. You can import the clips into Windows Live Movie Maker and create transitions between them, just as you would in a movie. You can change the duration of individual photos. You can also add a sound clip to create a sound track that plays as your photos appear on the screen. Portrait-oriented pictures in Movie Maker are the same height as landscape-oriented pictures, and Movie Maker inserts a black background on either side of each one.

Create a Slide Show Movie

1. Click the **File** button, and then click **New**.
2. Click the **Add videos and photos** button on the Home tab.
3. Select the folder that contains the photo files you want to use.
4. To select a specific media type, click the **Files of type** list arrow, and then select a file type.
5. Select the files you want to use.

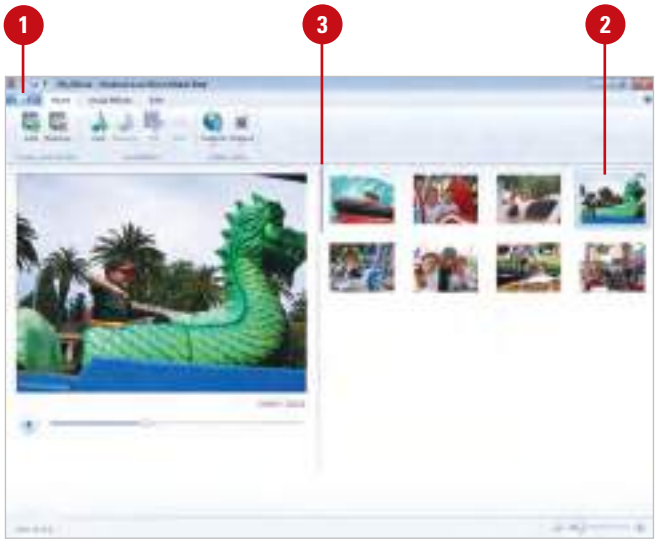
   TIMESAVER *To import several files at one time, press and hold down the Ctrl key, and then click each file that you want to use.*
6. Click **Open**.
7. Click the **File** button, click **Save as**, navigate to a folder location, type a name, and then click **Save**.





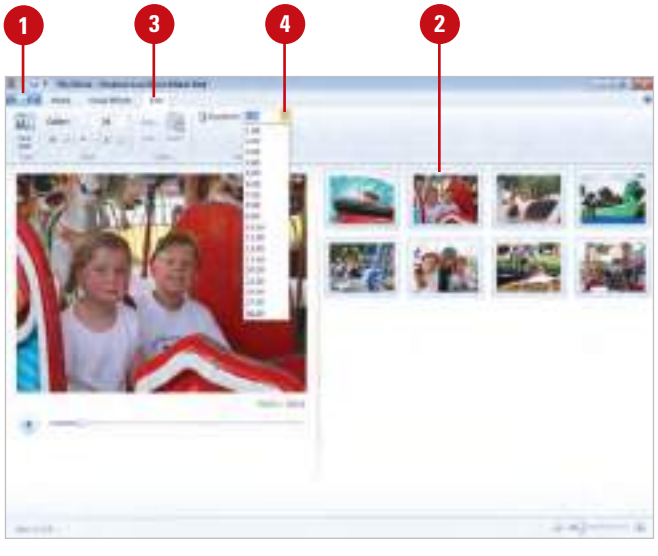
Arrange Photos in a Slide Show

1. Create or open a slide show movie.
2. Select the photos you want to move.
3. Drag the selected photos to a new location in the order you want.



Set Photo Duration in a Slide Show

1. Create or open a slide show movie.
2. Select the photos you want to use in the movie.
3. Click the **Edit** tab.
4. Click the **Duration** list arrow, and then select the photo duration in seconds.

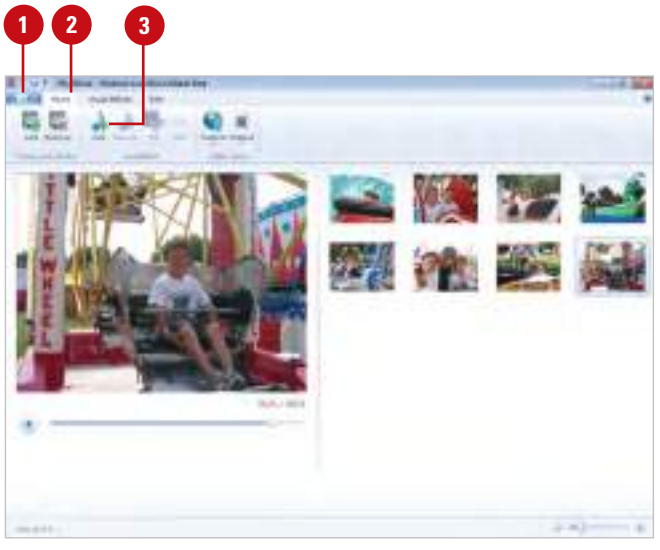


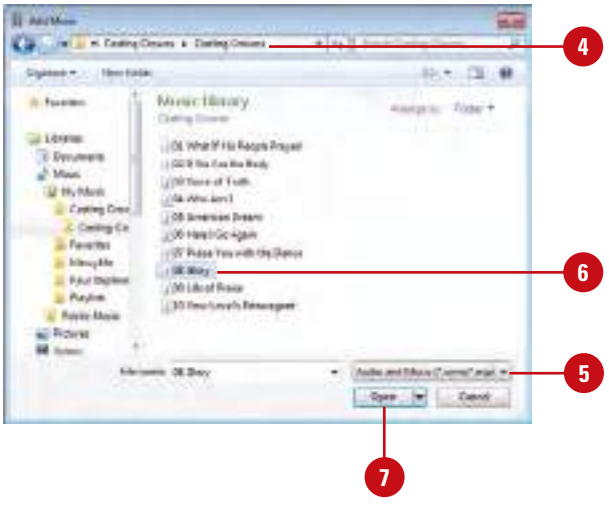
Adding a Soundtrack

If you have photos or video without sound, you can add a soundtrack to a movie. Windows Live Movie Maker allows you to add a single audio or music file to your movie. You can use audio or music with the WMA, MP3, or WAV file formats. If you want to use multiple audio or music files in a movie, use an external sound editing program to combine them together before you use it. You can use the Add music button on the Home tab to insert it. When you insert a soundtrack file when one already exists, the new one replaces the existing one. If you no longer want to use a soundtrack file, you can remove it. In addition, you can also set the soundtrack and video to play at the same volume or make one louder than the other, and adjust the duration of your movie to match your soundtrack.

Add an Audio or Music Soundtrack

1. Open the movie in which you want to fit the sound clip to the length of the movie.
2. Click the **Home** tab.
3. Click the **Add music** button on the Ribbon.
4. Select the folder that contains the audio or music file you want to use.
5. To select a specific media type, click the **Files of type** list arrow, and then select a file type.
6. Select the files you want to use.
7. Click **Open**.



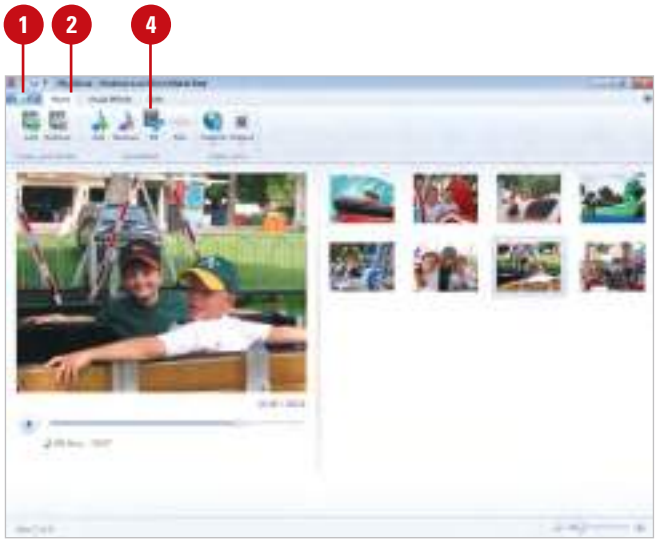


Did You Know?

You can remove a soundtrack. Open the movie with the soundtrack you want to remove, click the Remove Music button on the Home tab.

Fit the Soundtrack to the Movie

1. Open the movie in which you want to fit the sound clip to the length of the movie.
2. Click the **Home** tab.
3. If not done, click the **Add music** button on the Ribbon to add a soundtrack file to the movie.
4. Click the **Fit** button to adjust the duration of your movie to match your soundtrack.



Mix the Soundtrack

1. Open the movie in which you want to adjust the sound clip.
2. Click the **Home** tab.
3. If not done, click the **Add music** button on the Ribbon to add a soundtrack file to the movie.
4. Click the **Mix** button.
5. Drag the slider to adjust the volume mix between the soundtrack and the video.

Working with Clips

After you capture or import a video clip or audio clip, you can preview the individual clips in the monitor. The monitor works similarly to a VCR/DVD. The Storyboard displays all the clips and photos in a movie. The order in which they appear in the Storyboard is the order it appears in the movie. You can rearrange the individual items by simply dragging them to a new location in the Storyboard. If you no longer want to use a clip, you can remove it.

Preview a Clip

1. Open the movie in which you want to work with clips.
2. Click the clip in the Storyboard you want to preview.
3. Right-click the selected clip, and then click **Play**.

   TIMESAVER *Press Spacebar to play or pause a clip quickly.*

4. To pause the clip, click the **Pause** button. Click the **Play** button again to continue.

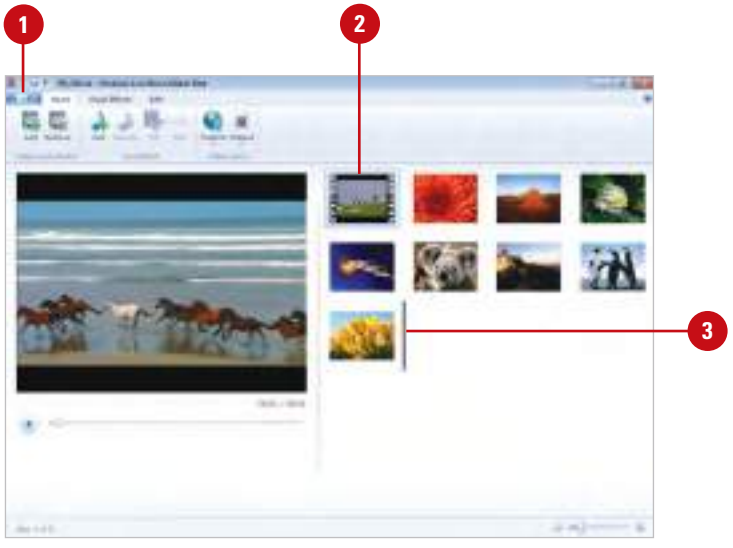
   - To adjust the start point, drag the **Seek** bar to the place you want.

Did You Know?

You can get ScreenTip information about a clip. Point to a clip in the Storyboard to display name and duration of the clip.

Arrange Clips in a Movie

1. Open the movie in which you want to work with clips.
2. Select the clips you want to move.
3. Drag the selected clips to a new location in the order you want.



Remove Clips from a Movie

1. Open the movie in which you want to remove clips.
2. Select the clips you want to remove.
3. Click the **Home** tab.
4. Click the **Remove** button.

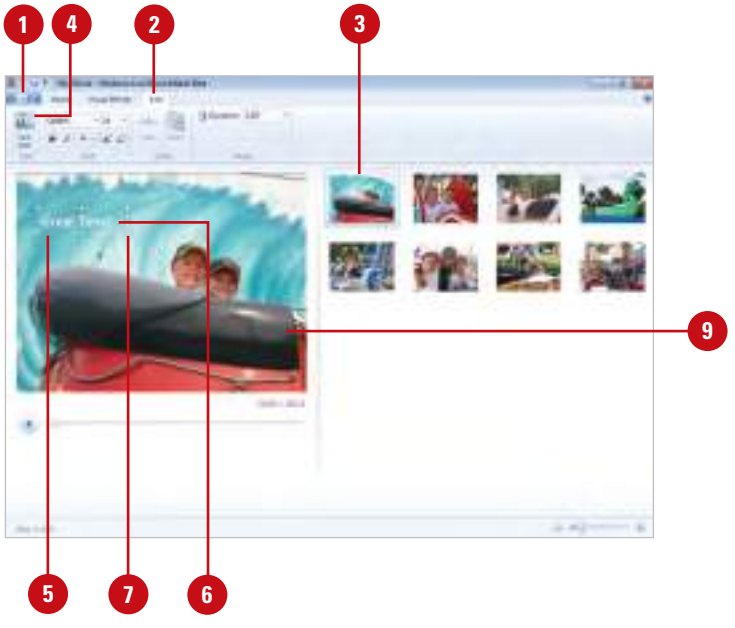
Did You Know?

You can cut and copy clips in Windows Live Movie Maker. Open the movie in which you want to work with clips, select the clips you want to cut or copy, right-click the selection, and then click Cut or Copy.

Adding Text

You can add text titles and credits to your movies. You can add any text you want, such as the title of your movie, your name, captions, and credits at the end. You can add a title at the beginning of a movie, before or after a clip, or overlapping a clip or credits at the end of a movie. You add text in Windows Live Movie Maker just like you would in Paint with a Text box. Like Paint, if you click outside the text box, you can't change it. It becomes part of the clip. When you insert text in a video, the text appears throughout the entire video. You can also change the appearance of the text using the font formatting options on the Edit tab.

Add and Edit Text to a Movie



1. Open the movie in which you want to add text.
2. Click the **Edit** tab.
3. Select the clip you to which you want to add a title.
4. Click the **Text box** button.

   A blank text box appears on the monitor.

   IMPORTANT *If you click outside the text box, you can't change it. It becomes part of the clip.*
5. To move the text box, point to the edged of the box (4-headed arrow), and then drag it.
6. Click in the box, if necessary, and then type the text you want to appear as the title.
7. To adjust the size of the text box, point to a size box in the corners or middle edges, and then drag it.
8. To edit the text, click in the text box, and then modify or format the text.
9. When you're done, click outside the text box.

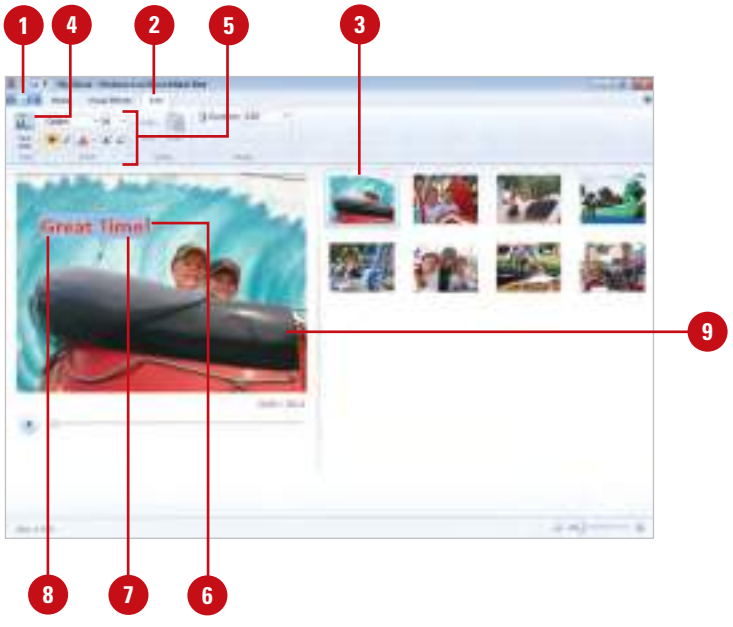
Add and Format Text to a Movie

1. Open the movie in which you want to add text.
2. Click the **Edit** tab.
3. Select the clip to which you want to add a title.
4. Click the **Text box** button.

   A blank text box appears on the monitor.

   IMPORTANT *If you click outside the text box, you can't change it. It becomes part of the clip.*

5. Use the options under Font on the Edit tab to format the text:
   - **Font Type.**
   - **Font Size.**
   - **Bold.**
   - **Italic.**
   - **Font Color.**
   - **Grow Font.**
   - **Shrink Font.**
6. Click in the box, if necessary, and then type the text you want to appear as the title.
7. To adjust the size of the text box, point to a size box in the corners or middle edges, and then drag it.
8. To move the text box, point to the edged of the box (4-headed arrow), and then drag it.
9. When you're done, click outside the text box.



Trimming Clips

Frequently, the clips you record or import into Windows Live Movie Maker run longer than you want them to in your final movie. You can easily trim clips on the Trim tab by playing the clip and setting the **trim beginning** point and **trim end** point. The portion between the trim points remains in your movie. The frames before and after the trim points are deleted from your movie, but the original clip is not affected and retains its original length. You can trim a clip as it plays, or you can pause and set the trim points. You can drag the **timeline trim handles** (sliders at the beginning and end of a selected clip).

Trim a Video Clip

1. Open the movie in which you want to modify clips.
2. Click the **Edit** tab.
3. Select the video clip you want to trim in the movie.
4. Click the **Trim** button.
5. Drag the **Seek** bar to the point where you want to start the clip.
6. Drag the left slider to the point where you want to start the clip.
7. Drag the **Seek** bar to the point where you want to end the clip.
8. Drag the right slider to the point where you want to end the clip.
9. Click the **Save and close** button to save and exit the Trim tab or click **Cancel** to exit without saving your work.

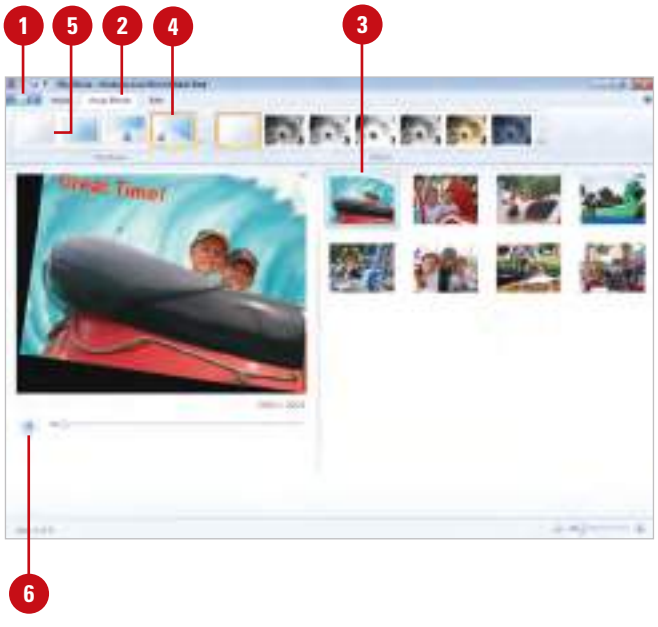
Adding Transitions Between Clips

A **transition** is an effect that provides a smoother, more gradual change between clips in a movie. A transition plays before one clip ends while another starts to play. You can add a transition between two video clips, pictures, or titles on the storyboard or timeline. Windows Live Movie Maker provides a variety of video transitions that you can quickly add to a movie project, such as Crossfade, Slide, and Roll. If you no longer want to use a transition, you can remove it.

Add or Remove a Transition

1. Open the movie in which you want to add transitions.
2. Click the **Visual Effects** tab.
3. Select one or more photo or video clips you want to add a transition in the movie.
4. Click a transition on the Ribbon.

   A gold border appears around the transition box on the Ribbon to indicate it is applied to the photo or video clip.
5. To remove a transition, click the **No transition** (first box) on the Ribbon.
6. To test out the transition, click the **Play/Pause** button.
7. To increase or decrease the transition duration, click the **Edit** tab, and then change the duration time in seconds.



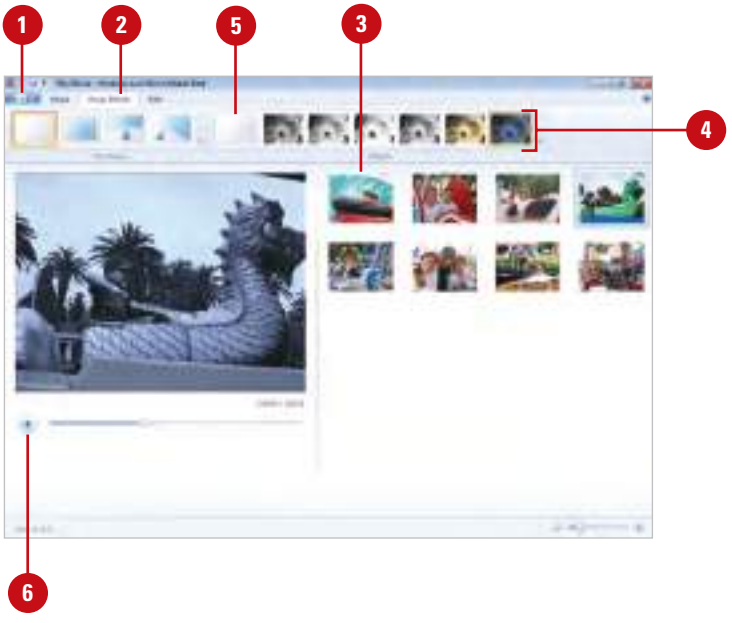
Adding Photo and Video Effects

Windows Live Movie Maker offers a variety of Black and White effects that you can add to a movie project, such as orange filter, red filter, yellow filter, sepia tone, or cyan tone. An effect is applied for the entire duration of a clip, photo, or text in a movie project. If you no longer want to use an effect, you can remove it.

Add or Remove Effects

1. Open the movie in which you want to apply an effect.
2. Click the **Visual Effects** tab.
3. Select one or more photo or video clips you want to apply an effect in the movie.
4. Click an effect on the Ribbon.

   A gold border appears around the effect box on the Ribbon to indicate it is applied to the photo or video clip.
5. To remove an effect, click the **No effect** (first box) on the Ribbon.
6. To test out the effect, click the **Play** button.

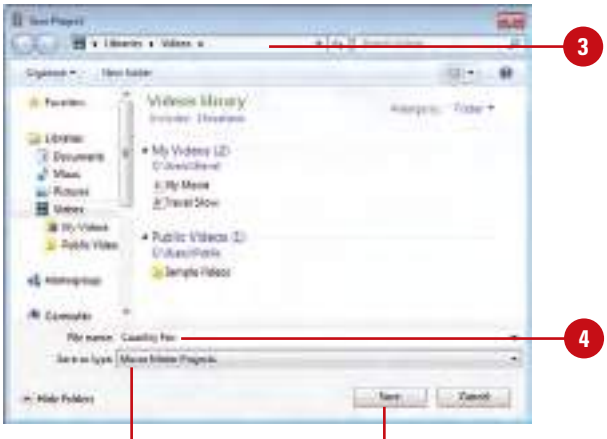


Saving a Movie Project

If you're still working on a project, you can save the project file and open it later to continue working with your movie. A saved project file in Windows Live Movie Maker has an .mswmm file name extension. In Windows Explorer, you can include general information using tags, like any other file, about the movie, such as the title, author, copyright, a rating, and a description, that is often displayed during playback by many media players.

Save a Movie Project

1. Create or open the movie you want to save in the default Windows Live Movie Maker format (.mswmm).
2. Click the **File** button, and then click **Save as**.
3. Select the folder where you want to save the project file.
4. Type a movie project name.
5. Click **Save**.



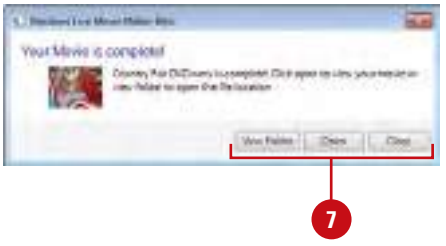
Saving a Movie

A movie project is saved with the default .mswmm file format. However, if you want to use your movie on a DVD or portable device, you need to save it in a compatible format, such as Windows Media Video (.wmv) (**New!**). With the Output button on the Home tab, you can save a movie in the .wmv format: Windows Media DVD quality (640x480, 2.8Mbps, 30fps) or Windows Media portable device (320x240, 1.5Mbps, 30fps). After you save the movie, your next step is to burn it to a DVD or sync it to a portable device. After you save the movie in the .wmv format, you can play it in a media player, such as Windows Media Player, or in a web browser.

Save a Movie for Use on a DVD or Portable Device

1. Create or open the movie you want to save in the .wmv format for use on a DVD or portable device.
2. Click the **Home** tab.
3. Click the **Output** button arrow, and then select an output option:
   - **Windows Media DVD quality (.WMV).**
   - **Windows Media portable device (.WMV).**
4. Select the folder where you want to save the project file.
5. Type a movie name.
6. Click **Save**.

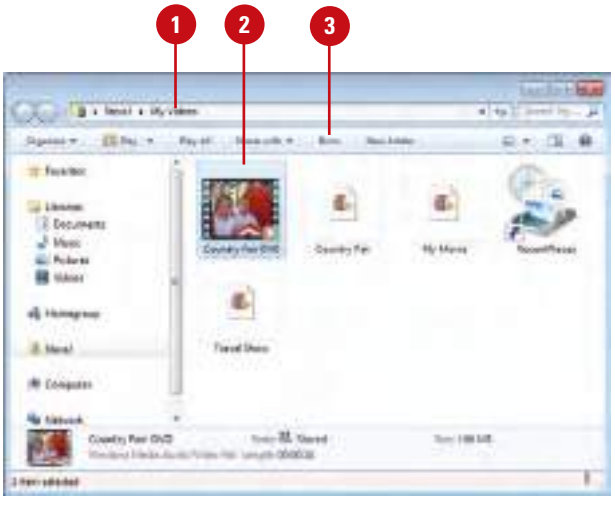
   Upon completion, an alert dialog box appears, displaying options to view the file in Windows Explorer or in Windows Media Player.
7. Click **View Folder**, **Open**, or **Close**.

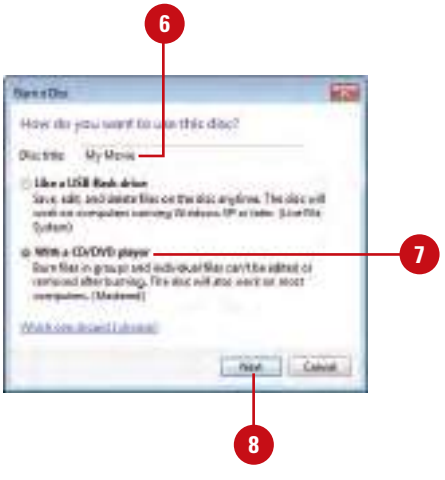


Burn a Movie to a DVD

1. Click the Windows Explorer icon on the taskbar, and navigate to the location with the movie you want to burn to a DVD.
2. Select the movie that you saved using Windows Media DVD quality (.WMV) in Windows Live Movie Maker.
3. Click the **Burn** button on the toolbar.
4. Insert a writable DVD into your DVD recorder.
5. Click **Burn files to disc**.
6. Type a title for the disc.
7. Click the **With a CD/DVD player** option.
8. Click **Next** to continue.
9. Open the folder that contains the files you want to burn, and then drag the files onto the empty disc folder.
10. Click **Burn to disc** on the toolbar.

    The selected files are copied to the disc. The disc recorder tray opens when the disc is complete.





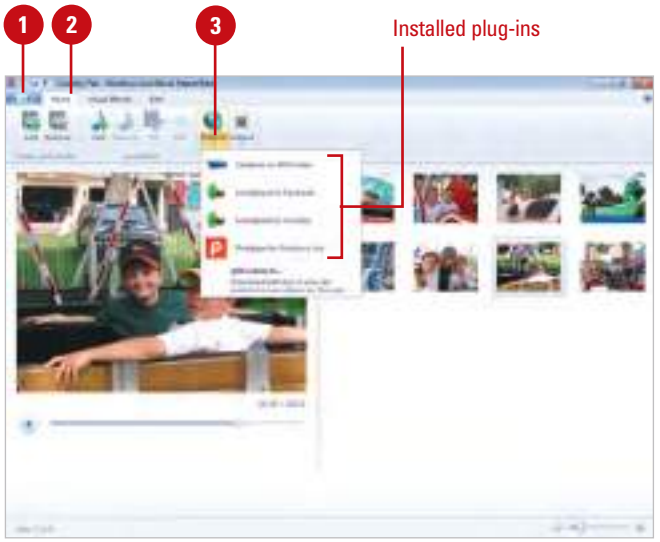
Adding Functionality with Plug-ins

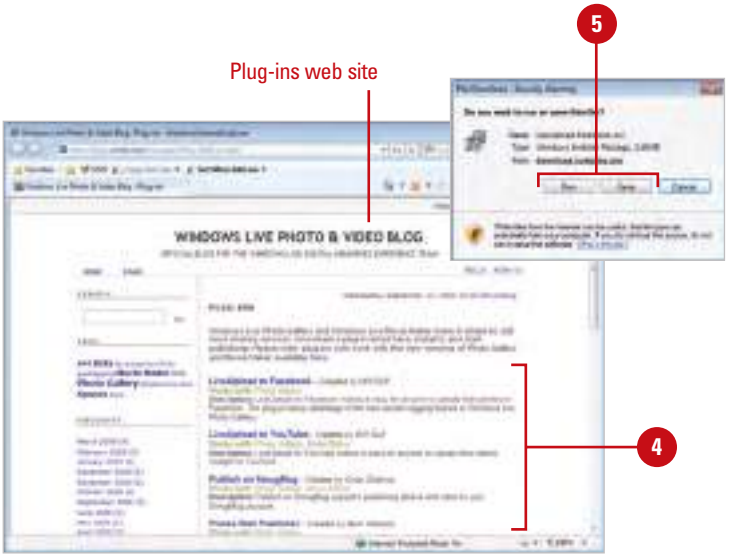
Windows Live Movie Maker allows you to publish a movie to sharing sites on the web, such as Soapbox on MSN video (installed by default). Windows Live Movie Maker uses plug-ins (**New!**) to allow this functionality. Third-party developers have created additional plug-ins you can use to upload your movies to YouTube and SmugMug to name a few. You can open a web site from Windows Live Movie Maker that lists and provides access to a variety of plug-ins with more to come all the time. The plug-ins on the web site can be used in Windows Live Movie Maker and/or Windows Live Photo Gallery, such as upload to Facebook. Check the web site for details.

Add Functionality with Plug-ins

1. Create or open the movie you want to save in the .wmv format for use on a DVD or portable device.
2. Click the **Home** tab.
3. Click the **Publish** button arrow, and then click **Add a plug-in**.

   Your browser opens, displaying a web site with a list of available plug-ins.
4. To install a plug-in, click a link, and the click the download link for the plug-in.
5. Click **Run** or **Save** to run or save the setup program, and then follow the on-screen instructions.
6. Follow the on-screen instructions to complete the setup process, and then click **Finish**.
7. Click the **File** button, click **Exit**, and then restart Windows Live Movie Maker.





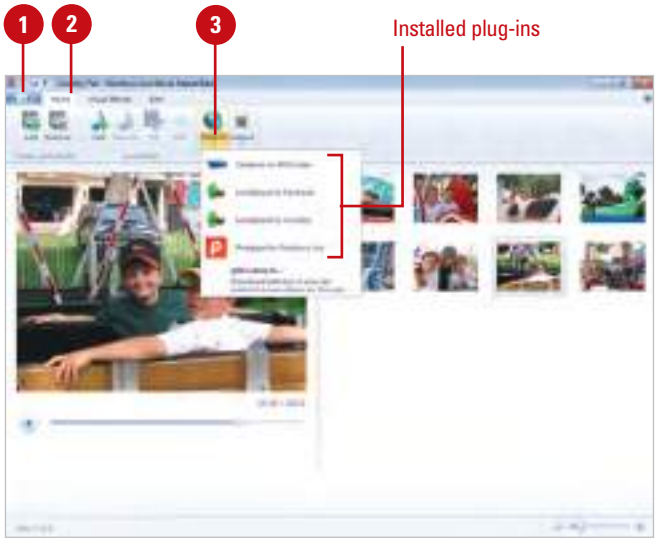
Publishing a Movie

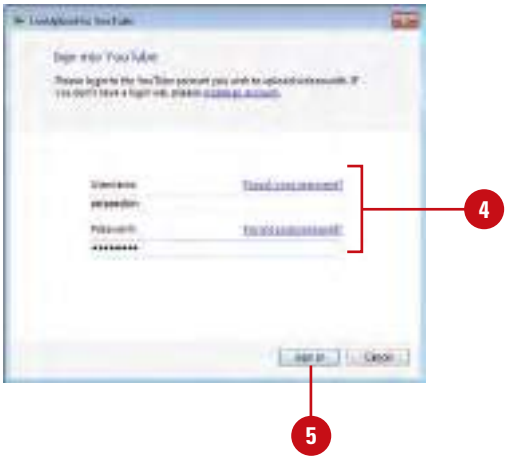
After you preview the final project using the monitor, you can publish the project file as a movie file. Using a publishing plug-in (**New!**), you can publish the movie file to the web for use on sharing sites, such as Soapbox on MSN video, YouTube, or Pixelpipe. The Soapbox on MSN video plug-in is installed by default, while YouTube and other publishing plug-ins need to be downloaded and installed. You can open a web site from Windows Live Movie Maker that lists and provides access to a variety of plug-ins. Each publishing option uses a different process to publish your movie to the web site. In most cases, you need an account with the web site to continue. Get an account or sign in to your account.

Publish a Movie Using Plug-ins

1. Create or open the movie you want to save in the .wmv format for use on a DVD or portable device.
2. Click the **Home** tab.
3. Click the **Publish** button arrow, and then select a publishing options, such as LiveUpload to YouTube.

   Each publishing option uses a different process to publish your movie to the web site.
4. In most cases, you need an account with the web site to continue. Get an account or enter your user name and password.
5. Click **Sign In**.
6. Follow the on-screen instructions to complete the setup process.



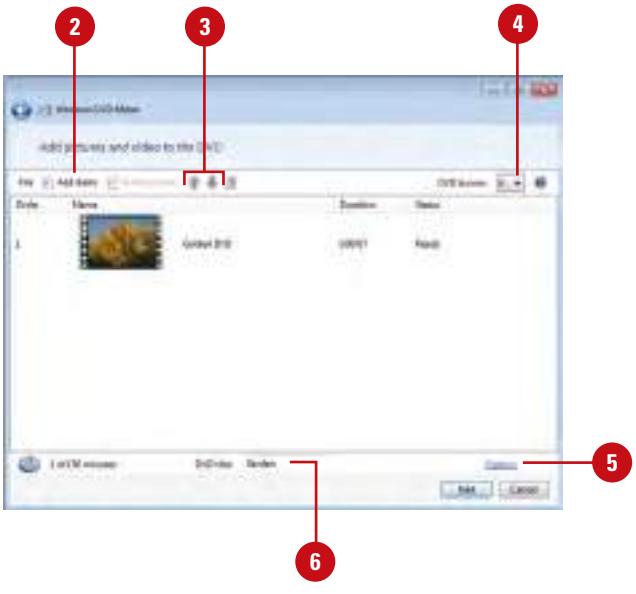


Creating a DVD Video

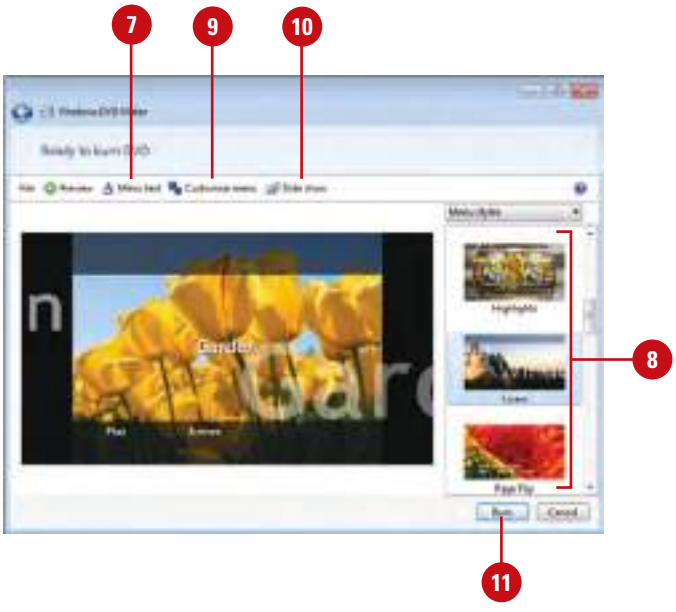
With Windows DVD Maker, you can insert video, pictures and audio, and combine it with titles and predefined menus to create a DVD video disc that you can play on a TV using a DVD player. To create a DVD, you add and arrange your media, add menu text, select a menu style, choose DVD playback options, and then burn it. If you have still photos, you can also create a slide show to music.

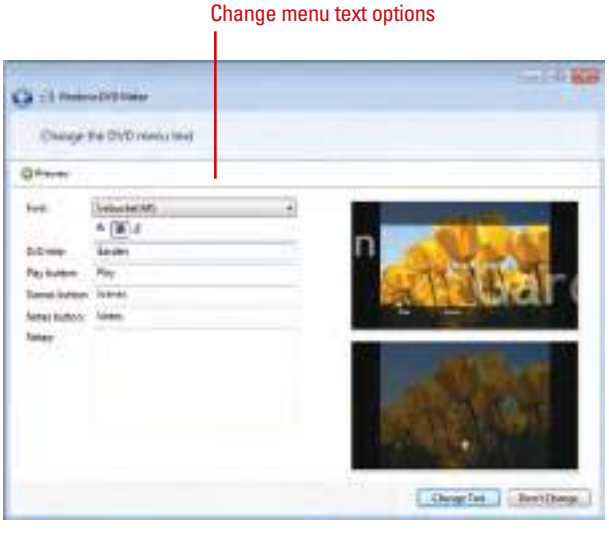
Create a DVD Video Using Windows DVD Maker

1. Click the **Start** button, point to **All Programs**, and then click **Windows DVD Maker**.
2. Click the **Add items** button, locate and select the media you want to insert, and then click **Import**.
3. Select a media item, and then click the **Move up** or **Move down** button to arrange the media on the DVD.
4. Click the **DVD Burner** list arrow, and then select a DVD burner.
5. To set options, click the **Options** button, specify the options you want, and then click **OK**.
   - **Choose DVD playback settings.** Select a playback option.
   - **DVD aspect ratio.** Select a screen ratio, either the 4:3 or 16:9 option.
   - **Video format.** Select the NTSC or PAL option. NTSC is common in the USA and PAL in Europe.
   - **DVD burner speed.** Select the fastest possible for the DVD burner on your computer.
6. Type a disc title, and then click **Next** to continue.



7. Click the **Menu text** button, specify the text you want, and then click **Change Text**.
8. Click a menu style in the right pane.
9. To customize the menu, click the **Customize menu** button, specify the options you want, and then **Change Style**.
10. Click the **Slide show** button, specify picture length and music, and then **Change Slide Show**.
11. Click **Burn**.
12. Click the **File** menu, click **Save**, specify a location and name, and then click **Save**.





CHAPTER 8 — Networking with Windows

ABOUT THE BOOK

Get comfortable with Windows 7. Don't just read about it: See it and hear it with step-by-step video tutorials and valuable audio sidebars delivered through the **FREE Web Edition** that comes with every USING book. For the price of the book, you get online access anywhere with a web connection–no books to carry, content updated as Windows 7 changes, and the benefit of video and audio learning. Way more than just a book, this is all the help you'll ever need where you want, when you want!

- Learn fast, learn easy, using web, video, and audio
- Show Me video walks through tasks you've just got to see – including bonus advanced techniques
- Tell Me More audio delivers practical insights straight from the experts

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J. Peter Bruzzese (co-founder of ClipTraining) is an internationally published technical author and well-known tech speaker and journalist. Over the past 15 years, Peter has worked with Goldman Sachs, CommVault Systems, and Microsoft, to name a few. His focus has been, and continues to be, on enterprise environments with a special focus on Active Directory, Exchange, SharePoint, and desktop operating systems.

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In this chapter, Windows 7 networking for the home environment is explored.

8

Networking with Windows 7

HomeGroups

Setting up a home network has never been astronomically difficult, but it's frustrating enough to novice users that they often give up or pay someone to come in and fix their networks. It's not the physical side that causes them pain. Walk into any store that sells computer equipment and you can pick up a wireless router or whatever else you need that will connect your home physically in a matter of minutes. But "sharing" your documents, printers, media and so forth is a bit more challenging if you do not know how to do this (and even more challenging if you have a hodgepodge of system types—some systems running XP and others running Vista).

With Windows 7, this pain point is addressed by HomeGroups, a feature that works only between systems running Windows 7). Obviously you can still network disparate systems together, but if you have an all-Windows 7 situation, the sharing is much easier to accomplish.

When you perform an installation of Windows 7, you can configure a HomeGroup at that time. But if you don't set it up then, you can use the HomeGroup applet found in Control Panel to get you started. You initially see a dialog that explains what a HomeGroup is for; click the Create a HomeGroup button (see Figure 8.1).

LET ME TRY IT

Creating a HomeGroup

Complete the following steps to create a HomeGroup. On completion, you will have chosen what items to share and you will receive a password to share this data with other computers on your network.

1. Click the Start orb.
2. Click Control Panel.
3. Select Network and Internet.
4. Choose HomeGroup.
5. Click Create Homegroup to open the Create a HomeGroup dialog box.

Figure 8.1 *Creating a HomeGroup.*

6. Select what you want to share from the following and click Next.
   - Pictures
   - Music
   - Videos
   - Documents
   - Printers
7. After the HomeGroup is created you will be provided a password for other computers to access the libraries in your HomeGroup. Write down the password.
8. Click Finish.

Keep in mind that you can always go back and easily make changes from the HomeGroup settings through Control Panel.

If you are having trouble creating a HomeGroup, make sure you check your version of Windows 7. Windows 7 Starter and Windows 7 Home Basic can join an existing HomeGroup but cannot start a HomeGroup. If you're having trouble connecting to a HomeGroup, verify your computer is actually connected to the correct network. If you have a wireless network connection, it can be very easy to connect to the wrong network inadvertently and spin your wheels trying to solve a connectivity issue.

After the HomeGroup is set up, you will receive a password (see Figure 8.2). This password is provided by default. You can write it down and share it with others in the family so they can access shared items (so long as they have Windows 7 on their systems) or you can change the password to something you would like.

Figure 8.2 *The HomeGroup password.*

LET ME TRY IT

Locating a Lost HomeGroup Password

Follow these steps to retrieve your HomeGroup password. Once finished, you can print this password to save it for later reference or to distribute to others on your network.

1. Click the Start orb.
2. Click Control Panel.
3. Select Network and Internet.
4. Choose HomeGroup.
5. Click View or Print HomeGroup Password.
6. To print out the password, click Print this Page at the bottom right; otherwise click Cancel.

Some have asked why they cannot just create their own passwords right from the start. Apparently during the testing phase of Windows 7, the Windows development team discovered that users weren't aware they might be giving this password to others, so these users often used the same passwords they used to secure sensitive information. Rather than distribute this same password to others and potentially put their sensitive information at risk, users were given a starter password. This gave them the option of using this starter password or creating their own password.

After your HomeGroup is up and running, you can revisit your settings in the Control Panel and make additional changes, such as adjustments to your media streaming options (see Figure 8.3).

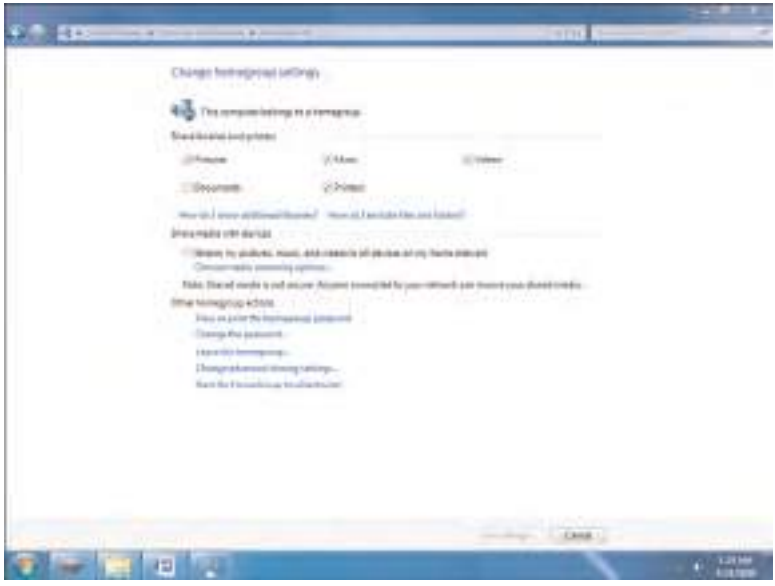

Figure 8.3 *Changing HomeGroup settings.*

LET ME TRY IT

Accessing the HomeGroup Settings

Complete the following steps to change your HomeGroup settings.

1. Click the Start orb.
2. Click Control Panel.
3. Select Network and Internet.
4. Click the Choose Homegroup and Sharing Options link, which opens the Change Homegroup Settings screen.

Every system in a HomeGroup is considered a peer (or equal). Users can enter or leave the group by using the password, much like the use of a key to the home. Once in the group, they can access whatever is shared.

LET ME TRY IT

Changing the HomeGroup Password

Changing your password is an easy way to stop others from sharing your library. The following steps show you how to change your password. A later exercise shows you how to stop sharing individual library items in a HomeGroup.

1. Click the Start orb.
2. Click Control Panel.
3. Select Network and Internet.
4. Click the Choose Homegroup and Sharing Options link, which opens the Change HomeGroup Settings screen.
5. Click the Change the Password... link, which opens the Change Your Homegroup Password dialog box.
6. Verify that any current HomeGroup computers are on and not asleep or hibernating.
7. Click Change the Password. You will be prompted to accept the new password or change it.
8. Click Next.
9. Write down the password.
10. Click Finish.

One of the best parts to this is the use of Libraries. A folder such as Pictures is no longer a folder; it's a Library that can include multiple folders from multiple locations. You can control the addition of locations if you choose, but if Pictures is shared out, others can quickly view those new locations without finding a new way to connect to it. It will all come under the Library.

When it comes to sharing documents, the content is shared as read-only so that you do not have to fear items being changed without additional thought (although you can change this selectively, on a document basis, in Explorer; see Figure 8.4).

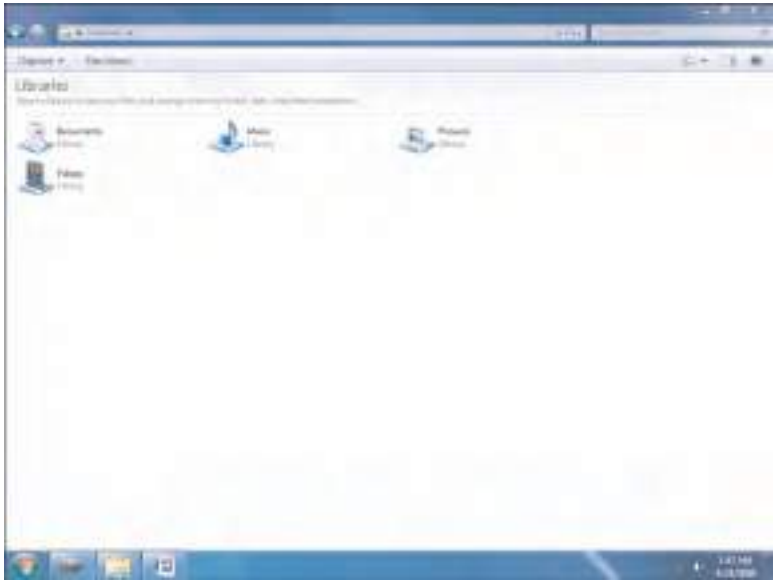

Figure 8.4 *Libraries that are shared with the HomeGroup.*

LET ME TRY IT

Sharing Additional Libraries with the HomeGroup

The following show you how to share items to your HomeGroup. In addition to adding these items to your shared library, you can also modify how they are accessed (such as read-only or write).

1. Click the Start orb.
2. Select your user name. It should be in the right column at the top. This will open your personal folder.
3. Click on a folder you would like to share, but do not open it.
4. In the top menu, click the drop-down arrow to the right of Share With.
5. Select HomeGroup (Read/Write).
6. You might be asked for a confirmation of this. If so, click Yes.
7. To view which Libraries are being shared, click on a folder. Look to the lower-right of the screen, above the words Date Modified, and you will see State:Shared.
8. This folder is now being shared as a library with read/write access to users in your HomeGroup.

Be advised that when you add libraries to the HomeGroup, those libraries need to be present and connected in order to be accessed. For example, you can add a folder on a removable external hard drive as a library to your HomeGroup, but it can only be accessed when the external hard drive is connected to your computer.

If you would like to make a network resource as part of your HomeGroup, the folder to add as a library needs to be indexed. If it isn't, a quick workaround is to make the folder available offline. This indexes the folder as it creates offline versions. You can include the folder in a library once you make it available offline. Keep in mind that these offline versions of the files in the folder will be copied to your hard drive. Make sure you have enough room on your local hard drive to accommodate the offline files that you have added to your library.

LET ME TRY IT

Removing Libraries from the HomeGroup

The following exercise shows you how to select exactly which library you would like to stop sharing with your HomeGroup.

1. Click the Start orb.
2. Click your user name (it should be in the right column at the top). This opens your personal folder.
4. Click once on a library you would like to stop sharing (but do not open it).
5. In the top menu, click the drop-down arrow to the right of Share With.
6. Select Nobody.

The library is now removed from your HomeGroup. However, it is still accessible from the local computer.

Another interesting aspect of the HomeGroup approach is that it allows computers that are typically connected to a domain at work (such as a company laptop) to access a home network. You can join a HomeGroup and see the items in the home but others will not be able to see back in to your system so your data is safe from prying eyes.

LET ME TRY IT

Removing Your Computer From a HomeGroup

You can easily leave a HomeGroup. Follow these steps to accomplish this.

1. From the computer you want to remove from the HomeGroup, click the Start orb.
2. Click Control Panel.

3. Select Network and Internet.
4. Select HomeGroup.
5. Choose Leave the HomeGroup.
6. Click Leave the Homegroup.
7. Click Finish.

From within the HomeGroup options you can also access your media sharing settings and your Advanced sharing settings. Click Change Advanced Sharing Settings.

If you are having trouble with sharing in the HomeGroup, Windows 7 provides a HomeGroup troubleshooter (see Figure 8.5) to diagnose and locate potential problems. By default, the troubleshooter is configured to apply repairs automatically. This is a nice feature that helps minimize support calls and lets the operating system self-heal.

Figure 8.5 *The HomeGroup troubleshooter.*

LET ME TRY IT

Using the HomeGroup Troubleshooter

The following steps how you how to identify issues with computers already connected to a HomeGroup. These steps work only on computers already connected to a Homegroup. To join a HomeGroup, visit the HomeGroup applet in the Control Panel to connect to an existing HomeGroup.

1. Click the Start orb.
2. Click Control Panel.
3. Select Network and Internet.

4. Click on HomeGroup.
5. In the Other Homegroup Actions section, click Start the HomeGroup troubleshooter. The HomeGroup troubleshooter dialog box opens up.
6. Click Next. The troubleshooter begins searching for problems and automatically fixes them (if possible).
7. Follow the wizard to complete the troubleshooter.

Public folder sharing (which is turned off by default) can be another easy way to share files and folders. Public folders are a quick and easy way to share a file without setting up an entire folder as a library. The weakness of public folders, however, is their inability to restrict users to seeing only the files in the Public folder. Also, there isn't much in the way of permissions. Generally speaking, if it can be seen in the public folders, it can be accessed. Still, if you want to share a file only temporarily with someone, public folders are the way to go.

SHOW ME **Media 8.1—Working with HomeGroups**
Access this video file through your registered Web Edition at ***my.safaribooksonline.com/9780768695212/media.***

LET ME TRY IT

Turning on Public Folder Sharing

After you complete the following steps, members of your network will be granted access to all items located in your Public folder. They will have full rights to all files in the Public folder.

1. Click the Start orb.
2. Click Control Panel.
3. Select Network and Internet.
4. Click the Choose Homegroup and Sharing Options link. The Change HomeGroup Settings screen opens.
5. Click Change Advanced Sharing Settings.
6. Locate the Public Folder Sharing section.

You have two different profiles with Public Folder sharing options. One is the Home/Work profile (which is most likely where you want to turn on this feature) and the other is the Public profile (which you typically want to keep locked down a bit more, so you may not want to enable it here).

7. Choose Turn On Sharing So Anyone with Network Access Can Read and Write Files in the Public Folders.
8. Click Save Changes.
9. A UAC window might open. If so, click Yes.

Workgroups, HomeGroups, and Domains: What's the Difference?

For years, Windows networks have existed as either workgroups or domains. Now HomeGroups have been introduced with Windows 7. Domains, workgroups, and HomeGroups represent different methods for organizing computers in networks. The main difference among them is how the computers and other resources on the networks are managed.

Here's a brief look at each of the key features (source: Windows 7 Help and Support):

Workgroup

- All computers are peers; no computer has control over another computer.
- Each computer has a set of user accounts. To log on to any computer in the workgroup, you must have an account on that computer.
- There are typically no more than 20 computers.
- A workgroup is not protected by a password.
- All computers must be on the same local network or subnet.

HomeGroup

- Computers on a home network must belong to a workgroup, but they can also belong to a HomeGroup. A HomeGroup makes it easy to share pictures, music, videos, documents, and printers with other people on a home network.
- A HomeGroup is protected with a password, but you need to type the password only once, when adding your computer to the HomeGroup.

Domain

- One or more computers are servers. Network administrators use servers to control the security and permissions for all computers on the domain. This makes it easy to make changes because the changes are automatically made to all computers. Domain users must provide a password or other credentials each time they access the domain.

- If you have a user account on the domain, you can log on to any computer on the domain without needing an account on that computer.
- You probably can make only limited changes to a computer's settings because network administrators often want to ensure consistency among computers.
- There can be thousands of computers in a domain.
- The computers can be on different local networks.

Windows-based computers on a network must be part of a workgroup or a domain. Windows-based computers on home networks can also be part of a HomeGroup, but it's not required.

Computers on home networks are usually part of a workgroup and possibly a HomeGroup, and computers on workplace networks are usually part of a domain.

The Network and Sharing Center

The Network and Sharing Center was first introduced in Vista and has been slightly streamlined in Windows 7.

The main panel displays a compressed view of the network map, information about existing network connections, and any resources the user can locate on the network. You have links at the bottom of the center for the following:

- **Set up a New Connection or Network:** Set up a wireless, broadband, dial-up, ad hoc, or VPN connection; or set up a router or access point.
- **Connect to a Network:** Connect or reconnect to a wireless, wired, dial-up or VPN network connection.
- **Choose Homegroup and Sharing Options:** Access files and printers located on other network computers, or change sharing settings.
- **Troubleshoot Problems:** Diagnose and repair network problems or get troubleshooting information.

On the left side of the screen, you can click links to Manage Wireless Networks, Change Adapter Settings, or Change Advanced Sharing Settings.

Of course, to connect on the network, you need to have installed a network adapter. These come in several forms, including network cards, USB wireless networks, or integrated network adapters built into your laptop or desktop. Fortunately, most modern network adapters are plug and play and get you immediately con-

nected to the network. But that might not be the case if you are upgrading to Windows 7 with older hardware.

If you have upgraded and suddenly disconnected from your network, there is a good chance your network drivers need to be updated. There are several ways to do this; one of these is from the aforementioned Change Adapter Settings link.

Here's a little conundrum: Your network adapter needs drivers to be updated so you can get on the Internet, but the only place to get these drivers *is* the Internet. The workaround for this could be a little tricky. The best answer is to download the drivers from another computer that can get on the Internet, then copy them to a portable jump drive to install them on the computer that has the outdated drivers. The next question is, "What type of network adapter do I have?" One way to find out is to look in Network Connections. Windows 7 might have recognized your network card but just might not have drivers for it. If you know you have a network adapter installed, you might have to consult with your computer manufacturer or take apart your computer to see the brand and model of your network card. If all this seems too difficult, buying an inexpensive plug-and-play USB network adapter is a low priced alternative.

LET ME TRY IT

Upgrade Your Network Adapter Driver

The following steps show you how to upgrade your network adapter drivers. Internet access is recommended to complete this exercise.

1. Click the Start orb.
2. Click Control Panel.
3. Select Network and Internet.
4. Click Network and Sharing Center.
5. In the left pane, click Change Adapter Settings.
6. Point to the adapter you want to update, right-click, and select Properties.
7. If a UAC window opens, click Yes.
8. Click the Configure button.
9. Select the Driver tab.
10. Click Update Driver.
11. If you have a disk or other location where you have updated network driver software, select Browse My Computer for Driver Software.

12. Type the location (or click Browse to locate the drivers) and click OK.
13. Click Next.
14. Windows searches the location for updated drivers. If it finds more than one choice, it presents you with all options. Pick the closest one to your specific hardware.
15. You might receive a notification that your drivers have not been digitally signed. Read the message carefully before proceeding. In many cases, the drivers will work. However, you will have to decide whether to use them or not.
16. Upon successful completion and connection to the network, return to Network Connections to see an icon for your new connection.

When updating drivers, your hardware manufacturer might not yet have released drivers for Windows 7. If drivers for Vista are available, install those instead. Oftentimes, drivers between the two systems are interchangeable. If and when Windows 7 drivers for your hardware are released, they most likely will be available as an optional download in Windows Update.

One newcomer to the Network and Sharing Center is View Your Active Networks, which is located just below the basic network map. Here you will see all the networks you can connect to along with any to which you are currently connected.

Another nice touch is a refinement to the Connect to a Network dialog box. This is the second link under the heading Change your Network Settings. Click this to bring up a new pop-up box called the View Available Networks (VAN) interface. This is similar to the Connect to a Network pop-up used to connect to networks in Vista. A subtle revision here is the removal of one layer of display messages. The menu pops up above the network icon and shows up like a jump menu.

When the pop-up appears, it not only shows you what network you are connected to, but a Change button gives you one-click access to previously established connections. This is a simple yet effective upgrade.

Setting Up Your Network Location

You might have noticed each time you connect to a network a dialog box appears, asking you to select your network location. This feature was first introduced in Vista. The purpose of this dialog box is to automatically configure your firewall and security settings depending on your location. Here are the four network locations and an explanation for each one:

- **Home Network:** There are two instances when you choose this setting. One is for home networks and the other is when you know and trust the users and devices on the network. Because computers on a home network can belong to a HomeGroup, there is much greater access allowed to available network resources. Network discovery is turned on for home networks, which allows you to see other computers and devices on the network and allows other network users to see your computer. This setting offers the easiest connectivity between computers and network devices.
- **Work Network:** Select Work Network if the network you are connected to is a small office or similar workplace network. You will be visible to other computers since network discovery (which allows you to see other computers and devices on a network and allows other network users to see your computer) is on by default. One restriction with this setting is that you cannot create or join a HomeGroup.
- **Public Network:** Choose Public Network for networks in public places (such as cafés, airports, or networks offering free Wi-Fi). This setting keeps your computer from being visible to other computers around you and is the most restrictive in terms of security and visibility. Use this setting on a public network to help protect your computer from any malicious software from the Internet. You cannot connect to a HomeGroup is on public networks and network discovery is turned off. Also consider using this option if you're connected directly to the Internet without using a router. A router serves as an additional layer of insulation from all Internet attacks. Without a router, your firewall needs to be set to a highly secure state. Also use Public Network if you have a mobile broadband connection. This also requires high security and firewall protection.
- **Domain:** If you see this setting, it is unchangeable and controlled by your network administrator.

When connecting to a secured network, the only requirement now is to enter the network security key (passphrase). If you are switching from Windows XP to Windows 7, this is a welcome change because you no longer have to specify the encryption type (WEP, WPA, or WPA2).

Although it's not part of the network map, the network folder is closely related to it. From here you can view all available network resources (see Figure 8.6). This can be opened by clicking Network from any Explorer window, which shows the computers and other resources you have access to on the network. A link back to the Network and Sharing Center is on the top menu. Clicking on any of the computer icons shows any shared resources on these devices you can share.

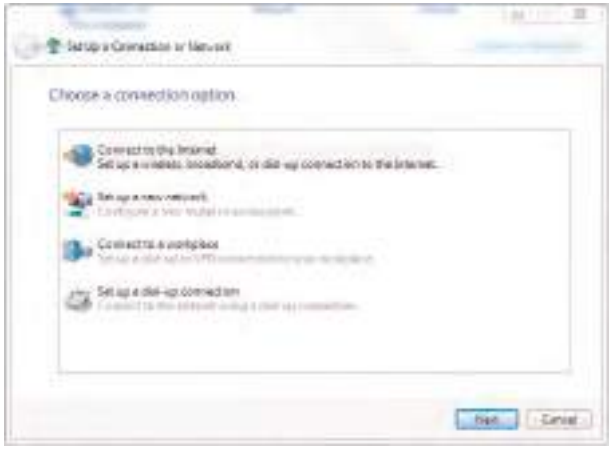

Figure 8.6 *Setting up a connection or network.*

LET ME TRY IT

Setting Up a New Broadband Connection to the Internet

To complete the following steps, you will need a broadband connection to the Internet along with the ISP-assigned user name and password. Upon successful completion, you will have established a high-speed connection to the Internet.

1. Click the Start orb.
2. Click Control Panel.
3. Click Network and Internet.
4. Select Network and Sharing Center.
5. Click Set up a New Connection or Network. This opens the Set Up a Connection or Network dialog box.
6. Click Connect to the Internet.
7. Click Next.
8. You are asked, "How do you want to connect?"

9. Select Broadband. The Connect to the Internet configuration screen opens.
10. Type your User Name and Password.
11. Select Remember This Password.
12. Click Connect to establish your new connection.

Network printers were once a part of business networks exclusively, but low cost and improved technology have made network printers an attractive option for the home as well. Once installed on a wireless home network, users can print from anywhere within the wireless network range. Very convenient!

SHOW ME Media 8.2—The Network and Sharing Center
Access this video file through your registered Web Edition at ***my.safaribooksonline.com/9780768695212/media.***

Connecting to a Printer Share from Another Computer

The following steps show you how to connect to another computer (with a printer connected to it that is shared) and then access the shared printer. When you finish this exercise, you will be able to print from the shared printer.

1. Click the Start orb.
2. Click Computer.
3. In the left pane, click Network.
4. In the top menu, click Add a Printer. The Add Printer dialog box appears.
5. Click Add a Network, Wireless or Bluetooth Printer and click Next. Windows searches the network for available printers.
6. When it finds the network printer you want to connect to, select it and click Next.
7. If a printer driver suitable for use with Windows 7 is available, the printer is installed. If not, Windows uses Windows Update to search for a driver online.
8. Upon successful installation of your printer drivers, your network printer is now ready for use.

Utilizing the Network Connectivity Status Indicator (NCSI)

The NCSI (a feature we saw implemented originally in Vista) is the little networking icon that sits in your Notification Area. It has four different states you can use to quickly see if there is a connectivity problem.

It will either tell you No Connectivity where it has a little Red X, or "Connectivity Problem" which has a little warning caution sign over it, or Local connectivity which has only the computers, and then Internet Connectivity has the Globe on top of it indicating that you have access to the Internet.

Another enhancement to this icon is the fact that if you have a notebook computer and there is a network card built in and then also a wireless network card, you would, in the past, have two network status icons. One of might appear broken all the time because you don't usually have both plugged in and available.

With Windows 7 (actually, starting with Vista), one of the benefits with the new NCSI icon is the fact that it consolidates all your network connections to one icon. So if there is something going on with two separate connections and you hover over one connection, you'll see the two distinct network connections listed there individually.

If your network is always on, you might not need the icon in the Notification Area.

Removing the Network Icon from the Notification Area

The following steps show you how to remove the networking icon from the Notification Area. Take note of the other modifications you can make in this window while in this section.

1. Right-click the Start orb.
2. Select Properties.
3. Select the Taskbar tab.
4. In the Notification Area, click Customize.
5. Locate the Network icon, click the drop-down for Behaviors, and select Hide Icon and Notifications.
6. Click OK.

The icon is removed from the Notification Area taskbar.

The Network Map

At the top of the Network and Sharing Center, you might have noticed a mini-map of your connection to the Internet with a connecting router shown between your computer and the Internet. If you select the See Full Map option, you will see an expanded display of your computer and everything your computer is connected to, including any network connections (wired and wireless), any computer-to-computer connections (called *ad hoc*), and any connections to the Internet (see Figure 8.7). The map shows you any problems between connections as well, so you can begin diagnosing connectivity issues visually before you make corrections physically.

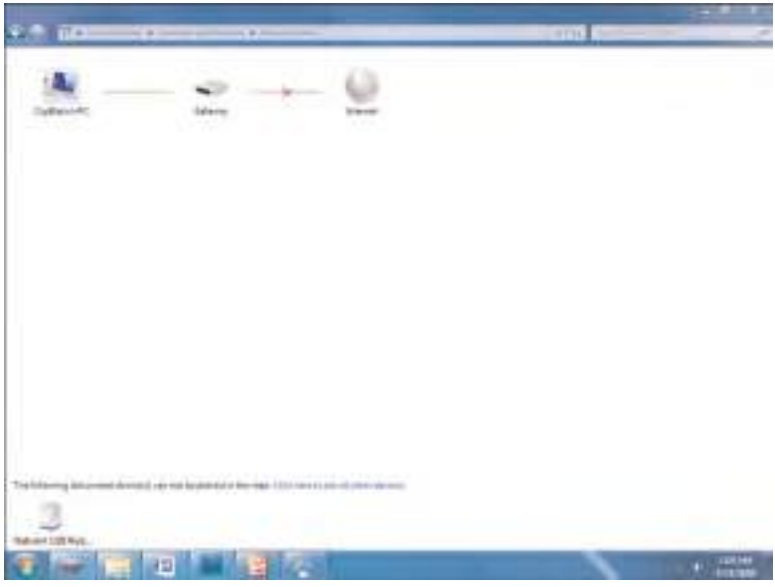

Figure 8.7 *The Network map indicating an Internet connectivity issue.*

One little-known feature of the network map is the ability you have to click on a problem area to start Windows onboard diagnostics. This was first introduced in Vista and has been slightly revised and updated for Windows 7. For example, if you see an X over the connection between your computer and the Internet, click the X to diagnose the problem. This opens Windows diagnostics and attempts to solve the problem for you.

Viewing the Network Map

The following steps show you how to view the Network Map in a few easy steps.

1. Click the Start orb.
2. Click Control Panel.
3. Click Network and Internet.
4. Click Network and Sharing Center.
5. In the right corner, click See Full Map.
6. Windows creates and displays the Network Map.

The Network Map looks similar to the one in Vista but it functions a bit better and seems to have an easier time locating devices on the network, even presenting you with ones that it cannot integrate into the map. This helps in understanding the network topology.

Advanced Sharing Settings

Selecting Advanced Sharing Settings brings you to the options for different network profiles. Here you can choose the Home or Work profile or the Public profile. And then you can set the following options:

- **Network Discovery:** When Network Discovery is on, this computer sees other network computers and devices and it is visible to other network computers.
- **File and Printer Sharing:** When File and Printer Sharing is on, files and printers that you have shared from this computer can be accessed by users on the network.
- **Public Folder Sharing:** When Public Folder Sharing is on, users on the network, including HomeGroup members, can access files in the Public folders.
- **Media Streaming:** When Media Streaming is on, users and devices on the network can access pictures, music, and videos on this computer. This computer can also find media on the network.
- **File Sharing Connections:** Windows 7 uses 128-bit encryption to help protect file-sharing connections. Some devices don't support 128-bit encryption and must use 40- or 56-bit encryption.
- **Password Protected Sharing:** When Password Protected Sharing is on, only a user who has a user account and a password on this computer can access shared files, printers attached to this computer, and the Public folders. To give other users access, you must turn off Password Protected Sharing.

One distinct setting between Private and Public settings is the HomeGroup connections setting (which you cannot use on the Public network side).

Media Streaming is one option that media lovers will get excited about. Enabling this option allows you to turn your Windows 7 into a streaming media source for your network. By default, this feature is turned on, but you can customize it here in Advanced Sharing Settings. Click Choose Media Streaming Options to access these options.

There are a ton of possibilities with this:

- Listen to music on your Windows 7 machine from another computer on the other side of the house.
- View your videos on an Xbox 360 connected to the TV in a spare bedroom.
- Access your photo galleries stored on your Windows 7 machine on another computer.

Parents who are concerned with what content can be accessed are welcome to take control of this by clicking the Customize link. Here you can customize the content rating you will permit streamed to media programs and remote connections.

One other aspect of Media Streaming is that it runs independent of your file and print sharing security configuration. That means you can enable media streaming to multiple devices on the network without easing up the file and print sharing setup you have on the same machine.

Troubleshoot Problems

When you click the Troubleshoot Problems link off the Network and Sharing Center, this tool initially searches for troubleshooting packs and then presents them to you for both network and Internet options.

Accessing the Troubleshooting Packs

The new Troubleshooting packs in Windows 7 are easy to locate and use (see Figure 8.8). The following steps show you how to find them.

1. Click the Start orb.
2. Click Control Panel.
3. Click Network and Internet (unless you have icons showing in Control Panel, in which case you can simply click the Troubleshoot link).

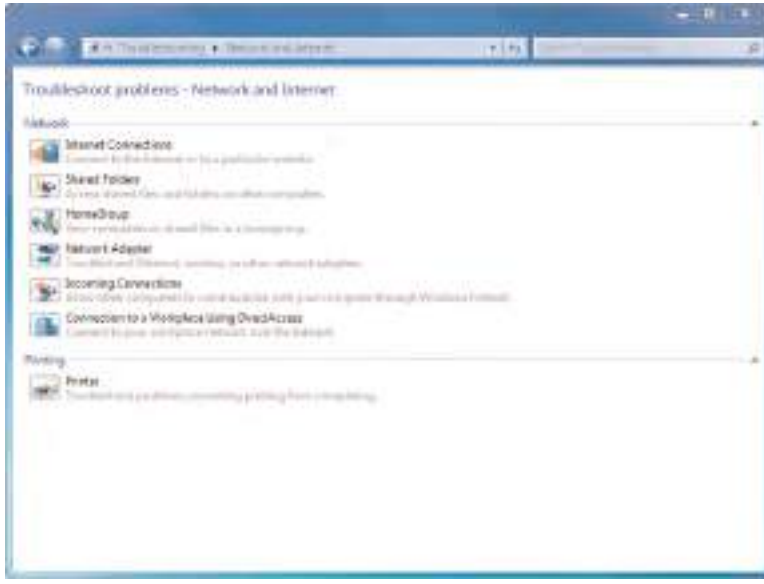

Figure 8.8 *Troubleshooting packs.*

4. Click Network and Sharing Center.
5. Click the Troubleshoot Problems link, which opens the troubleshooting pack.

Selecting anyone of the options provided opens a troubleshooting tool that is designed to specifically detect problems related to your choice. The benefit here is that you no longer need to search for every type of problem in the universe if your connection is giving you trouble—especially if you know that the problem is coming from the network adapter specifically or the Internet side of your network connection.

The network diagnostics automatically run a set of troubleshooting tools that analyzes all elements of the network or Internet item you've chosen and provides a systematic diagnosis of connectivity problems. It then automatically resolves the problems it finds or at least will walk you through simple solutions.

Accessing the Internet Connections Troubleshooting Pack

Complete the following steps to access a simple troubleshooting wizard that looks at your Internet connectivity and tries to locate any issues. If it can't find a problem, the troubleshooter takes you to Windows Help and Support for further analysis.

1. Click the Start orb.
2. Click Control Panel.
3. Click Network and Internet.
4. Choose Network and Sharing Center.
5. Click the Troubleshoot Problems link, which opens the Troubleshooting pack.
6. Click the Internet Connections button, which opens the Troubleshooting pack for Internet Connections.
7. Click Next. The wizard then attempts to diagnose potential problems.
8. Click Troubleshoot My Connection to the Internet. It then checks for problems in web connectivity, name resolution, and network gateway configuration.
9. If the troubleshooter can't solve the problem automatically, you are presented with the most likely problem and a series of steps to correct it.
10. If this still does not solve your problem, click the Why Can't I Connect to the Internet link to open Windows 7 Help and Support. You can review additional solutions to your problem there.

Accessing the Shared Folders Troubleshooting Pack

Complete the following steps to access a simple wizard that looks at the shared folders you are trying to connect to and fixes any issues connecting to them. If it can't find a problem, the troubleshooter takes you to Windows Help and Support for further analysis.

1. Click the Start orb.
2. Click Control Panel.
3. Click Network and Internet.
4. Choose Network and Sharing Center.
5. Click the Troubleshoot Problems link, which opens the Troubleshooting pack.
6. Click the Shared Folders button, which opens the Troubleshooting pack for Shared Folders.
7. Click Next.

8. Using the following sample format, type the network location you would like to access in this format: \\MarketingPC\Resources\Data.
9. Click Next. The wizard attempts to detect name resolution and network gateway configuration problems.
10. If the troubleshooter can't solve the problem automatically, you are presented with the most likely problem and a series of steps to correct it.
11. If this still does not solve your problem, click the link Why Can't I Connect to the Internet link to open Windows 7 Help and Support.
12. You can review additional solutions to your problem there.

Accessing the HomeGroup Troubleshooting Pack

Complete the following steps to access a simple troubleshooting wizard that looks at your HomeGroup and tries to locate issues connecting to it. Follow the troubleshooting instructions to locate and resolve issues.

1. Click the Start orb.
2. Click Control Panel.
3. Click Network and Internet.
4. Choose Network and Sharing Center.
5. Click the Troubleshoot Problems link, which opens the Troubleshooting pack.
6. Click the HomeGroup button, which opens the Troubleshooting pack for HomeGroup.
7. The UAC window might appear. If so, click Yes.
8. Click Next. The HomeGroup diagnostics begin.
9. Different messages will display, depending on your issue.
10. If the diagnostics apply a solution, you are asked if the problem is fixed. Select the appropriate answer to proceed.

Accessing the Network Adapter Troubleshooting Pack

Complete the following steps to access simple wizard that looks at your network adapter and tries to locate any issues. If the troubleshooter can't resolve the issue, it takes you to other options for solving the problem.

1. Click the Start orb.
2. Click Control Panel.
3. Click Network and Internet.
4. Choose Network and Sharing Center.
5. Click the Troubleshoot Problems link, which opens the Troubleshooting pack.
6. Click the Network Adapter button, which opens the Troubleshooting pack for Network Adapter.
7. Click Next.

The troubleshooter attempts to solve the problem and presents a possible solution. If it is unable to locate a problem, you will are presented with an opportunity to explore additional options or close the troubleshooter.

Accessing the Incoming Connections Troubleshooting Pack

Complete the following steps to access a simple wizard that looks at your incoming connections and tries to locate any issues. If the troubleshooter can't resolve the issue, it takes you to other options for solving the problem.

1. Click the Start orb.
2. Click Control Panel.
3. Click Network and Internet.
4. Choose Network and Sharing Center.
5. Click the Troubleshoot Problems link, which opens the Troubleshooting pack.
6. Click the Incoming Connections button, which opens the Troubleshooting pack for Incoming Connections.

7. Click Next.
8. Select from one of the four choices:
   - Share Files or Folders
   - Connect to this Computer Using Remote Desktop Connection
   - Find this Computer on the network
   - Something Else
9. Click Next.
10. A series of diagnostics runs, attempting to solve the problem. You are presented with the results.

Accessing the Connection to a Workplace Using DirectAccess Troubleshooting Pack

Complete the following steps to access a simple wizard that looks at your Direct Access configuration and tries to locate any issues. If the troubleshooter can't reslove the issue, it takes you to other options for solving the problem.

1. Click the Start orb.
2. Click Control Panel.
3. Click Network and Internet.
4. Choose Network and Sharing Center.
5. Click the Troubleshoot Problems link, which opens the Troubleshooting pack.
6. Click the Connection to a Workplace Using DirectAccess button, which opens the Troubleshooting pack for Connection to a Workplace Using DirectAccess.
7. Click Next.
8. Read the DirectAccess compatibility requirements.
9. Click Next.
10. Connection to a Workplace Using DirectAccess diagnostics attempts to locate and solve the problem automatically. The results are displayed.
11. The results display.

Accessing the Printer Troubleshooting Pack

Complete the following steps to access a simple wizard that looks at your printer and tries to locate any issues. If the troubleshooter can't resolve the issue, it takes you to other options for solving the problem.

1. Click the Start orb.
2. Click Control Panel.
3. Click Network and Internet.
4. Choose Network and Sharing Center.
5. Click the Troubleshoot Problems link, which opens the Troubleshooting pack.
6. Click the Printer button, which opens the Troubleshooting pack for Printer.
7. Click Next.
8. Diagnostics assess your printer situation.
9. Select the printer you would like to troubleshoot.
10. Click Next.
11. The troubleshooter diagnoses any problems and presents possible solutions.

Configuring Your TCP/IP Settings

There is a certain form of standardization in the networking world that allows our hardware to communicate with machines all over the world. Transmission Configuration Protocol/Internet Protocol (otherwise known as TCP/IP) serves as the prime communication language for our computers.

TCP/IP has evolved over the years. Windows 7 supports the latest version, IPv6. While this version supports more IP addresses than IPv4, the fundamentals of the IP stack have not changed. That's great news because that means there is little or no need for users to manually configure IP settings. For the vast majority of home users, changing TCP/IP settings is rarely—if ever—done.

Because you almost never have to configure TCP/IP settings these days, you might have forgotten some of the basics about them. In Windows 7, you access these settings in the Local Area Connection Properties dialog box (see Figure 8.9).

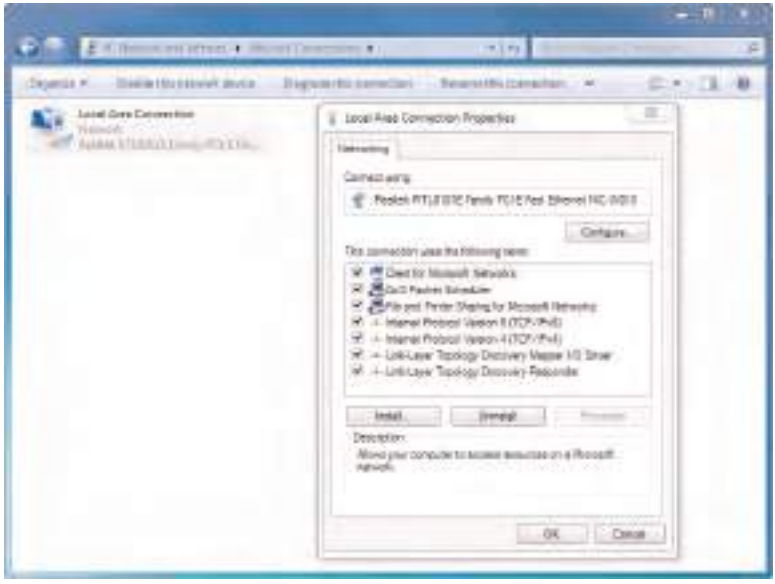

Figure 8.9 *The Local Area Connection Properties dialog box.*

Opening Local Area Connection Properties

Follow these steps to see the settings for all the network adapters connected and recognized by the sytem.

1. Click the Start orb.
2. Click Control Panel.
3. In the Network and Internet group, click the View Network Status and Tasks link.
4. In the left pane, select Change Adapter Settings.
5. From an active network connection, right-click and choose Properties. (If a UAC window opens, click Yes.) This brings up the Local Area Connection Properties dialog box.

Dynamic Host Configuration Protocol (DHCP) is a critical part of most modern networks. Simply put, DHCP allows a computer (typically a server) or router (such as a wireless network router) to handle all the heavy lifting when it comes to creating and maintaining the network. A DHCP server provides the TCP/IP address to host devices on the network. The address is supplied in octet form (such as 192.168.0.1) and provided to devices on the network. Once DHCP is established and address are assigned, the network operates pretty much on its own. Windows 7 is set up out of the box to run in a DHCP environment.

There are occasions when some computers or devices might require what is called a static IP. This is a fixed address that never changes. This might be a requirement, for example, when connecting to certain network printers or copiers. Or port forwarding might be required on a certain machine. By and large however, static IP addresses are seldom seen in mainstream home networks.

If you are asked to configure your TCP/IP settings, it's a good idea to know what your settings are. Then, if you have some trouble, you can restore those settings. A quick way to see your IP settings is to use the command prompt.

Checking Your TCP/IP Settings from a Command Prompt

Upon completing these steps, you will be able to see the TCP/IP settings for all network adapter on your computer. This exercise accesses these settings through the command prompt.

1. Click the Start orb.
2. In the search field, type **cmd** and then press Enter. A black screen opens to a command prompt.
3. Type **ipconfig** and press Enter.
4. Locate the IP address for your active network connection.

When working from a command prompt, you should be able to see the version of your IP address. (If not, you might need to scroll up on the command window to view all the IP information.) It might be an IPv4 address. The number appears in octet form (such as 192.168.0.3). You also have listed here the subnet, default gateway, and DNS information. This data is required if you ever need to establish a static IP.

The command prompt is another fast way to test your Internet connection when you have connectivity problems. For example, simply type **ping www.google.com** to send a ping request to Google. If it succeeds, you receive a reply with a status of the packet speed. If it fails, you receive a failure message, such as Ping Request Could Not Find Host.

The command prompt used to be a crucial part of Windows. With each successive version, as more and more elements have become parts of the graphical interface, I tend to use the command prompt less and less.

If you need to change your TCP/IP address, first determine the type of address you have (IPv4, IPv6, or both). Once you know that, you can configure your new address.

SHOW ME **Media 8.3—Configure Your TCP/IP Settings**
Access this video file through your registered Web Edition at ***my.safaribooksonline.com/9780768695212/media.***

Changing a Network Adapter to Use a Static IPv4 Address

This exercise shows you how to change your IP settings from DHCP to static and how to insert an IPv4 address into your network adapter settings (see Figure 8.10).

Figure 8.10 *Configuring a static IP address.*

1. Click the Start orb.
2. Click Control Panel.
3. In the Network and Internet group, click the View Network Status and Tasks link.
4. In the left pane, click Change Adapter Settings.

5. From an active network connection, right-click and choose Properties. (If a UAC window opens, click Yes.) The Local Area Connection Properties dialog box appears.
6. Click the correct Internet Protocol Version and click Properties. The Internet Protocol Version Properties dialog box appears.
7. Use the Following IPv*X* Address radio button.
8. In the IPv*X* Address box, type the new IP address.
9. Complete the information for Subnet Prefix Length box and the Default Gateway box, respectively.
10. Complete the information for the Preferred DNS Server box.
11. Click OK.

Today, routers are inexpensive and usually easily obtained. But a situation could arise where there is no router available. What if you find yourself in a situation in which you have several computers, but only one connected to the Internet? Does Windows 7 provide a way to connect them all to the Internet? Yes, there is: it's called Internet Connection Sharing (ICS). ICS is not used frequently, but it is good to know about it in case the need arises. The minimum hardware you will need to make it work is a computer connected to the Internet (host) and a wired hub. Be sure the host can connect to both the Internet and the wired hub simultaneously.

I set up an ICS environment without a wired hub by using a wireless router. To do this, I had to dumb down the router and turn off DHCP. This turned it into a simple router. After plugging in the ports to local computers, I used the ICS host to set up the network. Not the best solution, but better than nothing.

LET ME TRY IT

Setting Up Internet Connection Sharing on a Wired Network

The following steps show you how to set up ICS. Upon completion, computers on your network can access the Internet through the local system.

1. On the host computer with a connection to the Internet, click the Start orb.
2. Click Control Panel.
3. Choose Network and Internet.
4. In the Network and Sharing Center, click View Network Status and Tasks.

5. In the left pane, click Change Adapter Settings.
6. Right-click the connection to the Internet and choose Properties. If it's a Local Area Connection, the Local Area Connection Properties dialog box appears.
7. Click the Sharing tab. (You won't see this tab if you have only one network connection.)
8. Select the Allow Other Network Users to Connect Through This Computer's Internet Connection check box.
9. Click OK.
10. Verify your Internet connection is operating correctly.
11. Connect the first computer you want to share the Internet with to the hub.
12. Make sure the newly connected computer is set to receive IP addresses automatically.
13. Test the connection to the Internet.
14. Add additional computers sharing the Internet in the same way.

A no-no when using ICS: Do not use ICS on networks that have DHCP servers, DNS servers, domain controllers, or gateways. Remember, your wireless router likely is also your DHCP server, so make sure you are disconnected from it before setting up ICS. Having these up on the network at the same time creates conflicts and brings your network to a grinding halt.

TELL ME MORE **Media 8.4—A Discussion of the Ease of Networking with Windows 7**

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CHAPTER 23 — Removing Unnecessary Files and Programs

ABOUT THE BOOK

Want to make Windows 7 run faster, smarter, easier, better? Want to personalize Windows to look and act the way you want it to? Want to get more efficient and ditch all those Windows hassles? You don't need a Ph.D in computer science or expensive upgrades. All you need is this book! Michael Miller makes it easy to tweak Windows so it works just like you want it to–and runs smooth as silk for years to come. No extreme hacking required: These are simple, step-by-step techniques anyone can perform in minutes–even beginners!

- Customize Windows 7's desktop for the way you work
- Strip out bloated, worthless software that slows your PC down
- Get your network running faster and more reliably
- Surf the Web more quickly and safely
- Improve performance and battery life on notebooks and netbooks
- Get more security with fewer annoyances
- Discover great free and cheap alternatives to Microsoft's built-in software
- Fix Windows 7's most aggravating problems
- And much more...

ABOUT THE AUTHOR

Michael Miller has written more than 90 non-fiction how-to books over the past two decades; his books have collectively sold more than one million copies worldwide. He has written many books about the Windows operating system, dating from *Using Windows 95* (written in 1995). His more recent books include Que's *Absolute Beginner's Guide to Computer Basics, Easy Computer Basics, Your First Notebook PC, Speed It Up! A Non-Technical Guide for Speeding Up Slow Computers, Wireless Networking with Microsoft Windows Vista,* and *How Microsoft Windows Vista Works.*

23

Removing Unnecessary Files and Programs

Having Windows 7 your way also means that you get to decide which files and programs you store on your computer's hard disk drive. That's important, because bad things can happen if your hard disk gets too full. Not only do you run out of space to store new stuff, but it also affects your computer's performance; a too-full hard drive slows down your PC.

So it's important that you learn how to remove the stuff you don't use or need from your hard drive. That's what this chapter is about.

Hard Disk Capacity—Enough Is Never Enough

It always seems like you have more than enough space on your hard disk—when you first get it. Back in the mid-1980s, we marveled at the huge 10MB (that's *megabytes*—not *gigabytes*) of storage available on early IBM PCs. In 1991, we wondered how we would ever fill the 100MB of capacity on that era's newest drives. By the year 2000, those older drives appeared tiny next to the first 1GB drives. In 2005, 500GB seemed like it would hold a lifetime of data. And today, in mid-2009, the latest 1TB (that's one *terabyte*—or one million megabytes) drives look to be big enough to hold entire collections of digital photos and music, with plenty of room to spare.

But here's the deal. Over time, even the largest hard drives get smaller—at least in perception. That's because when the space is available, we fill it. As the weeks and the months and the years go by after you purchase a new PC, you install lots of new programs and create tons of data files—letters, memos, email messages,

digital photographs, music tracks, videos, you name it. And all this stuff fills up even the largest hard drive.

There's more to it, of course. The fuller your hard drive gets, the slower your computer runs. Oh, the sluggishness comes gradually, maybe you don't even notice it for the first year or so, but every new item that takes up space on your hard disk works to eventually slow down your system to the point that the performance change becomes noticeable. There is a direct correlation between the amount of "stuff" on your hard disk and how fast your system performs.

But why is this? Why does installing more programs and creating more files slow down your computer? And what can you do about it, after the fact?

Why a Crowded Hard Disk Slows Down Your System

Here's the rule: The more unused hard disk space your computer has, the faster it will run. There are a number of reasons for this.

First, your computer sometimes uses your hard disk as a kind of backstop when system memory fills up. In this instance, your hard disk serves as *virtual memory*, temporarily storing programs and data just as your system's random access memory (RAM) normally does. This facilitates *file swapping*, where program and data files are swapped between random access memory (for immediate access) and virtual hard disk memory (for not-quite-immediate access).

If there's a lot of free hard disk space, that means there's lots of virtual memory available for this file swapping, which lets your system run quickly. If there's not a lot of free hard disk space, that means less data can be loaded into this virtual memory—and the less stuff loaded into memory, the slower your system runs. It's a simple equation: Free up hard disk space for virtual memory and speed up your system.

But memory, virtual or otherwise, isn't the only thing that affects your system's performance. Every time you open or save a program or document, that program or document file has to be read from or written to your computer's hard disk; that's basic computer operation. If you only have a few files on your hard disk, it's relatively easy for your computer to find the right file to read or write to, which makes for speedy operation. The more files you have on your hard disk, however, the more files your computer has to sort through to find the right one to read or write to, which slows down your computer's performance. In other words, the more things stored on your hard drive, the longer it takes to access any one thing.

How Much Free Space Do You Need?

So if you want to speed up your system, you need to delete all but the most essential programs and files, and leave plenty of spare hard disk space for potential use as virtual memory and other hard disk chores. But how much free hard disk space do you need?

I recommend keeping at least 20% of your hard disk free; this should leave plenty of room for virtual memory, file swapping, temporary file storage, and the like. For example, if you have a 500GB hard drive, you want to utilize no more than 80% of the available space, leaving at least 100GB of free disk space at any given time. Do the math to figure out how much free space you need on your particular hard drive.

What's on *Your* Hard Disk—And Why?

When it comes to managing hard disk space your way, it helps to know just what kinds of files you have stored on your hard drive. Which files are essential—and which are expendable?

Understanding Computer Files

While every user's hard drive is different, you can normally organize your files into the following five major categories:

- **System files.** These are files used by the Windows operating system, and should not be deleted. (If you do delete them, Windows will probably crash.) These include executable files (typically with a .DLL or .SYS extension), device drivers (.DRV extension), configuration files (.INI extension), and the like.
- **Program files.** These are the files used by the software programs installed on your system, typically with an .EXE file extension. Obviously, files for programs you don't use can be deleted from your hard disk; programs you do use should not be deleted.
- **Data files.** These are the documents, spreadsheets, presentations, music tracks, videos, digital photographs, and the like you create and run with your software programs, or download off the Internet. You may find it better for system performance if you don't archive all your older data files on your main hard drive. Files you don't access frequently can be stored on external hard drives, CDs, or DVDs.
- **Temporary files.** These are files stored in a special "cache" on your hard drive. These may be web pages downloaded by your web

browser and cached for quick viewing, or data files opened and temporarily stored by the host application. Temporary files are typically created when data used by a program is larger than the available memory space. Most temporary files are automatically deleted when the host application is closed, but sometimes, due to a program crash or ill-behaved application, they're not deleted—and continue to take up valuable hard disk space. Most temporary files have a .TMP extension and can be safely deleted.

- **Deleted files.** Here's one that might surprise you. Files that you delete from your hard drive actually aren't immediately deleted. Instead, they're moved to the Recycle Bin, a special folder that holds "deleted" files in case you want to *undelete* them in the immediate future. By default, Windows 7 allocates to the Recycle Bin 4GB plus 5% of your hard disk space—which can be a lot when you have a really big hard drive. You can, however, change the amount of space allocated, and "empty" the Recycle Bin to free up hard disk space.

To summarize, system files should not be deleted (ever), program and data files can be deleted if you don't need them, and temporary and deleted files can always be deleted.

Understanding Bundleware

There's a special category of program files that should be addressed. I'm talking about *bundleware*, those programs that come preinstalled when you purchase a new PC. More often than not, these are not programs you want on your new PC, which is why some wits (including some Microsoft managers) describe these programs as *crapware* or *craplets*.

As you can tell by the nickname, most folks hate this stuff. Users hate having their brand-new desktops cluttered with this crap, and technicians hate having to clean it off users' sluggish PCs. It's just not popular.

About the only folks who like bundleware are the hardware manufacturers. That's because they get paid by each company to install its software in this fashion. Given the slim margins inherent in computer manufacturing, the pennies that various software companies pay per machine to preload their bundleware can be the difference between profit and loss for the hardware manufacturer.

What kind of programs are we talking about? It's all the stuff you find cluttering the desktop and Start menu of a new PC. This might include sign-up utilities for one or two Internet service providers, icons for a couple of online music services, a handful of instant messaging clients, some

cheapo games, a web browser toolbar or two, an anti-virus program that expires in 90 days or so, maybe even trial versions of Quicken or Adobe Photoshop Elements. Depending on the price of the PC, you might also get a functioning version of Microsoft Works or a 90-day trial version of Microsoft Office. All in all, expect at least 10% of your new PC's hard disk space to be taken up with these unwanted programs.

tip

Some retailers, such as Best Buy, offer to remove all the bundleware from a new PC you purchase—for a price. Depending on the price, this may not be a bad thing, as some retailers also install any necessary operating system updates, drivers, and the like at the same time.

And here's the really annoying thing: Much bundleware isn't even fully functioning software. More often than not what you get is a "trial" version that only works for a set period of time (30 or 90 days), or one that is somehow crippled in functionality. If you want to use the full version of the program, you have to purchase it separately. The bundleware version is just a tease or advertisement.

Even more annoying is the fact that if you don't want the bundleware taking up valuable hard disk space (or, even worse, preloading itself into system memory), you have to manually uninstall the stuff. And, not surprisingly, some bundleware makes itself quite difficult to uninstall. It's unwanted stuff that's hard to get rid of—and it slows down your PC, to boot.

tip

Because bundleware is so time-consuming and difficult to remove, the first thing many techie users do when they purchase a new PC is wipe off the hard disk (thus deleting all the bundleware) and reinstall Windows from scratch. This lets them start with a completely clean machine. (Although this doesn't work if you use the manufacturer's "restore" CD/DVD—which typically includes all the bundleware you're trying to get rid of!)

Freeing Up Hard Disk Space by Deleting Bundleware

You're probably coming to the conclusion that you have a lot of stuff on your hard disk that you just don't need and is probably slowing down your system. This is even true with a brand new PC, thanks to the problem of bundleware.

What's the best way to get rid of these unwanted trial programs? One approach is to use a utility dedicated solely to identifying and deleting this so-called crapware. One such program is PC Decrapifier, which you can download for free from www.pcdecrapifier.com.

Figure 23.1 shows PC Decrapifier at work. When you start it up, it scans your system for potential crapware and lists them for you. Check those you want to delete and click the Next button. PC Decrapifier does the dirty work of uninstalling these nuisance programs so that you don't have to deal with them.

FIGURE 23.1

Removing unwanted bundleware with PC Decrapifier.

tip

If you're not sure whether you want to use a program or not, don't let PC Decrapifier delete it. Wait a few days or weeks, then if you haven't used the program, you can rerun PC Decrapifier to delete it then.

Deleting Unwanted Files with the Disk Cleanup Utility

PC Decrapifier only deletes programs it identifies as bundleware or trial versions. You may also want to delete other types of files, which you can do with the Windows Disk Cleanup utility. You use Disk Cleanup to automatically free up extra hard disk space—and speed up your PC's performance.

To use Disk Cleanup, follow these steps:

1. Click the Start button, and then select All Programs, Accessories, System Tools, Disk Cleanup.
2. If prompted, select the drive or user files you want to clean up.
3. Disk Cleanup now analyzes the contents of your hard disk drive and presents its results in the Disk Cleanup dialog box, shown in Figure 23.2.

FIGURE 23.2

Use Disk Cleanup to delete unused files from your hard disk.

4. You now have the option of permanently deleting various types of files: downloaded program files, temporary Internet files, offline web pages, deleted files in the Recycle Bin, and so forth. Select which files you want to delete.
5. Click OK to begin deleting.

You can safely have Disk Cleanup delete all the listed files *except* for the setup log, content indexer, and Office setup files, which are often needed by the Windows operating system.

tip

Of course, you can always delete unwanted files manually. You do this by opening Windows Explorer, navigating to the files you want to delete, and then pressing the Del key on your keyboard. This moves the selected files to the Recycle Bin, so don't forget to empty the Recycle Bin to formally free up that disk space.

Emptying the Recycle Bin

As noted previously, Windows allocates 5% or so of your hard disk space to holding deleted files in the Recycle Bin. When you've deleted enough files to exceed this limit, the oldest files in the Recycle Bin are automatically and permanently deleted from your hard disk. That doesn't help you if you need an extra 10GB to 20GB of free disk space, however. In this instance, you'll want to manually empty the Recycle Bin to thus free up some of that valuable hard disk space.

To empty the Recycle Bin, all you have to do is double-click the Recycle Bin icon on your desktop. Doing so opens the Recycle Bin folder, shown in Figure 23.3. Now click the Empty the Recycle Bin button. When the Delete Multiple Items dialog box appears, click Yes to completely erase the files.

FIGURE 23.3

Emptying the contents of the Recycle Bin.

tip

If you accidentally move a file to the Recycle Bin, you can restore it to its original location by opening the Recycle Bin, selecting the file, and then clicking Restore This Item.

Archiving Little-Used Files

To help free up space on your main hard drive, you may want to move some of your data files to another storage device—an external hard drive, USB flash drive, CD-ROM, or data DVD. This type of *archiving* is something my wife does every year with her digital photos. Each January, she copies the previous year's photos to a series of data CDs, and then stores them in a secure location. The photos are there (on CD) if she needs to access them, but they're not taking up valuable hard disk space on her PC.

This process is as simple as inserting or attaching the backup device or medium, opening Windows Explorer, and then moving the selected files to the backup medium. This can be done using cut and paste, the Windows Move command, or by copying the files and then deleting them from their old locations. In any case, you end up with the selected files on the external device or disc, and lots of space freed up on your main hard disk.

Uninstalling Unwanted Programs

Deleting old or unwanted data files frees up a good deal of hard drive space. But if you want to make a big impact fast, you need to delete some program files, too.

If you have one or more programs that you no longer want or use, you can free up valuable hard disk space by uninstalling those programs from your system. Here's how to do it:

note

Some programs might require you to insert the original installation disks or CD to perform the uninstall.

1. Open the Control Panel and select Programs and Features.
2. Windows now displays a list of installed programs, as shown in Figure 23.4. Select the program you want to uninstall from this list.
3. Click the Uninstall button.

4. If prompted, confirm that you want to continue to uninstall the application. Answer any other prompts that appear onscreen; then the uninstall process will start.

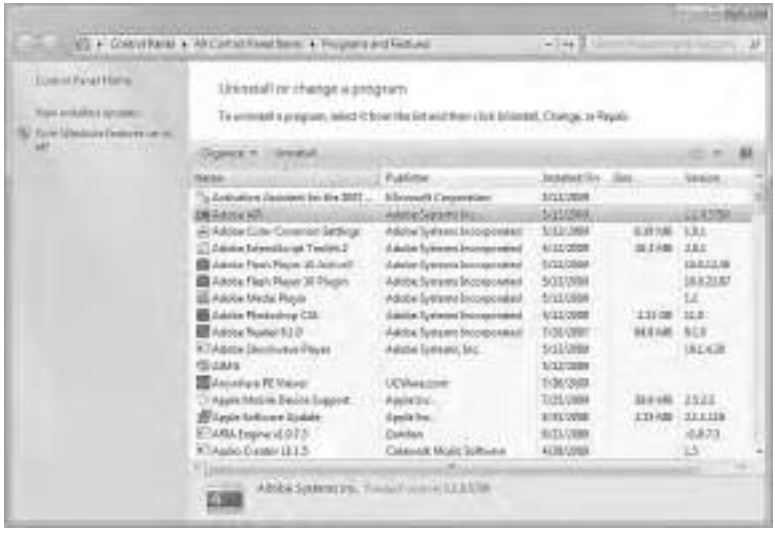

FIGURE 23.4

Deleting a program from your system.

cautioin

In some instances, the add/remove utility may not be able to completely remove all aspects of a program. If you get an error message at the end of the uninstall process, you may need to manually delete any files remaining in the program folder on your hard drive.

The Bottom Line

It pays to keep your hard disk clean. This means getting rid of files and programs that you no longer use or need. The more free hard disk space you have, the more space you have to store newer stuff—and the faster your system will run.

CHAPTER 28 — Editing the Registry

ABOUT THE BOOK

Beyond the Basics…Beneath the Surface…In Depth

Microsoft Windows 7 In Depth is the comprehensive guide to Microsoft's Windows 7 for everyone who's no longer a Windows beginner: corporate, small office/home office, and personal users alike. Top Windows authors Robert Cowart and Brian Knittel have packed this 1,100-page book with intensely useful and practical information that can't be found elsewhere. You can turn here for expert guidance on:

- Migrating to Windows 7 as an individual – or rolling it out throughout a business
- Making the most of Windows 7's powerhouse media tools
- Installing, configuring, and managing Windows 7 networks more quickly and efficiently
- Securing Windows 7 PCs against spam, spyware, viruses and other "Net Nasties"
- Using the updated Windows 7 interface more efficiently
- Troubleshooting and solving Windows 7 problems more rapidly
- And much more...

ABOUT THE AUTHORS

Robert Cowart has written more than 40 books that have sold more than 1 million copies worldwide. He made his name writing for Sybex and Osborne, most notably the best-selling *Mastering Windows* series of books. As an author and media developer for Que, Bob has written numerous Windows titles, including multiple editions of Que's flagship Windows book, *Special Edition Using Microsoft Windows*.

Brian Knittel is a software developer, consultant, and writer. He's authored or coauthored many of Que's best-selling Windows books, including Que's leading Windows book, *Special Edition Using Microsoft Windows*. Brian also is the author of *Windows XP Under the Hood* and coauthored *Upgrading and Repairing Microsoft Windows* with Scott Mueller.

28

EDITING THE REGISTRY

What Is the Registry?

The Windows Registry is a database in which Windows and application programs store all manner of configuration settings, startup information, hardware settings, user preferences, file locations, license and registration information, last-viewed file lists, and so on. In addition, the Registry stores the associations between file types and the applications that use them. For example, the Registry holds the information that tells Windows to use Media Player when you click on an MPG movie file. In the early days of DOS and Windows, programs stored this kind of information in a random collection of hundreds of files scattered all over your hard disk. Thankfully, those days are only a dim memory.

tip

If you're already familiar with the Registry, you might want to skip ahead to the section "New Registry Features."

How the Registry Is Organized

The Registry is organized a lot like the files and folders on a hard disk. Just as a hard disk can contain partitions, the Registry contains separate sections called *top-level keys*. In each section is a list of named entries, called *keys*, which correspond to the folders on a hard disk. And just as a folder can contain files and more nested folders, a Registry key can contain *values*, which hold information such as numbers or text strings, and more nested keys. Even the way that file folders and Registry keys are described is similar: a folder might be named `\Users\brian\chapter28`, and a Registry key might be named `\HKEY_CURRENT_USER\Software\Microsoft`.

The two main "top-level" keys are as follows:

- HKEY_LOCAL_MACHINE contains all the hardware and machine-specific setup information for your computer.
- HKEY_USERS contains a key for each user account created on the computer, including the accounts used only internally by Windows services.

  The keys under HKEY_USERS are mostly named using long numeric strings that are the user account's Security Identifier (SID) number. Usually, not all accounts' keys are visible at the same time. Each account's key is loaded into the Registry when the user logs on and is unloaded a short time after the user logs out. Each user's key contains his or her personal Windows and application settings and preferences.

The Registry Editor displays three other sections that look like they are separate top-level keys but that are actually views of information inside HKEY_LOCAL_MACHINE or HKEY_USERS:

- HKEY_CURRENT_USER is a shortcut to the subsection of HKEY_USERS that corresponds to the currently logged-on user. That is, when *you* run the Registry Editor, HKEY_CURRENT_USER shows *your* Windows and application preferences and settings.
- HKEY_CURRENT_CONFIG is a shortcut to HKEY_LOCAL_MACHINE\System\CurrentControlSet\Hardware Profiles\Current and contains hardware and device settings specific to the hardware profile used when Windows was started.
- HKEY_CLASSES_ROOT stores file associations, the information that Windows uses to link file types to applications, and a huge amount of setup information for Windows software components. It's actually a combined view of the contents of two other Registry sections: HKEY_LOCAL_MACHINE\Software\Classes, which holds settings that are made for all users, and HKEY_CURRENT_USER\Software\Classes, which holds personal settings made just by the current user. If the same value is defined in both HKEY_CURRENT_USER\... and HKEY_LOCAL_MACHINE\..., the HKEY_CURRENT_USER value is used.

New Registry Features

Windows Vista introduced some new features to the Registry: virtualization and 64/32–bit reflection. These features are also present, although somewhat changed in Windows 7, and this section gives you a brief tour. The features are called Registry virtualization, redirection and reflection. This topic is pretty gnarly and obscure, so on your first read, you might want to skip ahead to the section titled "Backing Up and Restoring the Registry."

Registry Virtualization

On Windows 7 and Vista, if an older application attempts to store information to HKEY_LOCAL_MACHINE\Software*xxx**yyy* but doesn't have permission to change that key, the information will actually be stored in HKEY_CURRENT_USER\Software\CLASSES\VirtualStore\MACHINE\

Software*xxx**yyy*. This is called *Registry virtualization*. Applications that the user runs will still "see" the information as if it was in the intended location. As a result, applications that aren't aware of the new, tighter restrictions on HKEY_LOCAL_MACHINE will run without a hitch, although their settings will be per-user instead of machinewide.

You need to know this so you can check the alternative locations when you're investigating problems with Registry settings in your system.

If you change an application program's preference setting that should apply to all users of the program, but it affects only you, and the setting isn't changed when other users run the application, most likely the configuration setting is stored in a Registry key under HKEY_LOCAL_MACHINE that isn't writeable by you. When you make the change, Windows virtualizes the Registry value, and only your account sees the change.

To fix this, first try to contact the software manufacturer for a workaround. If none exists, try this:

1. Locate the Registry key in which the setting is being saved. Either search the Registry for the setting value or use a Registry change-monitoring tool such as Registrar Registry Manager, or procmon from sysinternals.com, to see where the application saves your setting.
2. As an Administrator, locate the key in the left pane of the Registry Editor, right-click it, and select Permissions. Select the Users entry and check Full Control.
3. Using your account, locate the virtualized copy of the key under HKEY_CLASES_ROOT\VirtualStore and delete it.
4. Run the application and change the setting again.

After this, everyone should share the same copy of the setting.

Virtualization doesn't occur under some circumstances. In those cases, the application simply is allowed to fail in its attempt to make changes to HKEY_LOCAL_MACHINE. These circumstances are listed here:

- If User Account Control is disabled.
- If virtualization is disabled by your network administrator, using Group Policy on a Windows domain network.
- If the application is a 64-bit application.
- If the application program has a *manifest*, a block of data inside the application or in a separate file that describes advanced security settings. Almost all the applications that come with Windows—including Notepad; the command-prompt interpreter, cmd.exe; and the Registry Editor—have manifests, so almost all Windows utilities do not see virtualized Registry settings.
- If a key is marked with a special flag that indicates that it is not to be redirected. HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Run is marked this way so that a virus that attempts to set itself up to run at logon via this key won't be capable of doing so. The command-line utility REG can modify the virtualization flag. Type **REG FLAGS /?** at the command-line prompt for more information.

Virtualization is seen as a stopgap measure and will be unnecessary when most applications either store information in HKEY_CURRENT_USER or explicitly set less restrictive permissions on their keys in HKEY_LOCAL_MACHINE when they're installed.

Registry Redirection and Reflection

The 64-bit versions of Windows support running 32-bit Windows applications. This presents a problem because many Windows subcomponents are present in both 32- and 64-bit versions, and information about them (such as program filenames) is stored in the Registry under keys whose names were determined before Microsoft considered the need to distinguish between the two flavors. To manage this, Windows stores information for 32-bit components in an alternate location and feeds the stored information to 32-bit applications when they ask for values from the original location. This is called *Registry redirection*. The information for 32-bit applications is actually redirected to HKEY_LOCAL_MACHINE\Software\WOW6432Node. When a 32-bit application requests information from a redirected key using the original location, it is fed information from below WOW6432Node.

note

You must close the 64-bit version of the Registry Editor before you can open the 32-bit version, and *vice versa*, unless you start the second instance of the Registry Editor with the -m command-line argument.

When working with the Registry on a 64-bit system, you need to know to look under WOW6432Node when looking for setup information for 32-bit components.

Alternatively, you can use the 32-bit version of regedit; this presents all information in the standard locations seen by 32-bit applications. When you run regedit from the command line, you get the 64-bit version. However, if you run %systemroot%\syswow64\regedit.exe, you get the 32-bit version and can edit the values seen by 32-bit applications.

So that the 32-bit and 64-bit versions of components and applications can communicate, some settings and values that these components store in the registry are copied to *both* locations. This is called *Registry reflection*.

Reflection was used in several sections of the Registry in Windows Vista, but in Windows 7, only two keys are subject to reflection:

```
HKEY_LOCAL_MACHINE\Software\Classes\CLSID
HKEY_LOCAL_MACHINE\Software\Classes\Interface
```

For more information on reflection, see Microsoft Knowledge Base article 305097 at http://support.microsoft.com/kb/305097. Also, search msdn.microsoft.com for the article titled "Removal of Windows Registry Reflection."

Backing Up and Restoring the Registry

Because the Registry is now the *one* place where all the Windows hardware and software settings are stored, it's also the one thing that Windows absolutely needs to run. If you have to use the Registry Editor to manually change Registry settings, we strongly suggest that you back up your Registry *before* you make any changes.

Backing Up the Registry

You can back up the Registry several ways. In order of preference, these are using a third-party Registry-backup program, backing up the entire hard disk using a third-party program or Complete PC Backup, using System Restore, and using the Registry Editor to save a key to a text file.

I suggest that you use a third-party disk-backup solution to back up the Registry files every time you back up your hard disk. Before you install a piece of new hardware or a significant software package, do a full disk backup, including the Registry. Before you manually edit the Registry for other purposes, back up the Registry by any of the means discussed in the next few sections.

Backing Up with Third-Party Registry-Backup Software

There are third-party programs specifically designed to back up and restore the Registry. For example, SuperWin's WinRescue program (www.superwin.com) not only can back up and restore the Registry, but also can defragment the Registry's files and work magic to revive a nonbootable Windows system. (There is a version called WinRescue Vista that you should use if no Windows 7–specific version has been released.) There is also a free tool called ERUNT, which you can download from www.larshederer.homepage.t-online.de/erunt.

These programs come with instructions on backing up, restoring, repairing, and maintaining the Registry.

Backing Up the Hard Disk

You can save the Registry by performing a backup of the entire contents of the hard disk on which Windows resides. On the Windows 7 Home versions, you'll have to use a third-party disk backup program to back up the entire hard disk. On Windows 7 Professional, Enterprise, and Ultimate editions, the Complete PC Backup program can do this for you, or you can use a third-party program.

As an alternative to doing a full disk backup, most third-party disk-backup programs made for Windows 7 include an option to back up the system portion of the Registry. If you use this option, be sure to include all user profiles (everything under `\User`) so that personal Registry sections are saved as well.

Check your backup software's manual for instructions on saving Registry and system information when you back up. I suggest that you always include the Registry in your backups.

caution

The backup programs provided with Windows 7 do not provide a good means of backing up the Registry as insurance against accidents. Windows Backup can perform only full-volume backups, which can take a long time. System Restore backs up only `HKEY_LOCAL_MACHINE`, not your own `HKEY_CURRENT_USER` data. It's okay to use only if you're modifying just `HKEY_LOCAL_MACHINE` settings.

Backing Up with System Restore

If you will be changing only entries under HKEY_LOCAL_MACHINE, you can create a restore point to back up a copy of this part of the Registry. To create a restore point, follow these steps:

1. Click Start. Right-click Computer and select Properties. Then, at the left, select System Protection. (Alternatively, type **sysdm.cpl** in a Command Prompt window, and then select the System Protection tab.)
2. Be sure that the disk volume that contains Windows is checked, and click Create.
3. Enter a description for the restore point, such as **Before changing Registry**, and then click Create.

Then, edit the Registry as described later in this chapter.

Backing Up with the Registry Editor

The Registry Editor has a mechanism to export a set of Registry keys and values to a text file. If you can't or won't use a more comprehensive backup system before you manually edit the Registry, at least use this editor to select and back up the key that contains all the subkeys and values you plan to modify. Remember, though, that Regedit cannot remove entries you added that were not in the Registry before the backup!

To back up a key and its subkeys and values, follow these steps:

1. To run Regedit, click Start, and type **regedit** in the Search box.
2. When Regedit appears under Programs in the search results, select it and press Enter. (Alternatively, type **regedit** in a Command Prompt window.)
3. Locate and select the key you plan to modify, or a key containing all the keys you plan to modify, in the left pane.
4. Select File, Export.
5. Choose a location and filename to use to store the Registry keys. I usually use the desktop for temporary files like this, so that I'll see them and delete them later.
6. Select All Files from the Save As Type list, and enter a name (possibly with an extension other than .reg—for example, **before.sav**).
7. Click Save. The chosen key or keys are then saved as a text file.

Restoring the Registry

If you've made Registry changes that cause problems, you can try to remember each and every change you made, re-enter the original information, delete any keys you added, and thus undo the changes manually. Good luck! If you were diligent and made a backup before you started, however, you can simply restore the backup and have confidence that the recovery is complete and accurate.

Signs of Registry Problems

Registry corruption can take two forms: Either the Registry's database files can be damaged by an errant disk operation, or information can be mangled by a buggy program or an overzealous `regedit` user. No matter what the cause, the result can be a system that won't run or one that reboots itself over and over.

These could be other signs of Registry corruption or errors:

- Drivers aren't loaded, or they give errors while Windows is booting.
- Software complains about components that aren't registered or cannot be located.
- Undesirable programs attempt to run when you log in.
- Windows does not boot, or it starts up only in Safe mode.

If you made a Registry backup using a third-party disk or Registry backup tool, use the instructions that came with your product to restore the Registry. If you created a restore point or used Regedit, follow the steps described in the following sections.

Restoring the Registry from a Restore Point

If you created a restore point before modifying the Registry, you can back out the change by following these steps:

1. Click Start. Right-click Computer and select Properties. At the left, select System Protection. Then, click the System Restore button. (Alternatively, type **`rstrui`** in a Command Prompt window.)
2. Locate the restore point you created. Select it and click Next; then click Finish. Windows will restart.

If the Registry problem is severe enough that Windows can't boot or get to the System Restore function, you can perform a system restore from the system recovery tools on your Windows setup DVD. See "Using System Recovery" on **page 738** for instructions for performing a system restore this way.

Restoring the Registry from Regedit

If a Registry editing session has gone awry and you need to restore the Registry from a key you saved from within Regedit, follow these steps:

1. In Regedit, select File, Import.
2. Select All Files from the Files of Type list.
3. Locate the file you used to back up the Registry key or keys—for example, `before.reg`.
4. Select Open.

The saved Registry keys are then imported, replacing any changes or deletions. However, any keys or values you've added to the Registry are not removed. If they are the cause of the problem, this restore will *not* help.

If the Registry problems persist, you can try a rather drastic measure: You can use Regedit to delete the key or keys that were changed and then import the backup file again. This time, any added keys or values are removed. I suggest that you try this approach only with keys related to add-on software, *not* for any of the Microsoft software or hardware keys.

tip

If you encounter what you think are Registry problems with add-on software, your best bet is to uninstall the software, if possible, and reinstall it before attempting *any* Registry restores or repairs.

Using Regedit

Most people never need to edit the Registry by hand because most Registry keys are set by the software that uses them. However, you might need to edit the Registry by hand if you're directed by a technical support person who's helping you fix a problem, or when you're following a published procedure to make an adjustment for which there is no Control Panel setting.

In the latter case, before going any further, I need to say this one last time, to make it absolutely clear: Unless you're quite certain that you can't make a mistake, back up the Registry (or at least the section you want to change) before making any changes.

The next few sections cover the basics of the Registry Editor.

Viewing the Registry

The Registry Editor doesn't have a Start menu item. The easiest way to run it is to type **`regedit`** into the Search field on the Start menu. When `regedit` appears in the results pane under Programs, take one of the following actions, depending on your needs:

- If you are logged on as an Administrator, press Enter or click `regedit`. When the User Account Control dialog box appears, click Continue. The Registry Editor will run with full elevated privileges.
- If you are not logged on as an Administrator but need to change settings in only the `HKEY_CURRENT_USER` section of the Registry, press Enter or click `regedit`. The Registry Editor will run with reduced privileges, and you will not be able to change systemwide settings.
- If you are not logged on as an Administrator but need to change systemwide settings in `HKEY_LOCAL_MACHINE`, right-click `regedit` and select Run as Administrator. Enter an Administrator account's username and password. The Registry Editor will then run with full elevated privileges.

note

The reason for these complicated variations is that malicious programs and email attachments can easily abuse the Registry Editor, so it's subject to UAC restrictions. The Registry Editor must be running in elevated mode to modify Registry keys that are secured to be changeable only by the Administrator. By the way, there is no indication in the Registry Editor's title bar to tell whether it's running with elevated privileges—you just have to remember.

Regedit displays a two-pane display much like Windows Explorer, as shown in Figure 28.1. The top-level keys, which are listed below Computer, can be expanded just like drives and folders in Explorer. In the pane on the right are the values for each key. The name of the currently selected key appears in the status bar.

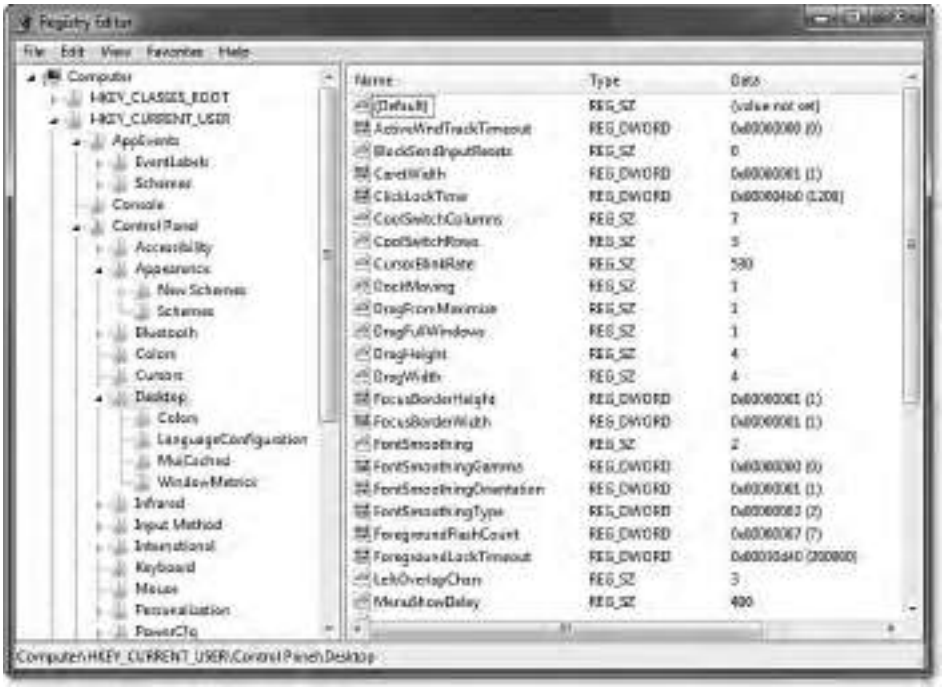

Figure 28.1 The Regedit screen shows keys on the left and values on the right.

Values have names, just as the files in a folder do, and it's in the values that configuration information is finally stored. Each key has a (Default) value, which is the value of the key itself, and any number of named values. For example, Figure 28.1 shows the key `HKEY_CURRENT_USER\Control Panel\Desktop`. The value of `HKEY_CURRENT_USER\Control Panel\Desktop` itself is undefined (blank), and the value `HKEY_CURRENT_USER\Control Panel\Desktop\DragFullWindows` is 1.

Registry values have a data type, which is usually one of the types shown in Table 28.1. The Registry Editor display lists values by their technical names.

Table 28.1 Data Types Supported by Regedit

Technical Name	"Friendly" Name	Description
REG_SZ	String value	Textual information, a simple string of letters.
REG_BINARY	Binary value	Binary data, displayed as an arbitrary number of hexadecimal digits.
REG_DWORD	DWORD (32-bit) value	A single number displayed in hexadecimal or decimal.
REG_QWORD	QWORD (64-bit) value	A single number displayed in hexadecimal or decimal. QWORD values are used primarily by 64-bit Windows applications.
REG_MULTI_SZ	Multistring value	A string that can contain more than one line of text.
REG_EXPAND_SZ	Expandable string value	Text that can contain environment variables (such as %TEMP%).

Other data types, such as REG_DWORD_BIG_ENDIAN and REG_RESOURCE_LIST, exist, but they are obscure and rare and can't be edited with Regedit.

Searching in the Registry

You can search for a Registry entry by key name, value name, or the contents of a value string. First, select a starting point for the search in the left pane. You can select Computer to select the entire Registry, or you can limit your search to one of the top-level keys or any subordinate key. Next, select Edit, Find from the menu and enter a search string in the Find dialog box. The Find feature is not case sensitive, so it doesn't matter whether you use upper- or lowercase letters. You can check any of the Look At boxes to designate where in the Registry you expect to find the desired text: in the name of a key, in the name of a value, or in the data, the value itself.

Check Match Whole String Only to search only for items whose whole name or value is the desired string.

Click Find Next to start the search. The Regedit display indicates the first match to your string; by pressing F3, you can repeat the search to look for other instances.

Also remember that Windows 7 might store information in some places you are not familiar with, as discussed previously under "New Registry Features."

note

When I search the Registry, most of the time, I check all the Look At boxes but not Match Whole String Only.

tip

The search function has two limitations:

- You can't enter a backslash (\) in the search string when looking for a key or value name; Regedit won't complain, but it won't find anything, either.
- You can't search for the initial HKEY_*xxx* part of a key name. That's not actually part of the name; it's just the section of the Registry in which the key resides.

For example, to find a key named HKEY_CLASSES_ROOT\MIDFile\shell\Play\Command, you can't type all that in and have Find jump right to the key. If you already know the full pathname of a key, use the left pane of Regedit to browse for the key directly.

Editing Keys and Values

Regedit has no Save or Undo menu items. Changes to the Registry happen *immediately* and *permanently*. Additions, deletions, and changes are for real. This is the reason for all the warnings to back up before you poke into the Registry.

Adding a Value

To add a value to a key, select the key in the left pane and choose Edit, New. Select the type of value to add; you can select any of the supported Registry data types, which are listed by the "friendly" names shown previously in Table 28.1. The instructions you're following indicate which type of value to add. A new value entry then appears in the right pane.

Type the new value's name and press Enter to edit the value:

- For string values, enter the text of the desired string.
- For DWORD values, choose Decimal or Hexadecimal, and enter the desired value in the chosen format.
- For binary values, enter pairs of hexadecimal characters as instructed. (You'll never be asked to do this, I promise.)

Changing a Value

If you want to change a value, double-click it in the right pane to bring up the Edit Value dialog box. Alternatively, right-click it and select Modify. Then make the desired change and click OK.

That is all you will likely ever need to do with Regedit. However, in the extremely unlikely case that you want to delete a value or add or remove a key, the following sections can help see you through these processes.

note

Many of the keys that control Windows itself have access restrictions and can be modified only by an Administrator.

Deleting a Value

If you've added a Registry value in the hope of fixing some problem and found that the change wasn't needed, or if you're instructed to delete a value by a Microsoft Knowledge Base article or other special procedure, you can delete the entry by viewing its key and locating the value on the right pane.

Select the value and choose Edit, Delete from the menu, or right-click and select Delete from the context menu. Confirm by clicking OK.

caution

There is no Undo command in the Registry Editor—when you delete a value, it's gone for good. Be sure you've made a Registry backup before editing or deleting Registry keys and values.

Adding or Deleting a Key

Keys must be added as subkeys of existing keys; you can't create a new top-level key. To add a key, select an existing key in the left pane and select Edit, New, Key from the menu. Alternatively, right-click the existing key and select New, Key from the context menu. A new key appears in the left pane, where you can edit its name. Press Enter after you enter the name.

You can delete a key by selecting it in the left pane and choosing Edit, Delete from the menu, or by right-clicking it and selecting Delete from the context menu. Click OK to confirm that you intend to

delete the key. Deleting a key deletes its values *and all its subkeys* as well, so without the protection of Undo (or a Registry Recycling Bin), this action is serious.

Renaming a Key

As you have probably guessed, the pattern for renaming a key follows the Explorer model exactly: Choose the key in the left pane and select Edit, Rename, or right-click the key and select Rename. Finally, enter a new name and press Enter.

caution

Don't attempt to rename keys without a *very good* reason—for example, because you mistyped the name of the key you were adding. If Windows can't find specific Registry keys it needs, Windows might not boot or operate correctly.

Using Copy Key Name

As you have probably noticed by now, the names of Registry keys can be quite long, tortuous things. The Registry Editor offers a bit of help to finger-fatigued Registry Editors (and authors): Choosing Edit, Copy Key Name puts the name of the currently selected key into the Clipboard so you can paste it elsewhere if you need to.

Editing Registry Entries for Another User

As an administrator, you might find it necessary to edit HKEY_USER entries for another user. For example, a startup program in HKEY_CURRENT_USER\Software\Windows\CurrentVersion\Run might be causing such trouble that the user can't log on. If you can't log on as that user, you can edit his HKEY_CURRENT_USER Registry keys in another way:

1. Log on as an Administrator and run Regedit.
2. Select the HKEY_USERS window.
3. Highlight the top-level key HKEY_USERS.
4. Select File, Load Hive.
5. Browse to the profile folder for the desired user. For a local user account, this is in \Users*username*. (For a Windows Server domain, look in the folder used for user profiles on the domain controller.) The folder name of this folder might have the computer name or a domain name attached. For example, on one computer, my profile folder name is bknittel.java.
6. Type the filename **NTUSER.DAT**. (The file will most likely not appear in the Browse dialog box because it's *super hidden*: marked with both the Hidden and System attributes.) Then click Open.
7. A dialog box appears, asking you to enter a name for the hive. HKEY_USERS normally loads user hives with a long numeric name, so I suggest that you type the user's logon name. Click OK. The user's Registry data is then loaded and can be edited, as shown in Figure 28.2.

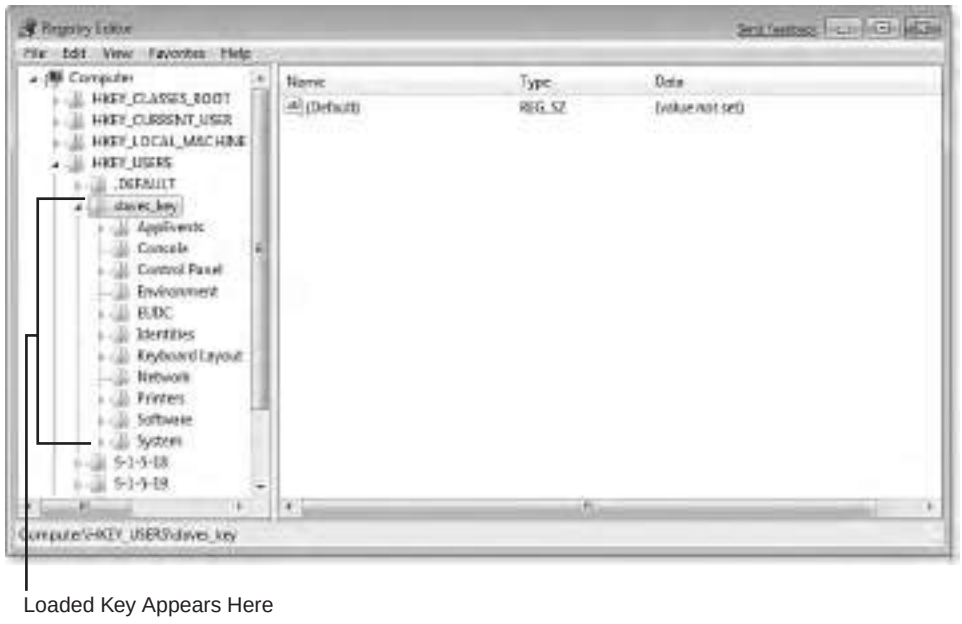

Figure 28.2 An offline user's Registry hive is now loaded and can be edited.

8. When you're finished editing, unload the hive. Select the key you added under HKEY_USERS (for example, daves_key in Figure 28.2), and select File, Unload Hive. Confirm by clicking Yes on the warning dialog box.

Editing Registry Entries for Another Windows Installation

If you need to retrieve Registry entries from an installation of Windows installed on another hard disk or partition, you can load any of that installation's hive files for editing or exporting.

To edit the other installation's Registry, you need to locate its hive files. They are usually found in the locations shown in Table 28.2.

Table 28.2 Usual Location of Hive Files

Key	Default Location and Hive File
HKEY_LOCAL_MACHINE\SAM	\windows\system32\config\sam
HKEY_LOCAL_MACHINE\Security	\windows\system32\config\security
HKEY_LOCAL_MACHINE\Software	\windows\system32\config\software
HKEY_LOCAL_MACHINE\System	\windows\system32\config\system
HKEY_LOCAL_MACHINE\Components	\windows\system32\config\components
HKEY_USERS\.Default	\windows\system32\config\default

To edit another Windows installation's Registry, use the technique I described under "Editing Registry Entries for Another User," but instead of locating a user's NTUSER.DAT file, locate the desired hive file on the other hard drive or partition. Unload it after you've exported or corrected the desired information.

In some cases, you will find that you cannot view or modify keys loaded from another installation. This occurs if the keys are protected with security attributes that list specific users or groups defined in the other installation. In this case, you need to first take ownership of the keys and then add yourself as a user who is authorized to read or change the keys. The next section describes this.

note

You rarely should have to modify Registry security settings, but it does happen. The usual case is that an incorrectly designed program places information in a subkey of HKEY_LOCAL_MACHINE\Software that is intended to be shared and modified by all users running the program. Because Windows does not permit standard users to modify any keys in HKEY_LOCAL_MACHINE\Software by default, the program might malfunction. Modifying permissions so that standard users can edit the shared key is sometimes necessary to fix the problem. Microsoft also sometimes recommends modifying Registry security in emergency security bulletins.

Editing Registry Security

Just as files and folders in an NTFS-formatted disk partition have security attributes to control access based on user and group identity, Registry keys and values also have a complete set of Access Control attributes that determine who has rights to read, write, and modify each entry.

If you absolutely must change permissions or auditing controls, locate the desired key or value, right-click it, and select Permissions. The Permissions dialog box looks just like the comparable dialog box for files and folders (see Figure 28.3), and lets you set read, write, and modify rights for specific groups and users. You'll find a corresponding set of audit settings.

Figure 28.3
Registry key permissions control which users or groups are allowed to see or modify the Registry key and its values.

In most cases, a software vendor supplies precise instructions for making changes necessary to work around an application problem. Here, I describe a general procedure to make a given key readable and writeable by all users. You might do this to make a key capable of sharing information between users, or to repair an alternate Windows installation, as mentioned in the previous section. To set more generous permissions, follow these steps:

1. Locate and select the key in the left pane.
2. Right-click it and select Permissions.
3. Select the Users entry in the top Group or User Names section. If Users is not listed, click Add, type **`Users`**, and click OK.
4. In the lower section, check Full Control and then click Apply. If this is successful, click OK.
5. If you are unable to make the changes even though you're running the Registry Editor as an Administrator, click Advanced and select the Owner tab.
6. If the Current Owner is listed as unknown, select Administrators in the lower list and click OK.
7. Click OK to close the Advanced Security Settings dialog box, and return to Step 3.

This is a risky procedure because it could result in another user or application being unable to access its own Registry keys. Use this as a procedure of last resort.

Other Registry Tools

There are some third party tools that you can use to edit the registry and adjust Windows features. Here are four of the more popular utilities.

X-Setup Pro

X-Setup Pro by Xteq offers nearly 1,700 settings and tweaks using a slick graphical Explorer-like interface. It includes wizards for some of the more complex tasks, such as mapping file types to Explorer icons. One of its niftiest features is its capability to record a series of changes to a log file that it can then play back on other computers. The cost is $20. You can download it from www.x-setup.net.

Registry Toolkit

Registry Toolkit is a shareware Registry Editor made by Funduc software, with a nifty search-and-replace system. You can scan the Registry, changing all occurrences of one string to another, which is something most other Windows Registry Editors can't do. Its user interface isn't very comfortable or slick, but if you need to manage a lot of identical changes in the Registry, this is one cool tool. It's free to try, $25 to register, at www.funduc.com.

Registrar Registry Manager

Registrar Registry Manager is a powerful Registry-editing tool produced by Resplendence Software Projects (www.resplendence.com), with a drag-and-drop interface. It includes a Registry backup, restore, and defragmentation tool, a Registry-compare tool, an undo capability, and many more features. The full version costs €45 (about $63), and there is a free "lite" version.

Tweak-7

Tweak-7 from Totalidea Software, available at www.totalidea.com, combines tweaking tools with additional enhancements and plug-ins. The cost is $39.99 for one computer, with multiple-license discounts available.

Registry Privileges and Policies

On Windows corporate "domain"-type networks, administrators can use the *policy* system to restrict users' ability to change their computer configuration. When you log on using a Domain user account, the policy system downloads and installs Registry settings prepared by system administrators. These Registry settings not only can help automate the setup of networking and other components, but can also restrict your ability to (mis)manage your computer.

Here's how it works: Windows looks at a boatload of Registry entries to determine what features to make available to you. For example, one value determines whether the Start menu is allowed to display the Run item; another makes the Control Panel hide the Power Management settings. Most of these values normally don't appear in the Registry at all, but they can be installed there by the policy system, and Windows security settings prevent users from changing or deleting them.

➥ *On a computer that's a member of a Windows Domain network, the policy system is called Group Policy. On a standalone computer, it's called Local Security Policy. Local Security Policy is described in more detail under "Tightening Local Security Policy" on* **page 934.**

CHAPTER 3 — Using The Windows 7 Desktop

ABOUT THE BOOK

Microsoft® Windows 7 Unleashed gives IT professionals, serious power users, and true geeks the powerhouse Windows 7 tweaks, hacks, techniques, and insights they need: knowledge that simply can't be found anywhere else. Top Windows expert Paul McFedries dives deep into Windows 7, returning with the most powerful ways to handle everything from networking to administration, security to scripting.

- Customize everything about Windows 7: IE8, startup/shutdown, file systems, the Start menu, Taskbar, and more
- Systematically monitor, tune, and optimize Windows performance–including practical techniques for accelerating startup
- Set up an easy, automated 9-Step maintenance schedule for any Windows 7 PC
- Unleash Windows 7s power user tools, including Group Policies, the Registry, MMC, and the command line
- Secure Windows 7 with security settings: auto-lock, Windows Firewall, Windows Defender, parental controls, and BitLocker encryption
- Protect your web privacy with Windows 7s new InPrivate Browsing
- Solve problems with Windows 7, startup, networking, and hardware
- Set up reliable Windows 7 networks, and manage them efficiently
- Safely provide remote access and VPN connectivity
- Use Windows 7 as a Web server
- Program the Windows Scripting Host and Windows PowerShell

ABOUT THE AUTHOR

Paul McFedries, president of Logophilia Limited, is a full-time technical writer, passionate computer tinkerer, and Windows expert. He has authored 60+ computer books that have sold 3,000,000+ copies. His recent titles include *Tweak It and Freak It: A Killer Guide to Making Windows Run Your Way*; *Windows Vista Unleashed, 2nd Edition*; *Windows Home Server Unleashed; Build It. Fix It. Own It; Networking with Windows Vista; Formulas and Functions with Microsoft Excel 2007; Tricks of the Microsoft Office 2007 Gurus,* and *Microsoft Access 2007 Forms, Reports, and Queries.*

CHAPTER 9

Policing Windows 7 with Group Policies

IN THIS CHAPTER

- Understanding Group Policies
- Local Group Policy Editor and Windows Versions
- Launching the Local Group Policy Editor
- Working with Group Policies
- Group Policy Examples

A policy is a temporary creed liable to be changed, but while it holds good it has got to be pursued with apostolic zeal.

—Mahatma Gandhi

You've seen in many places throughout this book that you can perform some pretty amazing things by using a tool that's about as hidden as any Windows power tool can be: the Local Group Policy Editor. That Microsoft has buried this program in a mostly untraveled section of the Windows landscape isn't the least bit surprising, because in the wrong hands, the Local Group Policy Editor can wreak all kinds of havoc on a system. It's a kind of electronic Pandora's box that, if opened by careless or inexperienced hands, can loose all kinds of evil upon the Windows world.

Of course, none of this doom-and-gloom applies to you, dear reader, because you're a cautious and prudent wielder of all the Windows power tools. This means that you'll use the Local Group Policy Editor in a safe, prudent manner, and that you'll create a system restore point if you plan to make any major changes. I knew I could count on you.

As you see in this chapter, the Local Group Policy Editor isn't even remotely hard to use. However, it's such a powerful tool that it's important for you to know exactly how it works, which will help ensure that nothing goes awry when you're making your changes.

Understanding Group Policies

Put simply, *group policies* are settings that control how Windows works. You can use them to customize the Windows 7 interface, restrict access to certain areas, specify security settings, and much more.

Group policies are mostly used by system administrators who want to make sure that novice users don't have access to dangerous tools (such as the Registry Editor) or who want to ensure a consistent computing experience across multiple machines. Group policies are also ideally suited to situations in which multiple users share a single computer. However, group policies are also useful on single-user standalone machines, as you've seen throughout this book.

Local Group Policy Editor and Windows Versions

The power of the Local Group Policy Editor is aptly illustrated not only by the fact that Microsoft hides the program deep in the bowels of the system, but most tellingly by the fact that Microsoft doesn't even offer Local Group Policy Editor in the following Windows versions:

- Windows 7 Home Basic
- Windows 7 Home Premium

In earlier versions of Windows, this tool was also removed from Windows XP Home, Windows Vista Home Basic, and Windows Vista Home Premium. In other words, those Windows versions that Microsoft expects novices to be using are the same Windows versions where Microsoft doesn't even include the Local Group Policy Editor, just to be safe.

Of course, plenty of experienced users use these Windows versions, mostly because they're cheaper than high-end versions such as Windows 7 Ultimate. So what's a would-be policy editor to do when faced with having no Local Group Policy Editor?

The short answer is: Don't sweat it. That is, although the Local Group Policy Editor does provide an easy-to-use interface for many powerful settings, it's not the only way to put those settings into effect. Most group policies correspond to settings in the Windows Registry, so you can get the identical tweak on any Windows 7 Home system by modifying the appropriate Registry setting, instead. Throughout this book, I've tried to augment group policy tweaks with the corresponding Registry tweak, just in case you don't have access to the Local Group Policy Editor.

TIP

Understanding that most group policies have parallel settings in the Registry is all fine and dandy, but how on earth are you supposed to know which of the Registry's thousands upon thousands of settings is the one you want? The old method was to export the Registry to a REG file, make the change in the Local Group Policy Editor, export the Registry again, and then compare the two files. *Way* too much work (and impossible if all you have to work with is a Windows Home version)! You can also try filtering the policies as described later (see "Filtering Policies"). Fortunately, Microsoft has an Excel workbook that lists every single group policy value and gives the corresponding Registry setting. You can download the Group Policy Settings Reference, which covers both Windows Vista and XP (no sign of a Windows 7 version as I write this), here:

www.microsoft.com/downloads/details.aspx?FamilyID=41DC179B-3328-4350-ADE1-C0D9289F09EF

NOTE

Given a setting that you can tweak using either the Local Group Policy Editor or the Registry Editor (and assuming you're running a version of Windows that comes with the Local Group Policy Editor), which tool should you choose? I highly recommend using the Local Group Policy Editor, because (as you'll see) it offers a simpler and more straightforward user interface, which means it saves time and you'll be much less likely to make an error.

Launching the Local Group Policy Editor

As I've said, you make changes to group policies using the Local Group Policy Editor, a Microsoft Management Console snap-in. To start the Local Group Policy Editor, follow these steps:

1. Press Start.
2. Type **`gpedit.msc`**.
3. Press Enter.

Figure 9.1 shows the Local Group Policy Editor window that appears. (The word *Local* refers to the fact that you're editing group policies on your own computer, not on some remote computer.)

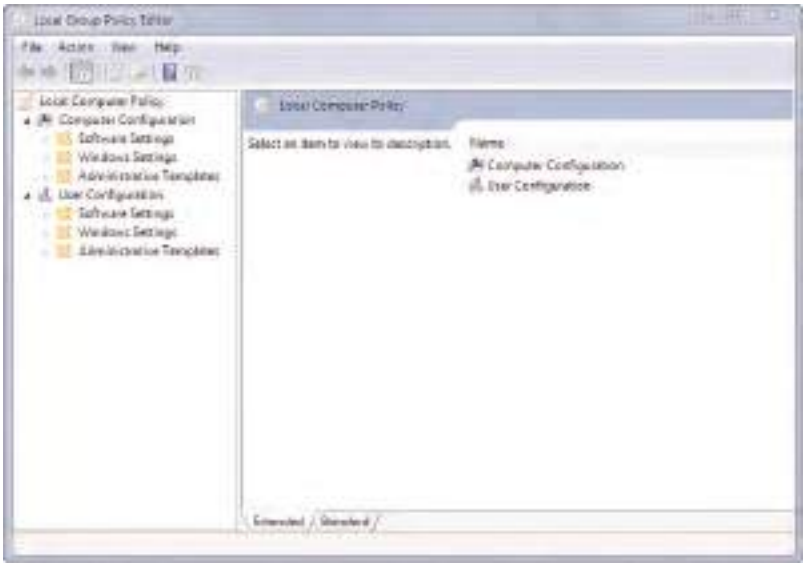

FIGURE 9.1 You use the Local Group Policy Editor to modify group policies on your PC.

Working with Group Policies

The Local Group Policy Editor window is divided into two sections:

- **Left pane**—This pane contains a tree-like hierarchy of policy categories, which is divided into two main categories: Computer Configuration and User Configuration. The Computer Configuration policies apply to all users and are implemented before the logon. The User Configuration policies apply only to the current user and, therefore, are not applied until that user logs on.
- **Right pane**—This pane contains the policies for whichever category is selected in the left pane.

The idea, then, is to open the tree's branches to find the category you want. When you click the category, its policies appear in the right pane. For example, Figure 9.2 shows the Local Group Policy Editor window with the User Configuration, Administrative Templates, Start Menu and Taskbar category highlighted.

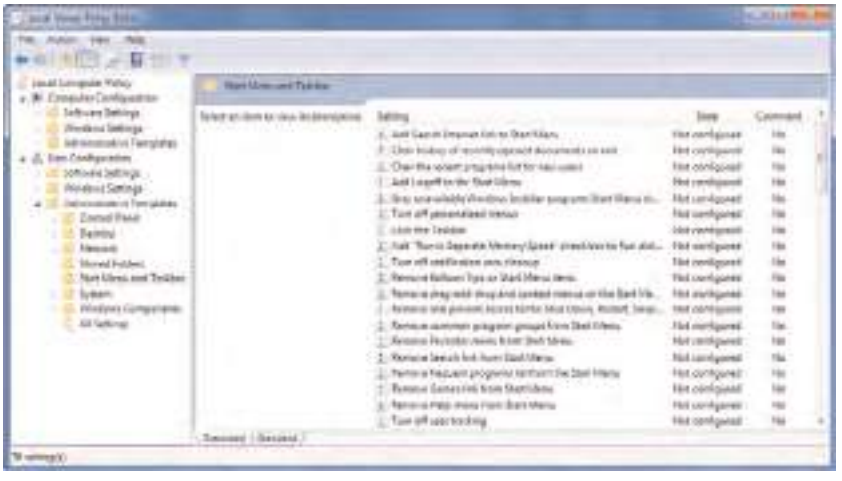

FIGURE 9.2 When you select a category in the left pane, the category's policies appear in the right pane.

TIP

Windows comes with another tool called the Local Security Policy Editor, which displays only the policies found in the Local Group Policy Editor Computer Configuration, Windows Settings, Security Settings branch. To launch the Local Security Policy Editor, select Start, type **`secpol.msc`**, and press Enter. As you might expect, this snap-in isn't available in the Windows 7 Home editions.

In the right pane, the Setting column tells you the name of the policy, and the State column tells you the current state of the policy. Click a policy to see its description on the left side of the pane, as shown in Figure 9.3. If you don't see the description, click the Extended tab.

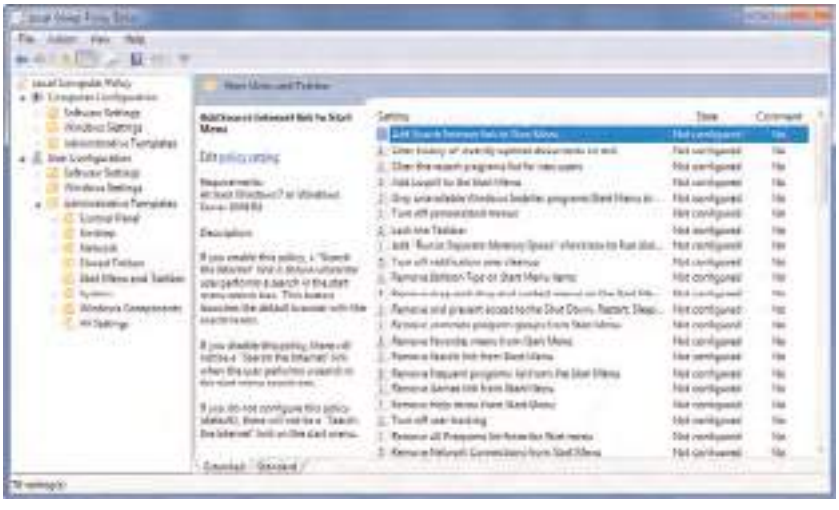

FIGURE 9.3 Click a policy to see its description.

Configuring a Policy

To configure a policy, double-click it. The type of window you see depends on the policy:

- For simple policies, you see a window similar to the one shown in Figure 9.4. These kinds of policies take one of three states: Not Configured (the policy is not in effect), Enabled (the policy is in effect and its setting is enabled), and Disabled (the policy is in effect but its setting is disabled).

NOTE

Take note of the Supported On value in the dialog box. This value tells you which versions of Windows support the policy.

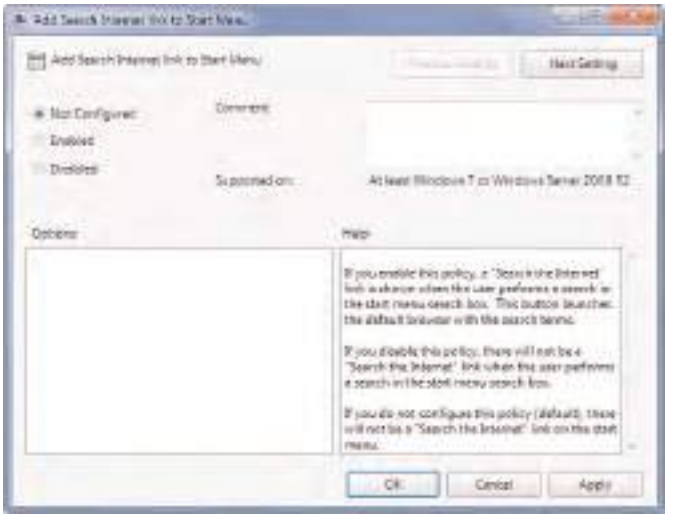

FIGURE 9.4 Simple policies are Not Configured, Enabled, or Disabled.

- Other kinds of policies require extra information when the policy is enabled. For example, Figure 9.5 shows the window for the Items Displayed in the Places Bar policy (described in detail later in "Customizing the Places Bar"). When the Enabled option is activated, the various text boxes become enabled, and you use them to type paths for folders you want to display in the Places bar.

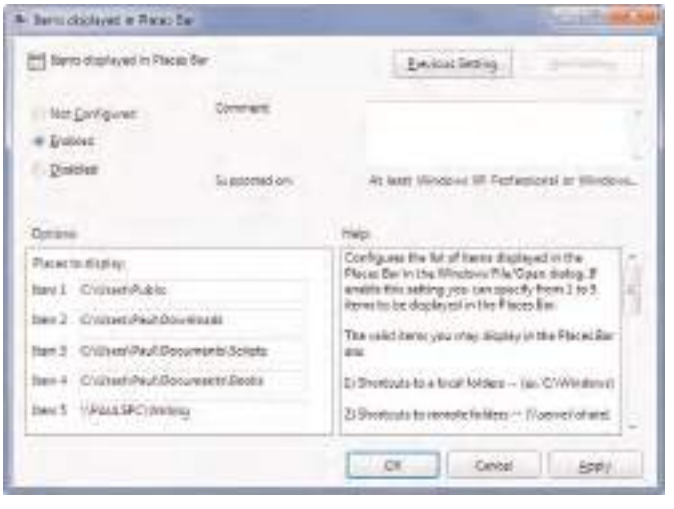

FIGURE 9.5 More complex policies also require extra information, such as a list of folders to display in the Places bar.

Filtering Policies

I've been saying for years that the Local Group Policy Editor desperately needs a search feature. There are nearly 3,000 policies and they're scattered around dozens of folders. Trying to find the policy you need by rooting around in the Local Group Policy Editor is like trying to find a particularly small needle in a particularly large haystack. The Local Group Policy Editor in Windows Vista included a rudimentary filtering feature, but it redefined the word *useless*.

Fortunately, although the Windows 7 version of the Local Group Policy Editor still isn't searchable (unless you export it to a text file by selecting Action, Export List), it does come with two new features that make it quite a bit easier to track down a wayward policy:

- The two Administrative Templates branches (one in Computer Configuration and the other in User Configuration) each come with a new sub-branch called All Settings. Selecting this branch displays a complete list of all the policies in that Administrative Templates branch. (Almost all non-security-related policies are in the Administrative Templates branches, so that's why they get singled out for special treatment.)
- A beefed-up filtering feature that's actual useful for cutting the vastness of the policy landscape down to size.

In combination, these two features make it much easier to find what you're looking for. The basic idea is that you select the All Settings branch that you want to work with, and then set up a filter that defines what you're looking for. Local Group Policy Editor then displays just those policies that match your filter criteria.

To show you how this works, let's run through an example. Suppose I want to find the Items Displayed in Places Bar policy shown earlier in Figure 9.5. Here's how I'd use a filter to locate it:

1. Select the User Configuration, Administrative Templates, All Settings branch.
2. Select Action, Filter Options to open the Filter Options dialog box.
3. Make sure the Enable Keyword Filters check box is activated.
4. Use the Filter for Word(s) text box to type a word or phrase that should match the policy you're looking for. In our example, we know that "places" is part of the policy name, so I'll use that as the filter text.
5. Use the associated drop-down list to choose how you want the policy text to match your search text:
    - **Any**—Choose this option to match only those policies that include at least one of your search terms.
    - **All**—Choose this option to match only those policies that include all of your search terms in any order.
    - **Exact**—Choose this option to match only those policies that include text that exactly matches your search phrase.

6. Use the Within check boxes to specify where you want the filter to look for matches:
   - **Policy Setting Title**—Select this check box to look for matches in the policy name. In our example, "places" is part of the policy name, and it's a relatively unique term, so it should suffice to only filter on the title, as shown in Figure 9.6.
   - **Explain Text**—Select this check box to look for matches in the policy description.
   - **Comment**—Select this check box to look for matches in the Comments text. (Each policy comes with a Comments box that you can use to add your two-cent's worth about any policy.)
7. Click OK.

FIGURE 9.6 In the Windows 7 Local Group Policy Editor, you can use the Filter Options dialog box to find the policy you need.

With your filter in place, select Action, Filter On (or click to activate the Filter button in the toolbar). The Local Group Policy Editor displays just those policies that match your filter settings. For example, Figure 9.7 shows the results when the filter in Figure 9.6 is turned on. As you can see, the Items Displayed in Places Bar policy is among the results.

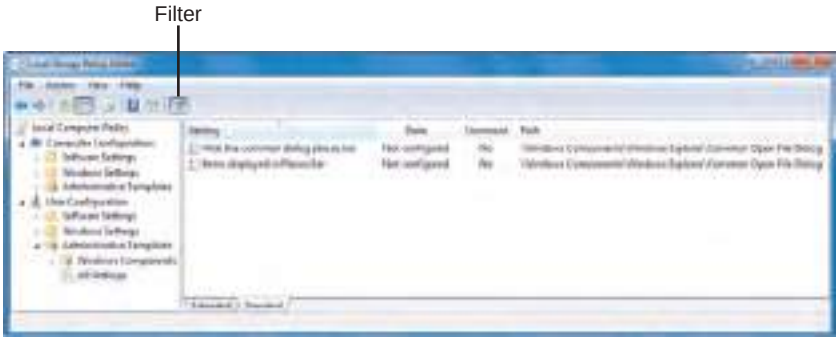

FIGURE 9.7 The results when the filter set up in Figure 9.6 is turned on.

Group Policy Examples

Although there are plenty of examples of group policies in action throughout this book, I'm a firm believer that you can't get enough of this powerful tool. With that in mind, the rest of this chapter takes you through a few of my favorite policies.

Customizing the Windows Security Window

When you press Ctrl+Alt+Delete while logged on to Windows 7, you see the Windows Security window, which contains the following buttons, as shown in Figure 9.8:

- **Lock This Computer**—Click this button to hide the desktop and display the Locked window. To return to the desktop, you must enter your Windows 7 user account password. This is useful if you're going to leave Windows 7 unattended and don't want another person accessing the desktop. However, Windows 7 offers a faster way to lock the computer: Press Windows Logo+L.
- **Switch User**—Click this button to switch to a different user account while also leaving your current user account running.
- **Log Off**—Click this button to display the Welcome screen, which lets you log on using a different user account.
- **Change a Password**—Click this button to display the Change Password window, which enables you to specify a new password for your account.
- **Start Task Manager**—Click this button to open Task Manager.

Of these five commands, all but Switch User are customizable using group policies. So if you find that you never use one or more of those commands, or (more likely) if you want to prevent a user from accessing one or more of the commands, you can use group policies to remove them from the Windows Security window. Here are the steps to follow:

FIGURE 9.8 In Windows 7, press Ctrl+Alt+Delete to display the Windows Security dialog box.

1. Open the Local Group Policy Editor window, as described earlier in this chapter.
2. Open the User Configuration, Administrative Templates, System, Ctrl+Alt+Del Options branch.
3. Double-click one of the following policies:
   - **Remove Change Password**—You can use this policy to disable the Change a Password button in the Windows Security window.
   - **Remove Lock This Computer**—You can use this policy to disable the Lock Computer button in the Windows Security window.
   - **Remove Task Manager**—You can use this policy to disable the Start Task Manager button in the Windows Security window.
   - **Remove Logoff**—You can use this policy to disable the Log Off button in the Windows Security window.
4. In the policy dialog box that appears, click Enabled and then click OK.
5. Repeat steps 3 and 4 to disable all the buttons you don't need.

Figure 9.9 shows the Windows Security window with the four buttons removed.

To perform the same tweak using the Registry (see Chapter 12, "Tweaking the Windows 7 Registry"), open the Registry Editor and open the following key:

```
HKCU\Software\Microsoft\Windows\CurrentVersion\Policies\System
```

FIGURE 9.9 You can use group policies to remove most of the buttons in the Windows Security dialog box.

Change the value of one or more of the following settings to **1**:

```
DisableChangePassword
DisableLockWorkstation
DisableTaskMgr
```

To remove the Log Off button via the Registry, open the following key:

```
HKCU\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer
```

Change the value of the `NoLogoff` setting to **1**.

Customizing the Places Bar

The left side of the old-style Save As and Open dialog boxes in Windows 7 include icons for several common locations: Recent Places, Desktop, Libraries, Computer, and Network, as shown in Figure 9.10.

NOTE

If you display the Save As or Open dialog box and you see the Navigation pane instead, it means the application uses the updated dialog boxes. However, you can still customize the Favorites section: To add a folder, drag it from the folder list and drop it on Favorites; to remove a custom shortcut from the Favorites list, right-click it, click Delete, and then click Yes when Windows asks you to confirm.

FIGURE 9.10 The old Save As and Open dialog boxes display icons on the left for common locations.

The area that contains these icons is called the Places bar. If you have two or more folders that you use regularly (for example, you might have several folders for various projects that you have on the go), switching between them can be a hassle. To make this chore easier, you can customize the Places bar to include icons for each of these folders. That way, no matter which location you have displayed in the Save As or Open dialog box, you can switch to one of these regular folders with a single click of the mouse.

The easiest way to do this is via the Local Group Policy Editor, as shown in the following steps:

1. Open the Local Group Policy Editor window, as described earlier in this chapter.
2. Open the following node: User Configuration, Administrative Templates, Windows Components, Windows Explorer, Common Open File Dialog.
3. Double-click the Items Displayed in Places Bar policy.
4. Click Enabled.
5. Use the Item 1 through Item 5 text boxes to type the paths for the folders you want to display. These can be local folders or network folders, as shown earlier in Figure 9.5.
6. Click OK to put the policy into effect. Figure 9.11 shows a dialog box with icons for the folders from Figure 9.5 displayed in the Places bar.

If you don't have access to the Local Group Policy Editor, you can use the Registry Editor to perform the same tweak. Open the Registry Editor and navigate to the following key:

```
HKCU\Software\Microsoft\Windows\CurrentVersion\Policies\
```

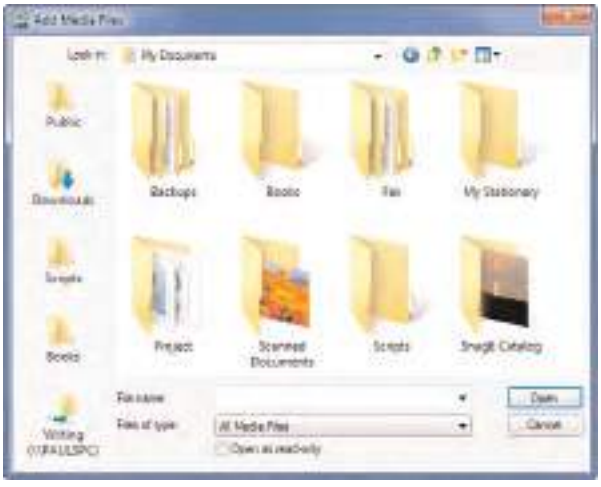

FIGURE 9.11 A dialog box showing the custom Places bar.

Now follow these steps:

1. Select Edit, New, Key, type **`comdlg32`**, **and press Enter.**
2. Select Edit, New, Key, type **`Placesbar`**, **and press Enter.**
3. Select Edit, New, String Value, type **`Place0`**, **and press Enter.**
4. Press Enter to open the new setting, type the folder path, and then click OK.
5. Repeat steps 3 and 4 to add other places (named `Place1` through `Place4`).

NOTE

If you don't use the Places bar at all, you might prefer to hide it to give yourself more room in the old Open and Save As dialog boxes. To do that, open the Local Group Policy Editor and navigate to the User Configuration, Administrative Templates, Windows Components, Windows Explorer, Common Open File Dialog branch. Double-click the Hide the Common Dialog Places Bar, click Enabled, and then click OK.

Increasing the Size of the Recent Documents List

In Chapter 5, "Customizing the Start Menu and Taskbar," I showed you how to customize the Windows 7 Start menu to include the Recent Items menu. Clicking Recent Items displays a list of the 15 documents you worked on most recently. If you find that a document you need often doesn't appear on this list, even though you did use it recently, it's likely that 15 documents isn't enough for you. In that case, you can use a group policy to configure Windows 7 to display a higher number of recent documents.

▶ To learn how to add Recent Items to the Start menu, **see** "Streamlining the Start Menu by Converting Links to Menus," **p. 96**.

Here are the steps to follow to customize the size of the Recent Items list:

1. Open the Local Group Policy Editor window, as described earlier in this chapter.
2. Navigate to the User Configuration, Administrative Templates, Windows Components, Windows Explorer branch.
3. Double-click the Maximum Number of Recent Documents policy.
4. Click Enabled.
5. Use the Maximum Number of Recent Documents spin box to specify the number of documents you want Windows 7 to display.
6. Click OK.

NOTE

You can specify a value between 1 and 9,999 (!) in the Maximum Number of Recent Documents spin box. If you specify more documents than can fit vertically on your screen, Windows 7 adds scroll buttons to the top and bottom of the My Recent Documents list.

Enabling the Shutdown Event Tracker

When you select Start, Shut Down, Windows 7 proceeds to shut down without any more input from you (unless any running programs have documents with unsaved changes). That's usually a good thing, but you might want to keep track of why you shut down or restart Windows 7, or why the system itself initiates a shutdown or restart. To do that, you can enable a feature called Shutdown Event Tracker. With this feature, you can document the shutdown event by specifying whether it is planned or unplanned, selecting a reason for the shutdown, and adding a comment that describes the shutdown.

Here are the steps to follow to use a group policy to enable the Shutdown Event Tracker feature:

1. Open the Local Group Policy Editor window, as described earlier in this chapter.
2. Navigate to the Computer Configuration, Administrative Templates, System branch.
3. Double-click the Display Shutdown Event Tracker policy.
4. Click Enabled.
5. In the Shutdown Event Tracker Should Be Displayed list, select Always.
6. Click OK.

Now when you select Start, Shut Down, you see the Shut Down Windows dialog box shown in Figure 9.12. The Shutdown Event Tracker group gives you three new controls to operate:

FIGURE 9.12 The Shut Down Windows dialog box appears with the Shutdown Event Tracker feature enabled.

- **Planned—**Leave this check box activated if this is a planned shutdown. If you didn't plan on shutting down Windows 7 (for example, you're restarting because a program has crashed or because the system appears unstable), deactivate this check box.
- **Option—**Use this list to select the reason for the shutdown. (Note that the items you see in this list change depending on the state of the Planned check box.)
- **Comment—**Use this text box to describe the shutdown event. If you choose either Other (Planned) or Other (Unplanned) in the Option list, you must add a comment to enable the OK button; for all other items in the Option list, the comment text is optional.

To enable the Shutdown Event Tracker on systems without the Local Group Policy Editor, open the Registry Editor and dig down to the following key:

```
HKLM\Software\Policies\Microsoft\Windows NT\Reliability
```

Change the value of the following two settings to **1:**

```
ShutdownReasonOn
ShutdownReasonUI
```

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