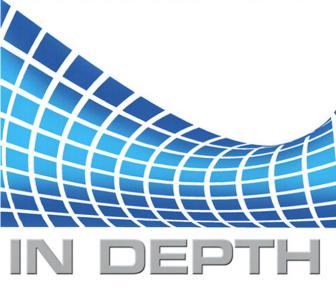
Windows 8.1





Brian Knittel and Paul McFedries

FREE SAMPLE CHAPTER











Windows® 8.1

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WINDOWS® 8.1 IN DEPTH

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Dedication

To my parents,	who supported e	every odd intere	st and hobby that	t led to this topsy
turvy career.				
—Brian				

To Karen, who gives new meaning to the phrase "better half."

—Paul

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Introduction

Welcome

We shall not cease from exploration

And the end of all our exploring

Will be to arrive where we started

And know the place for the first time.

-T. S. Eliot.

Thank you for purchasing or considering the purchase of *Windows 8.1 In Depth*. Windows 8.1 is Microsoft's second iteration of an attempt to create an operating system that looks and acts the same across a variety of devices, from desktop PCs to tablets. Rather than taking Apple's approach of having one OS for computers (OS X) and a second OS for tablets (iOS), Microsoft has engineered Windows 8 to run basically the same on both types of devices. To accomplish this task, Microsoft has created an entirely new interface and an entirely new style of program that can be manipulated and controlled using the keyboard, a mouse, fingers, or a stylus.

The main Windows 8.1 vehicle is the app, a new style of program that does away with menus, toolbars, ribbons, dialog boxes, and other familiar interface elements. Apps run full-screen (although a second app can be docked beside a running app) and make features available through application bars that are usually hidden but can be summoned with a right-click or swipe gesture. Apps are generally simplified, secure versions of existing apps.

All apps reside on the new Start screen, which displays each app as a tile, a rectangular object that shows the app name and icon. Many of these are live tiles that show the latest information from the app, including recent email messages in Mail, recent instant messages in Messages, the current slide show in Photos, stock data in Finance, and many more.

Windows 8.1, in short, shows us that the evolution of Windows is taking a big turn in a new direction, toward a new way of interacting with computers.

If you're upgrading from Windows 8 to 8.1, you'll find that there are relatively few changes. Some are minor, and a few are annoying. We'll point these out as we go.

And, despite all the new features, if you're used to Windows 7, you'll find that almost everything you know about Windows 7 still applies to Windows 8.1—you just have to learn new routes to reach old places. In this book, we show you not only how to use all the new features, but also how to quickly and easily navigate to the parts of Windows that you're already familiar with. (If you think of the Start screen as just a full-page Start menu, you'll already be halfway there.)

If you're moving up from XP, though, you're in for big changes almost everywhere you look. In addition to the changes we just described, you'll find that even the traditional Windows desktop is dramatically different. This book will get you up to speed with the new desktop taskbar, new File Explorer, and vastly improved home networking. You'll be glad you made the move. Windows 8.1 leaves XP in the dust, adding more than a decade's worth of innovation and improvement in speed, ease of use, and reliability.

If you're moving up from Vista, you'll be very pleasantly surprised at the improvements. Vista was inexcusably slow, and the frequent User Account Control prompts were annoying. That's been taken care of and then some! Windows 8.1 is blazingly fast, whereas Vista was slow and ponderous. You'll be happy to see, as you read through our book, that managing Windows is easier than it was in Vista, and the Homegroup networking feature is a huge plus.

This book covers the three primary versions of Windows 8.1: Windows 8.1, Windows 8.1 Pro (which includes advanced features such as virtualization, encryption, Remote Desktop hosting, and group policy), and Windows 8.1 Enterprise (which includes additional features for enterprise IT support). There is a sister version called Windows RT 8.1 that runs on low-power ARM processor-based tablets such as Microsoft's Surface and Surface 2. It is actually a full-blown implementation of Windows, except that it uses the ARM processor instruction set, and it doesn't permit the installation of desktop software. We talk a bit about Windows RT in Chapter 35, "Windows on Mobile Devices," and it shares virtually all of the Windows 8.1 apps and configuration tools—but we don't explicitly cover Windows RT in this book

Why This Book?

Windows has been evolving, mostly incrementally, since 1985. Each new version has new features. Some you can figure out on your own, but some require explanation. Some features, such as networking, are easy enough to use but are very complex underneath, and setting them up can involve making complex technical decisions. In some cases, years might go by between the times that you use some management tool, and your human Random Access Memory might need refreshing. Computer books come to the rescue for all of these needs, giving step-by-step instructions, helpful advice, and detailed reference material for the future.

Although usually the path from one version of Windows to the next is smooth and straight, every so often there is a big bump in the road. The first was with Windows 95, where the Start button appeared and the right mouse button suddenly became very important. The next bump was Windows XP, which marked the move from MS-DOS to the Windows NT operating system kernel, to a security system for files, and to a whole new way of managing Windows. It happened again with Windows 8. The Start button disappeared, and you had to use arcane "gestures" and tools to get anywhere.

The new "Windows 8–style" Start screen and app interface were touted as intuitive and easy to use, but they won't seem to be, at least at first. At first, they will seem frustrating and opaque, unless you have guidance. Many of the shortcuts and tricks that give you easy ways to do things are hidden, and almost impossible to guess. We found that out for ourselves as we worked with Windows 8 and 8.1 daily, for months, as we wrote this book and its Windows 8 predecessor. We didn't have anyone's guidance then, but you do now. In this book, we'll show you how to manage the Windows 8.1 interface without a struggle.

In addition to getting you through the steep parts of the Windows 8.1 learning curve, we'll give you the benefit of our combined 45-plus years of experience working with, writing about, and even writing software for Microsoft Windows. We know what parts of using and managing Windows are confusing. We know the easy ways to do things. We've seen just about every bug and glitch, have been through just about every ugly scenario one can come up with, and have made just about every mistake one can make. Therefore, we can spare you from having to repeat some of them.

You might also appreciate that in this book, we can be honest with you. We don't work for Microsoft, so we can tell you what we really feel about the product: the good, the bad, and the downright ugly. If we say something's great, it's because we think it is; and if we hate something, we'll tell you, and we'll try to show you how to avoid it.

Our book addresses both home and business computer users. As we wrote, we imagined that you, our reader, are a friend or co-worker who is familiar enough with your computer to know what it's capable of, but might not know the details of how to make it all happen. So we show you, in a helpful, friendly, professional tone. We make an effort not just to tell you *what* to do, but why you're doing it. If you understand how Windows and its component parts work, you can get through rough patches: diagnosing problems, fixing things that the built-in wizards can't fix, and otherwise solving problems creatively.

And if you're looking for power-user tips and some nitty-gritty details, we make sure you get those too. We try to make clear what information is essential for you to understand and what is optional for just those of you who are especially interested.

However, no one book can do it all. As the title says, this book is about Windows 8.1, which runs on desktop computers, notebooks, and mobile devices (tablets) that have an Intel-compatible processor. Our coverage of the new Windows 8–style interface, Start screen, apps, management tools, and setup panels for the most part apply to ARM-processor tablets that run Windows RT; however, a few parts of this book won't apply to those devices, and if you have one, you might want to get a book that specifically addresses Windows RT.

We also don't have room to cover how to set up or manage the various Microsoft Server operating systems, called Windows Server 2012, Windows Server 2008, and so on, or how to deploy or manage Windows 8.1 using enterprise tools that are provided only with those operating systems. For these topics, you'll need to consult a Windows Server book.

Because of space limitations, only one chapter is devoted to coverage of the numerous Windows 8.1 command-line utilities, its batch file language, Windows Script Host, and Windows PowerShell. For that (in spades!), you might want to check out Brian's book *Windows 7 and Vista Guide to Scripting, Automation, and Command Line Tools*, which is equally applicable to Windows 8.1.

Even when you've become a Windows 8.1 pro, we think you'll find this book to be a valuable source of reference information in the future. Both the table of contents and the very complete index provide an easy means for locating information when you need it quickly.

How Our Book Is Organized

Although this book advances logically from beginning to end, it's written so that you can jump in at any location, quickly get the information you need, and get out. You don't have to read it from start to finish. (Remember, the index at the back of the book is your best friend.)

If you're new to Windows 8 or 8.1, however, we do recommend that you read Chapter 3, "Your First Hour with Windows 8.1," and Chapter 4, "Using the Windows 8.1 Interface," in their entirety. Windows 8.1 has new ways of doing things that aren't necessarily intuitive and obvious. Reading these two chapters might save you *hours* of frustration.

This book is broken down into six major parts. Here's the scoop on each one:

Part I, "Starting Out with Windows 8.1," introduces the new Windows 8.1 user interface, and shows you how to install Windows 8.1 on a new computer or upgrade an older version of Windows to Windows 8.1. In addition, we take you on a one-hour guided tour that shows you the best of the new Windows 8.1 features, and we walk you through making essential settings and adjustments that will help you get the most out of your computer. Consider this the Windows 8.1 version of "freshman orientation."

In Part II, "Using Windows 8.1," we cover the new Windows 8–style user interface and apps, managing documents and files, starting and stopping applications, searching for files and media, printing, and using the included desktop accessories and accessibility tools. In other words, this section covers all the routine, day-to-day stuff. However, it's very important material: Windows 8.1 does many things differently, and using it can be frustrating and confusing, especially if you don't know the basic tricks and techniques.

Part III, "Multimedia and Imaging," covers the Windows 8.1 bells and whistles, including the Media Player and Media Center programs, imaging devices, using a document scanner, faxing, and all the other media tools that ship with Windows.

In Part IV, "Windows 8.1 and the Internet," we help you set up an Internet connection, then move on to cover the Windows 8.1 Internet tools. The final chapter shows you how to diagnose Internet connection problems.

Any home or office with two or more computers needs a local area network (LAN) to easily transfer and back up files, share printers, and use a shared high-speed Internet connection. In Part V, "Networking," we walk you through setting up a network in your home or office, and show you how to take advantage of it in day-to-day use. We also show you how easy it is to share a DSL or cable Internet connection with all your computers at once, show you how to network with other operating systems, and, finally, help you fix it when it all stops working.

Part VI, "Maintaining Windows 8.1," covers system configuration, maintenance, and troubleshooting. We tell you how to work with the huge assortment of Windows 8.1 management tools, show you various useful tweaks and customizations, take you through some hard disk management techniques, give you advice on troubleshooting and repairing problems, show you how to manage software and hardware, and give you the details on editing the Windows Registry. And for real power users, we show how to use and tweak the command-line interface.

When Windows was introduced more than two decades ago, computer viruses, online fraud, and hacking were only starting to emerge as threats. Today (thanks in great part to *gaping* security holes in previous versions of Windows), computer threats are a worldwide problem, online and offline. In Part VII, "Security," we provide a 360-degree view of the ways in which Windows protects you and your data. Here you'll find out both what Windows 8.1 will do to help you and what you must do for yourself. We cover protection against viruses and spyware, data loss and theft, hackers and snoops, and fraud and spam—in that order.

Part VIII, "Windows on the Move," shows you how to get the most out of Windows 8.1 when either you or your computer, or both, are on the go. We show you how to use a touch or pen interface on a Windows tablet or some other mobile PC, how to use wireless networking safely, how to get the most out of your laptop or tablet PC when traveling, and how to connect to remote networks. We also show you how to use Remote Desktop to reach and use your own computer from anywhere in the world.

Appendix A, "Virtualization," explains how to use Microsoft's Hyper-V virtualization technology to run other operating systems side by side with Windows 8.1, or to run Windows 8.1 within some other operating system. This can be an excellent alternative to setting up a dual-boot system. And, finally, Appendix B, "Command-Line Utilities," takes you through a tour of various Windows command-line utilities

Conventions Used in This Book

Special conventions are used throughout this book to help you get the most from the book and from Windows 8.1.

Text Conventions

Various typefaces in this book identify terms and other special objects. These special typefaces include the following:

Туре	Meaning
Italic	New terms or phrases when initially defined
Monospace	Information that appears in code or onscreen in command-line tools

All Windows book publishers struggle with how to represent command sequences when menus and dialog boxes are involved. In this book, we separate commands using a comma. Yeah, we know it's confusing, but this is traditionally how Que's books do it, and traditions die hard. So, for example, the instruction "Choose Edit, Cut" means that you should open the Edit menu and choose Cut. Another, more complex example is "Select Control Panel, System and Security, Change Battery Settings."

Key combinations are represented with a plus sign. For example, if the text calls for you to press Ctrl+Alt+Delete, you would press the Ctrl, Alt, and Delete keys at the same time. The letterless "Windows Logo" key is very useful in Windows 8.1. In key combinations it appears as, for example, "Windows Logo+X."

Special Elements

Throughout this book, vou'll find Notes, Tips, Cautions, Sidebars, Cross-References, and Troubleshooting Notes. Hopefully, they'll give you just the tidbit you need to get through a tough problem, or the one trick that will make you the office hero. You'll also find little nuggets of wisdom. humor, and lingo that you can use to amaze your friends and family, or that might come in handy as cocktail-party conversation starters.



We specially designed these tips to showcase the best of the best. Just because you get your work done doesn't mean vou're doing it in the fastest, easiest way possible. We show you how to maximize your Windows experience. Don't miss these tips!



note

Notes point out items that you should be aware of, but you can skip them if you're in a hurry. Generally, we've added notes as a way to give you some extra information on a topic without weighing you down.



caution

Pay attention to cautions! They could save you precious hours in lost work.



Something Isn't Working

Throughout the book we describe some common trouble symptoms and tell you how to diagnose and fix problems with Windows, hardware, and software.

We Had More to Say

We use sidebars to dig a little deeper into the more esoteric features, settings, or peculiarities of Windows. Some sidebars are used to explain something in more detail when doing so in the main body text would've been intrusive or distracting. Sometimes, we just needed to get something off our chests and rant a bit. Don't skip the sidebars, because you'll find nuggets of pure gold in them (if we do say so ourselves).

We designed these elements to call attention to common pitfalls that you're likely to encounter.

Finally, cross-references are designed to point you to other locations in this book (or other books in the Que family) that provide supplemental or supporting information. Cross-references appear as follows:



For information on using the charms, see "Navigating the Start Screen with a Touch Interface," p. 104.

Let's get started!

MANAGING FILES AND SEARCHING

Understanding File Types

To get the most out of this chapter, you need to understand some background about what a file type is and how Windows 8.1 determines and works with file types. The next couple of sections tell you everything you need to know to get you through the rest of the chapter.

File Types and File Extensions

One of the fictions that Microsoft has tried to foist on the computer-using public is that we live in a "document-centric" world. That is, that people care only about the documents they create and not about the applications they use to create those documents. This is actually not all that far from the truth if you only use the Windows 8.1 interface because Windows Store apps are designed to hide their interface elements, so you see only the document (whatever it might be) that's currently onscreen.

However, for the rest of us who spend the majority of our time in the Desktop app, this notion of a document-focused computing world is pure hokum. The reality is that applications are still too difficult to use and the capability to share documents between applications is still too problematic. In other words, you can't create documents unless you learn the ins and outs of an application, and you can't share documents with others unless you use compatible applications.

Unfortunately, we're stuck with Microsoft's worship of the document and all the problems that this worship creates. A good example is the hiding of file extensions. As you learn in Chapter 24, "Tweaking and Customizing

Windows," Windows 8.1 hides file extensions by default, and this creates a whole host of problems, from the confusion of trying to determine a file type based on a teensy icon, to not being able to edit extensions, to not being able to save a file under an extension of your choice. You can overcome all these problems by turning on file extensions, as we show later.



To learn how to activate file extensions, see "Turning On File Extensions," p. 571.

Why does the lack of file extensions cause such a fuss? Because file extensions determine the file type of a document. In other words, if Windows 8.1 sees that a file has a .txt extension, it concludes the file uses the Text Document file type. Similarly, a file with the extension, bmp uses the Bitmap Image file type.

The file type, in turn, determines the application that's associated with the extension. If a file has a . txt extension. Windows 8.1 associates that extension with Notepad, so the file will always open in Notepad. Nothing else inherent in the file determines the file type: therefore, at least from the point of view of the user, the entire Windows 8.1 file system rests on the scrawny shoulders of the humble file extension.

This method of determining file types is, no doubt, a poor design decision. For example, there is some danger that a novice user could render a file useless by imprudently renaming its extension. Interestingly. Microsoft seems to have recognized this danger and programmed a subtle behavior change into recent versions of Windows (Windows Vista and later); when file extensions are turned on and you activate the Rename command (click the file and then press F2). Windows displays the usual text box around the entire filename, but it selects only the file's primary name (the part to the left of the dot), as shown in Figure 6.1. Pressing any character obliterates the primary name but leaves the extension intact.

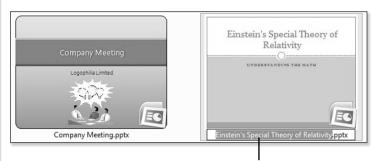


Figure 6.1 When you activate the Rename command with file extensions turned on, Windows selects just the file's primary name.

Windows selects just the primary name.

Despite the drawbacks that come with file extensions, they lead to some powerful methods for manipulating and controlling the Windows 8.1 file system, as you see in the rest of this chapter.

File Types and the Registry

As you might expect, everything Windows 8.1 knows about file types is defined in the Registry. (See Chapter 29, "Editing the Windows Registry," for the details on understanding and using the

- The first part of HKEY_CLASSES_ROOT consists of dozens of file extension subkeys (such as .bmp and .txt). There are well over 400 such subkeys in a basic Windows 8.1 installation, and there could easily be two or three times that number on a system with many applications installed.
- The second part of HKEY_CLASSES_ROOT lists the various file types associated with the registered extensions. When an extension is associated with a particular file type, the extension is said to be *registered* with Windows 8.1.

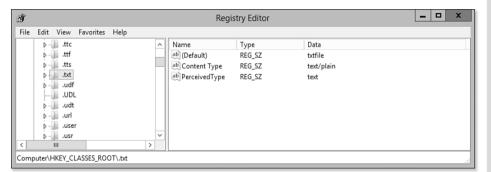


note

HKEY_CLASSES_ROOT also stores information on ActiveX controls in its CLSID subkey. Many of these controls also have corresponding subkeys in the second half of HKEY_CLASSES_ROOT.

To see what this all means, take a look at Figure 6.2. Here, we've selected the .txt key, which has txtfile as its Default value

Figure 6.2
The first part of the HKEY_
CLASSES_ROOT key contains subkeys for all the registered file extensions.



That Default value is a pointer to the extension's associated file type subkey in the second half of HKEY_CLASSES_ROOT. Figure 6.3 shows the txtfile subkey associated with the .txt extension. Here are some notes about this file type subkey:

- The Default value is a description of the file type (Text Document, in this case).
- The DefaultIcon subkey defines the icon that's displayed with any file that uses this type.
- The shell subkey determines the actions that can be performed with this file type. These actions vary depending on the file type, but Open and Print are common. The Open action determines the application that's associated with the file type. For example, the Open action for a Text Document file type is the following:

%SystemRoot%\system32\NOTEPAD.EXE %1



note

The %1 at the end of the command is a placeholder that refers to the document being opened (if any). If you double-click a file named memo.txt, for example, the %1 placeholder is replaced by memo.txt, which tells Windows to run Notepad and open that file.

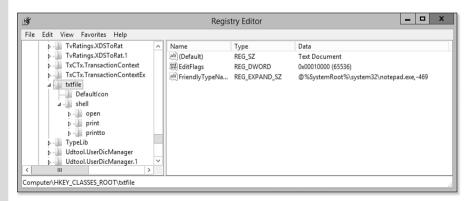
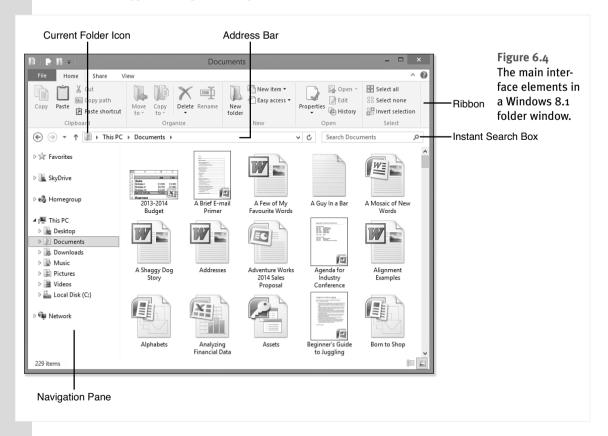


Figure 6.3
The second part of HKEY_CLASSES_
ROOT contains the file type data associated with each extension.

Navigating the Windows 8.1 Folder Windows

Let's take a quick tour of the interface features you'll find in Windows 8.1's folder windows. Figure 6.4 shows a typical example of the species, the Documents folder.



Folder Navigation

Windows 8.1 implements drives and folders as hierarchies that you navigate up, down, and even across. As you can see in Figure 6.4, the address bar doesn't show any drive letters or backslashes. Instead, you get a hierarchical path to the current folder. The path in Figure 6.4 has three items, separated by right-pointing arrows:

- Current folder icon—This icon represents the current folder.

 You'll see a bit later that you can use this icon to navigate to your computer drives, your network, the Control Panel, your user folder, and more.
- This PC—This represents the second level of the sample hierarchy. In the example, this level represents the contents of your PC, including its disk drives (both internal and external), the Desktop, and your main user folders.
- **Documents**—This represents the third level of the sample hierarchy. In the example, this level represents all the subfolders and files that reside in the user's Documents folder.

This is a sensible and straightforward way to view the hierarchy, which is already a big improvement over earlier versions of Windows. However, the real value here lies in the navigation features of the Address bar, and you can get a hint of these features from the nickname that many people have applied to the Address bar: the *breadcrumb bar*.



tip

If you miss the old pathname way of looking at folders, you can still see drive letters and backslashes in Windows 8.1 by clicking an empty section of the Address bar. To return to the hierarchical path, press Esc.



tip

To copy the full path name (drive, folders, and filename) of the selected file, select Home, Copy Path.

Breadcrumbing refers to a navigation feature that displays a list of the places a person has visited or the route a person has taken. The term comes from the fairy tale of Hansel and Gretel, who threw down bits of bread to help find their way out of the forest. This feature is common on websites where the content is organized as a hierarchy or as a sequence of pages.

Windows 8.1 implements breadcrumb navigation not only by using the address bar to show you the hierarchical path you've taken to get to the current folder, but also by adding interactivity to the breadcrumb path:

- You can navigate back to any part of the hierarchy by clicking the folder name in the address bar. For example, in the path shown in Figure 6.4, you could jump immediately to the top-level hierarchy by clicking This PC in the path.
- You can navigate "sideways" to any part of any level by clicking the right-pointing arrow to the right of the level you want to work with. In Figure 6.5, for example, you see that clicking the arrow beside the current folder icon displays a list of the other navigable items, such as Homegroup, Network, and Control Panel. Clicking an item in this list opens that folder.

Click the arrow to see the items in that level

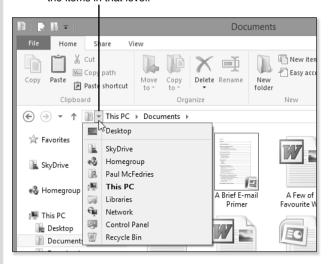


Figure 6.5
Breadcrumb navigation: In the Address bar, click a folder's arrow to see a list of the navigable items in that folder.

Instant Search

The next major element in the Windows 8.1 folder window interface is the Instant Search box, which appears to the right of the address bar in all folder windows. Search is everywhere in Windows 8.1, and we go into it in much more detail later in this chapter (see "Desktop Searching"). For folder windows, however, the Instant Search box gives you a quick way to search for files within the current folder. Most of us nowadays have folders that contain hundreds or even thousands of documents. To knock such folders down to size in Windows 8.1, you need only type all or part of a filename, and Windows 8.1 filters the folder contents to show just the matching files, as shown in Figure 6.6. Windows 8.1 also matches those files that have metadata—such as the author or tags—that match your text.

The Ribbon

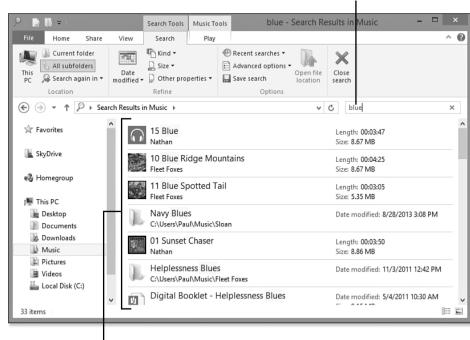
Windows 8.1's version of the venerable File Explorer file management program comes with a new ribbon interface that replaces the menu bar and toolbar in previous versions. As with all ribbons, File Explorer's is divided into several tabs: File, Home, Share, and View. Also, when you open certain folders or activate certain features, the ribbon sprouts extra contextual tabs that display commands related to the folder or feature. For example, in Figure 6.6 you can see that when you run a search, File Explorer adds the Search Tools contextual tab to the ribbon. Note, too, that because the search was run in the music library, Figure 6.6 also shows a Music Tools contextual tab.

The Navigation Pane

The Navigation pane appears on the left side of each folder window, and it offers quick links to the major sections of your system, including your OneDrive (SkyDrive), Homegroup, This PC, and Network. The Favorites section offers access to a few common folders, including Desktop, Downloads, and Recent Places (folders that you've visited recently).

Type text in the Instant Search box...





tip 🌑

The Favorites section is fully customizable. For example, you can add a link to one of your own favorite folders by clicking and dragging that folder and dropping it inside the Favorites section. You can also rename links (right-click a link and then click Rename) and remove links you don't use (right-click a link and click Remove).

...and Windows 8.1 shows just the matching files.

Basic File and Folder Chores: The Techniques Used by the Pros

Now that you're familiar with Windows 8.1's folders, it's time to put them through a workout. The next few sections take you through a few basic file and folder chores, including selecting, moving and copying, and renaming.

Selecting Files with Check Boxes

In this chapter, you learn about quite a few substantive elements in the Windows file system: metadata, searching, grouping, filtering, and more. All of these are fairly sophisticated and useful technologies. However, sometimes it's the small, mundane elements that make your life with an operating system easier and more efficient. In this section, you learn about one of our favorites of Windows 8.1's many small but quite useful tweaks: a technique that affects the way you select files.

When you need to select multiple, noncontiguous objects, the easiest method is to hold down the Ctrl key and click each item you want to select. However, when we use this technique to select more than a few files, we *always* end up accidentally selecting one or more files that we don't want. It's not a big deal to deselect these extra files, but it's one of those small drains on productivity that bugs us (and many other users).

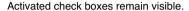
Windows 8.1 offers a file-selection technique that promises to eliminate accidental selections. With this technique, you use a check box to select individual files and folders. To activate this feature,

display File Explorer's View tab and then activate the Item Check Boxes check box

As you can see in Figure 6.7, when you turn on this feature, Explorer creates a column to the left of the folder contents in Details view. When you point at a file or folder, a check box appears in this column, and you select an item by activating its check box. You don't need to hold down Ctrl or use the keyboard at all. Just activate the check boxes for the files and folders you want to select



Bonus technique: You can also select all the items in the folder quickly by clicking the check box that appears at the top of the Name column.



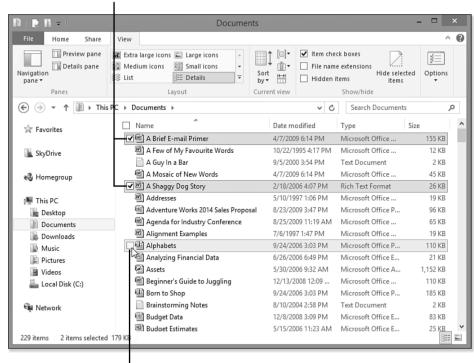


Figure 6.7 In Windows 8.1, you can select files and folders using check boxes.

A check box appears when you point at an item.

Understanding Size on Disk

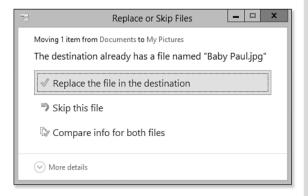
To see the total size of the objects in the current selection, right-click the selection and then click Properties. Windows 8.1 counts all the files, calculates the total size as well as the total size on the disk, and then displays this data in the property sheet that appears.

What's the difference between the Size and Size on Disk values? Windows 8.1 stores files in discrete chunks of hard disk space called *clusters*, which have a fixed size. This size depends on the file system and the size of the partition, but 4KB is typical. The important thing to remember is that Windows 8.1 always uses full clusters to store all or part of a file. For example, suppose that you have two files, one that's 2KB and another that's 5KB. The 2KB file will be stored in an entire 4KB cluster. For the 5KB file, the first 4KB of the file will take up a whole cluster, and the remaining 1KB will be stored in its own 4KB cluster. Therefore, the total size of these files is 7KB, but they take up 12KB on the hard disk.

Resolving File Transfer Conflicts

When you move or copy a file into the destination folder, it sometimes happens that a file with the same name already resides in that folder. In earlier versions of Windows, you'd see a dialog box asking whether you want to replace the existing file, and you'd click Yes or No, as appropriate. Unfortunately, Windows didn't give you much information to go on to help you make the choice. Windows 8.1 takes a step in the right direction by displaying the Replace or Skip Files dialog box instead. Figure 6.8 shows an example.

Figure 6.8
This dialog box appears if a file with the same name already exists inside the destination folder.



This dialog box gives you the following choices:

- Replace the File in the Destination—Click this option if you want the file you are copying (or moving) to replace the existing file.
- **Skip This File**—Click this option if you want Windows 8.1 to not copy (or move) the file, so the original remains in the destination folder.

■ Compare Info for Both Files—Click this option to see more information about both files, including a thumbnail, the last modified date, and the size. Activate the check box for the version you want to keep and then click Continue. Note, too, that you can keep *both* files by activating both check boxes and then clicking Continue. In this case, the existing file remains as is, and the file being copied or moved is placed in the folder with (2) appended to the filename.

Expert Drag-and-Drop Techniques

You'll use the drag-and-drop technique throughout your Windows career. To make drag-and-drop even easier and more powerful, here are a few pointers to bear in mind:

- "Lassoing" multiple files—If the objects you want to select are displayed in a block within the folder list, you can select them by dragging a box around the objects. This is known as *lassoing* the objects.
- Drag-and-scroll—Most drag-and-drop operations involve dragging an object from the contents area and dropping it on a folder in the Folders list (be sure to display the Folders list first). If you can't see the destination in the Navigation pane, drag the pointer to the bottom of the pane. Windows Explorer will scroll the pane up. To scroll the pane down, drag the object to the top of the pane.
- Drag-and-open—If the destination is a subfolder within an unopened folder branch, drag the object and hover the pointer over the unopened folder. After a second or two, File Explorer opens the folder branch.
- Inter-window dragging—You can drag an object outside of the window and then drop it on a different location, such as the desktop.
- Drag between Explorers—Windows 8.1 lets you open two or more copies of File Explorer (select File, Open New Window). If you have to use several drag-and-drop operations to get some objects to a particular destination, open a second copy of File Explorer and display the destination in this new window. You can then drag from the first window and drop into the second window.
- Canceling drag-and-drop—To cancel a drag-and-drop operation, either press Esc or click the right mouse button. If you're right-dragging, click the left mouse button to cancel.

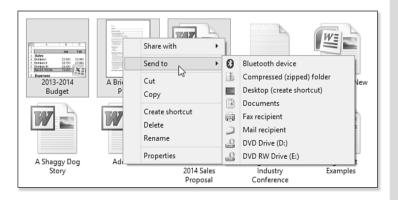
Taking Advantage of the Send To Command

For certain destinations, Windows 8.1 offers an easier method for copying or moving files or folders: the Send To command. To use this command, select the objects you want to work with, right-click the selection, and then click Send To in the shortcut menu. You see a submenu of potential destinations, as shown in Figure 6.9.

Note that the items in this menu (except the disk drives) are taken from the following folder that contains shortcut files for each item:

%UserProfile%\appdata\roaming\Microsoft\Windows\SendTo

Figure 6.9
The Send To command offers a menu of possible destinations.



This means that you can customize the Send To menu by adding, renaming, and deleting the shortcut files in your SendTo folder.

Click the destination you want, and Windows 8.1 sends the object there. What do we mean by *send*? We suppose that *drop* would be a better word because the Send To command acts like the drop part of drag-and-drop. Therefore, Send To follows the same rules as drag-and-drop:

- If the Send To destination is on a different disk drive, the object is copied.
- If the Send To destination is on the same disk drive, the object is moved



I note

The user profile folder for a user is the following:

%SystemDrive%\Users\User
Here, %SystemDrive% is the drive
on which Windows 8.1 is installed
(such as C:), and User is the person's username. Windows 8.1 stores
the user profile folder for the current user in the %UserProfile%
environment variable.



Forcing a Move or Copy

As with a drag-and-drop operation, you can force the Send To command to copy or move an object. To force a move, hold down Shift when you select the Send To command. To force a copy, hold down Ctrl when you select the Send To command. To force a shortcut, hold down Shift and Ctrl when you select the Send To command.

The Recycle Bin: Deleting and Recovering Files and Folders

In our conversations with Windows users, we've noticed an interesting trend that has become more prominent in recent years: people don't delete files as often as they used to. We're sure that the reason for this is the absolutely huge hard disks that are offered these days. Even entry-level systems come equipped with 250GB or 500GB disks, and terabyte-sized drives are no longer a big deal.

Unless someone's working with digital video files, even a power user isn't going to put a dent in these massive disks any time soon. So, why bother deleting anything?

Although it's always a good idea to remove files and folders you don't need (it makes your system easier to navigate, it speeds up defragmenting, and so on), avoiding deletions does have one advantage: you can never delete something important by accident.

Just in case you do, however, Windows 8.1's Recycle Bin can bail you out. The Recycle Bin icon on the Windows 8.1 desktop is actually a frontend for a collection of hidden folders named Recycled that exist on each hard disk volume. The idea is that when you delete a file or folder, Windows 8.1 doesn't actually remove the object from your system. Instead, the object moves to the Recycled folder on the same drive. If you delete an object by accident, you can go to the Recycle Bin and

return the object to its original spot. Note, however, that the Recycle Bin can hold only so much data. When it gets full, it permanently deletes its oldest objects to make room for newer ones.

It's important to note that Windows 8.1 bypasses the Recycle Bin and permanently deletes an object under the following circumstances:

- You delete the object from a removable drive.
- You delete the object from the command line.
- You delete the object from a network drive.



If you're absolutely sure you don't need an object, you can permanently delete it from your system (that is, bypass the Recycle Bin) by selecting it and pressing Shift+Delete.

Setting Some Recycle Bin Options

The Recycle Bin has a few properties you can set to control how it works. To view these properties, right-click the desktop's Recycle Bin icon and then click Properties. Windows 8.1 displays the Properties dialog box sheet shown in Figure 6.10.



Figure 6.10
Use this property sheet to configure the Recycle Bin to your liking.

Here's a rundown of the various controls:

- Recycle Bin Location—Choose the Recycle Bin you want to configure: you see an icon for each of the hard drive partitions on your computer.
- Custom Size—Enter the size of the Recycle Bin. The larger the size, the more disk space the Recycle Bin takes up, but the more files it will save
- Do Not Move Files to the Recycle Bin—If you activate this option, all deletions are permanent.
- Display Delete Confirmation Dialog—For the first time in Windows history, Windows 8.1 does *not* ask for confirmation when you delete an object. If you miss the prompt, or if you just want to be super careful about deletions, activate this check box



You can clean out your Recycle Bin at any time by right-clicking the desktop's Recycle Bin icon and then clicking Empty Recycle Bin. The Recycle Bin contents can also be purged using Windows 8.1's Disk Cleanup utility.

Click OK to put the new settings into effect.

Recovering a File or Folder

If you accidentally delete the wrong file or folder, you can return it to its rightful place by using the following method:

- 1. Open the desktop's Recycle Bin icon, or open any Recycled folder in File Explorer.
- 2. Select the object you want to restore.
- Click the Manage tab and then click Restore the Selected Items. (You can also right-click the file and then click Restore.)



Undoing a File or Folder Action

If deleting the file or folder was the last action you performed in File Explorer, you can recover the object by selecting the Edit, Undo Delete command (or by pressing Ctrl+Z). Note, too, that Windows 8.1 enables you to undo the ten most recent actions.

File Maintenance Using the Open and Save As Dialog Boxes

One of the best-kept secrets of Windows 8.1 is the fact that you can perform many of these file maintenance operations within two of Windows 8.1's standard dialog boxes:

- Open—In most applications, you display this dialog box by selecting the File, Open command, or by pressing Ctrl+O.
- Save As—You usually display this dialog box by selecting File, Save As. Or, if you're working with a new, unsaved file, by selecting File, Save, or by pressing Ctrl+S.

Here are three techniques you can use within these dialog boxes:

- To perform maintenance on a particular file or folder, right-click the object to display a shortcut menu like the one shown in Figure 6.11.
- To create a new object, right-click an empty section of the file list, and then click New to get the New menu.
- To create a new folder within the current folder, click the New Folder button.

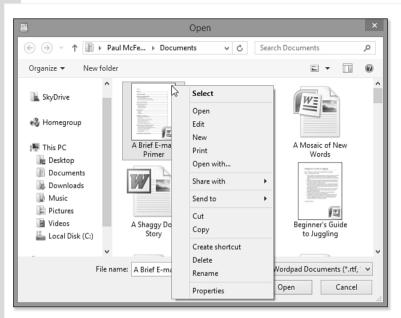


Figure 6.11
You can perform most basic file and folder maintenance right from the Open and Save As dialog boxes.

Metadata and the File Explorer Property System

We mentioned earlier that Windows is gradually lessening the importance not only of drive letters, but also specific file locations. As an example of the latter, note that file libraries are really virtual folders that can consist of multiple locations.

If file location will become less important, what can you use to take its place as a basis for file organization? Content seems like a pretty good place to start. After all, it's what's inside the documents that really matters. For example, suppose you're working on the Penske account. It's a pretty good bet that all the Penske-related documents on your system actually have the word *Penske* inside them somewhere. If you want to find a Penske document, a file system that indexes document content sure helps because then you need only do a content search on the word *Penske*.

However, what if a memo or other document comes your way with an idea that would be perfect for the Penske account, but that document doesn't use the word *Penske* anywhere? This is where purely content-based file management fails because you have no way of relating this new document with your Penske documents. Of course, you could edit the new document to add the word *Penske* somewhere, but that's a bit kludgy and, in any case, you might not have write permission on the file. It would be far better if you could somehow identify all of your documents that have "Penskeness"—that is, that are directly or indirectly related to the Penske account.

This sounds like a job for metadata, and that's fine because metadata is nothing new in the Windows world:

- Digital photo files often come with their own metadata for things such as the camera model and image dimensions, and some imaging software enables you to apply tags to pictures.
- In Windows Media Player, you can download album and track information that gets stored as various metadata properties: Artist. Album Title. Track Title, and Genre, to name just a few.
- The last few versions of Microsoft Office have supported metadata via the File, Properties command.
- For all file types, Windows displays in each file's property sheet a Summary tab that enables you to set metadata properties such as Author, Comments, and Tags.

In Windows 8.1, metadata is an integral part of the operating system. With the Windows Search engine, you can perform searches on some or all of these properties (see "Desktop Searching," later

in this chapter). You can also use them to group and filter files (see "Grouping and Filtering with Metadata," later in this chapter).

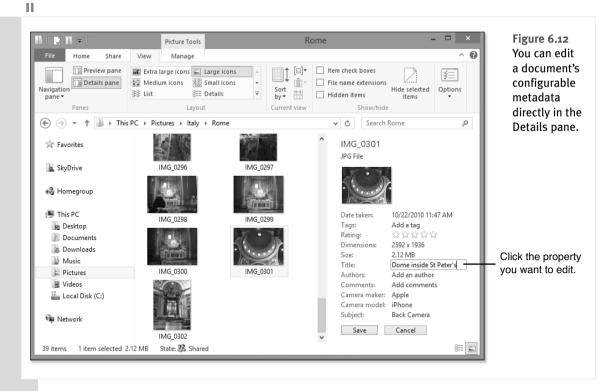
To edit a document's metadata, Windows 8.1 gives you two methods:

- In File Explorer, select View, Details Pane. In the Details pane that now appears on the right side of the window, click the property you want to edit. Windows 8.1 displays a text box in which you can type or edit the property value. For example, Figure 6.12 shows a photo's Title property being edited. Click Save when you're done.
- Right-click the document and click Properties to display the property sheet, and then click the Details tab. This tab displays a list of properties and their values. To edit a property, click inside the Value column to the right of the property.



note

By default, in most folder windows, Windows 8.1 displays the Tags and Type properties in Windows Explorer's Details view. (Specialized folders such as Music, Pictures, and Videos display other properties in Details view.) To toggle a property's column on and off, right-click any column header and then click the property. Click More to see a complete list of the available properties.



Desktop Searching

One of Microsoft's goals in Windows 8.1 was to make search a truly useful tool that provides complete results quickly. Did it succeed? For the most part, yes. As you saw in Chapter 4, "Using the Windows 8.1 Interface," searching via the new interface (particularly app searching) is as easy as just typing what you're looking for.

For the details on searching the Windows 8.1 interface, **see** "Searching via the Start Screen," **p. 111**.

If you're a dedicated Desktop app user, however, then we're sad to report that searching has taken a step backward in Windows 8.1. In Windows 7 you could quickly search your system by clicking the Start button and then typing a search string. The Start menu would then generate a list of programs with names that include the typed characters, a list of your user account documents with content or metadata that include the typed characters, and a list of other data—such as contacts, email messages, and sites from Internet Explorer's Favorites and History lists—with content or metadata that include the typed characters.

That was extremely convenient and fast, but with the dismissal of the Start menu in Windows 8.1, that convenience and speed went along with it. The good news is that, as you see in the next section, you can still run relatively quick and powerful searches from the desktop, as long as you know where to start.

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Desktop searching remains powerful in Windows 8.1 because it still uses the Windows Search service, which starts automatically each time you load Windows 8.1. On the downside, it can still take Windows 8.1 a long time to search, say, all of drive C. However, that's because Windows Search does *not* index the entire drive. Instead, it just indexes your documents, your offline files (local copies of network files), and your email messages. If you're searching for one of these types of files, Windows 8.1 searches are lightning quick.

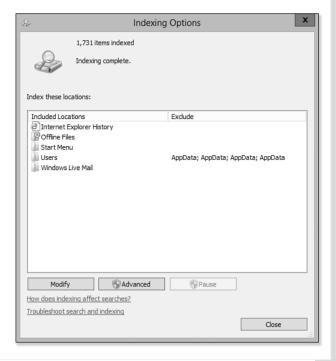
Note that you can control what Windows Search indexes and force a rebuild of the index by opening File Explorer, clicking inside the Search box to display the Search pane in the ribbon, and then selecting Advanced Options, Change Indexed Locations. (You can also open Control Panel and click Indexing Options.) This displays the dialog box shown in Figure 6.13. To customize the search engine, you have two choices:

- Modify—Click this button to display the Indexed Locations dialog box, which enables you to change the locations included in the index. Activate the check box for each drive or folder you want to include.
- Advanced—Click this button to display the Advanced Options dialog box, which enables you to index encrypted files, change the index location, specify the file types (extensions) you want to include in or exclude from the index. You can also click Rebuild to re-create the index

a caution

Windows Search takes a long time to index even a relatively small amount of data. If you're asking Windows Search to index dozens of gigabytes of data, wait until you're done working for the day and let the indexer run all night.

Figure 6.13
Use the Indexing Options dialog box to control the Windows Search engine.



As-You-Type Searches with Instant Search

We mentioned earlier that as-you-type searching, while still alive and well in the new Windows 8.1 interface, is no longer possible through the Start button. That's the bad news. The good news is that you can still perform desktop-based as-you-type searches in any folder by using the Search box that appears in every Explorer window.

What gets searched depends on several things:

- If you just want to search within a particular folder, display that folder before clicking inside the Search box. By default, Windows searches within subfolders as well. To turn that off, click All Subfolders in the ribbon's Search tab
- If you want to search your entire computer, either display the This PC folder and then run the search or click inside the Search box and then click This PC in the ribbon's Search tab.
- If you want to search your user account, click the arrow next to the current folder icon in the Address bar (see Figure 6.5, earlier in this chapter), click your user account in the list, and then run the search. This is as close as you can get to emulating Start button searches in the Windows 8.1 desktop.

Whatever location you choose, as you type, Explorer displays those files in the location with names or metadata that matches your search text, as shown in Figure 6.14.



In a folder window, you can access the Search box via the keyboard by pressing Ctrl+E.

Using Advanced Query Syntax to Search Properties

When you run a standard text search from any Search box, Windows looks for matches not only in the filename and the file contents, but also in the file metadata: the properties associated with each file. That's cool and all, but what if you want to match only a *particular* property. For example, if you're searching your music collection for albums that include the word *Rock* in the title, a basic search on *rock* will also return music where the artist's name includes *rock* and the album genre is Rock. This is not good.

To fix this kind of thing, you can create powerful and targeted searches by using a special syntax—called Advanced Query Syntax (AQS)—in your search queries.

For file properties, you use the following syntax:

property:value

Here, *property* is the name of the file property you want to search on, and *value* is the criteria you want to use. The property can be any of the metadata categories used by Windows. For example, the categories in a music folder include Name, Track, Title, Artists, Album, and Rating. Right-click any column header in Details view to see more properties such as Genre and Length, and you can click More to see the complete list.

Note, too, that Windows will immediately recognize a property as soon as you type it (followed by a colon) and will then display a list of the unique property values, as shown in Figure 6.15. You then click a value to complete the search string.

6



box.

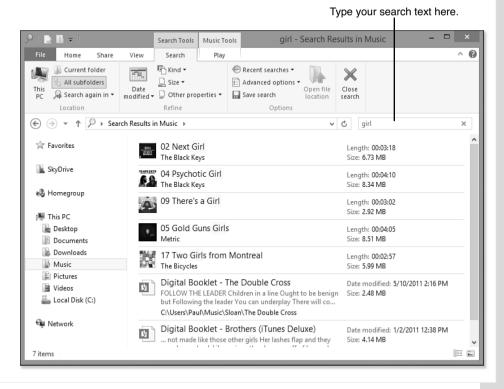
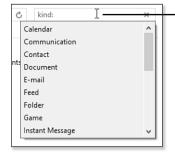


Figure 6.15
Type a property name in the Search box to see a list of unique property values.



Type a property name to display that property's unique values.

Here are a few things to bear in mind when constructing AQS strings:

■ If the property name is a single word, use that word in your query. For example, the following code matches music where the Artists property is Coldplay:

artists:coldplay

■ If the property name uses two or more words, remove the spaces between the words and use the resulting text in your query. For example, the following code matches pictures where the Date Taken property is August 23, 2014:

datetaken:8/23/2014

■ If the value uses two or more words and you want to match the exact phrase, surround the phrase with quotation marks. For example, the following code matches music where the Genre property is Alternative & Punk:

genre: "alternative & punk"

• If the value uses two or more words and you want to match both words in any order, surround them with parentheses. For example, the following code matches music where the Album property contains the words Head and Goats in any order:

album:(head goats)

■ If you want to match files where a particular property has no value, use empty braces, [], as the value. For example, the following code matches files where the Tags property is empty:

tags:[]

You can also refine your searches with the following operators and wildcards:

Matches files where the specified property is greater than the specified value. For example, the following code matches pictures where the Date Taken property is later than January 1, 2014:

datetaken:>1/1/2014

>= Matches files where the specified property is greater than or equal to the specified value. For example, the following code matches files where the Size property is greater than or equal to 10,000 bytes:

size:>=10000

< Matches files where the specified property is less than the specified value. For example, the following code matches music where the Bit Rate property is less than 128 (bits per second):

bitrate:<128

Matches files where the specified property is less than or equal to the specified value. For example, the following code matches files where the Size property is less than or equal to 1024 bytes:

size:<=1024

.. Matches files where the specified property is between (and including) two values. For example, the following code matches files where the Date Modified property is between August 1, 2014 and August 31, 2014, inclusive:

datemodified:8/1/2014..8/31/2014

* Substitutes for multiple characters. For example, the following code matches music where the Album property includes the word *Hits*:

album:*hits

? Substitutes for a single character. For example, the following code matches music where the Artists property begins with Blu and includes any character in the fourth position:

artists:blu?

For even more sophisticated searches, you can combine multiple criteria using Boolean operators:

AND (or +) Use this operator to match files that meet all of your criteria. For example, the fol-

lowing code matches pictures where the Date Taken property is later than January

1, 2014 and the Size property is greater than 1,000,000 bytes:

datetaken:>1/1/2014 AND size:>1000000

OR Choose this option to match files that meet at least one of your criteria. For exam-

ple, the following code matches music where the Genre property is either Rock or

Blues:

genre:rock OR genre:blues

NOT (or –) Choose this option to match files that do not meet

the criteria. For example, the following code matches pictures where the Type property is

not JPEG:

type:NOT ipea



note

The Boolean operators AND, OR, and NOT must appear in all-uppercase letters in your query.

Saving Searches

After taking all that time to get a search just right, it would be a real pain if you had to repeat the entire procedure to run the same search later. Fortunately, Windows 8.1 takes pity on searchers by enabling you to save your searches and rerun them anytime you like. After you run a search, you save it by clicking the Save Search button in the ribbon's Search tab. In the Save As dialog box that appears, type a name for the search and click Save.

Windows 8.1 saves your searches in the Searches folder, appropriately enough, and also adds each saved search to the Favorites section of the Navigation bar, so you can rerun a saved search with just a click.

Grouping and Filtering with Metadata

Metadata is a useful file system element, but people might not be motivated to apply metadata to their documents unless they can be convinced that metadata is worth the short-term hassle. The Windows programmers seem to understand this because they built two file-management techniques into File Explorer, both of which become more powerful and more useful the more metadata you've applied to your files. These techniques are grouping and filtering.

Grouping Files

Grouping files means organizing a folder's contents according to the values in a particular property. In the Windows 8.1 version of File Explorer, select the ribbon's View tab and then click Group By. This displays a list of the properties you can use for the grouping. Clicking one of these properties groups the files according to the values in that property. Figure 6.16 shows the Pictures folder grouped by the values in the Type property.

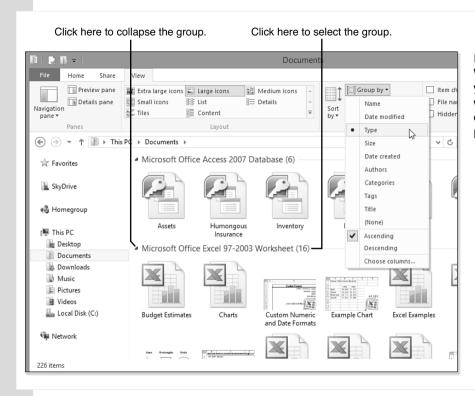


Figure 6.16
Windows 8.1 enables
you to group and
work with files based
on the values in a
property.

As Figure 6.16 shows, Windows 8.1 enhances the grouping feature with two new techniques:

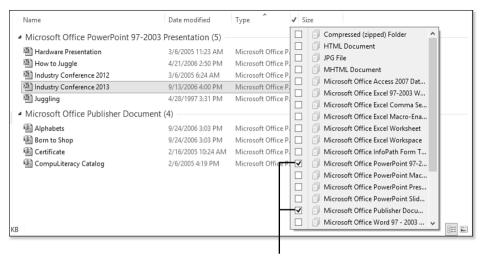
- You can select all the files in a group by clicking the group title.
- You can collapse the group (that is, show just the group title) by clicking the arrow to the left of the group title. (You can collapse all the groups by right-clicking any group title and then clicking Collapse All Groups.)

Filtering Files

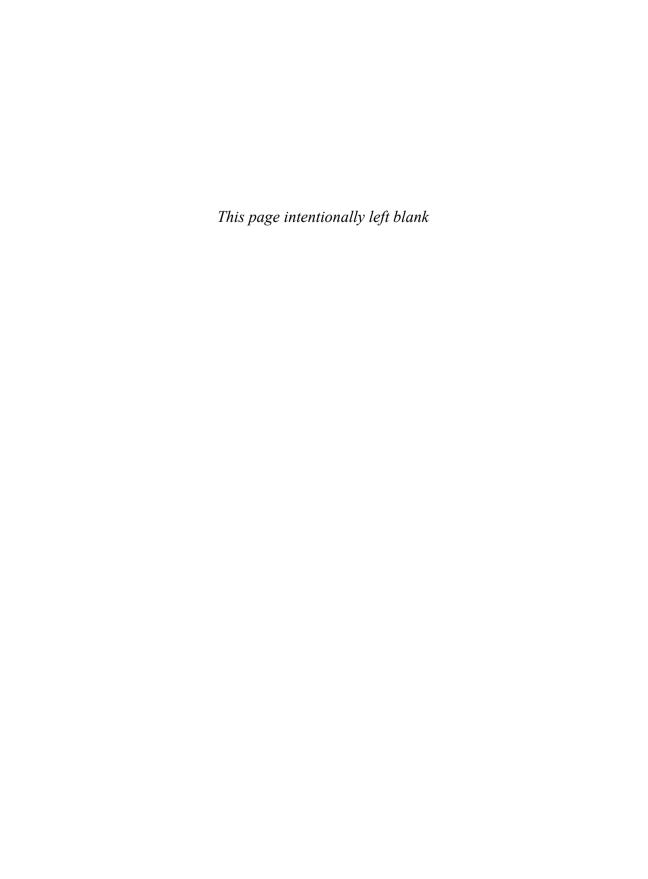
Filtering files means changing the folder view so that only files that have one or more specified property values are displayed. Returning to the Type property example, you could filter the folder's files to show only those where Type was, say, JPG Image or File Folder.

In Details view, when you pull down the list associated with a property's header, you see an item for each discrete property value, along with a check box for each value. To filter the files, activate the check boxes for the property values you want to view. For example, in Figure 6.17 we've activated the check boxes beside the BMP File and JPG File values in the Type property, and only those two types appear in the folder.

Figure 6.17 You can filter a folder to show only those files that have the property values you specify.



Activate the check boxes to filter the files.



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