Microsoft

Support
Secrets

Ed Bott

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Introduction

This ebook is for anyone whose responsibilities include training people to use Windows 10.

That group includes full-time professional trainers, of course, but it also includes IT pros and those brave souls who staff the help desk in corporations. Most of all, it includes the incredibly large population of people who have earned a reputation for being "the person who knows Windows."

With that knowledge comes a seemingly endless stream of questions from friends, family, and coworkers. As Windows 10 moves into its second full year and begins to take over an increasing share of the installed base of PCs, many of those questions are going to begin "How do I..."

That's where this ebook comes in. My goal here is to introduce the building blocks of Windows 10 to you in a way that can help you answer those questions quickly. It also offers the kind of information you need to go one step further, offering the kind of extended details about how Windows 10 works that might, just might, answer that next question before it's even asked.

I'm grateful to the developers and designers at Microsoft who are building Windows 10, for giving me an operating system that's fun to write about. I'd also like to thank Microsoft Press, which gave me complete editorial independence for this project. Every word in this book comes from my personal experience. I hope you find it useful.

I encourage you to share your feedback about this book directly with me. Email your comments to me at feedback@realworldwindows.com.

Ed Bott
July 7, 2016

Acknowledgments

I'd like to thank the good folks at Microsoft Press—Anne Hamilton, Rob Linsky, and Rosemary Caperton—for their efforts at making this project happen. And a special thanks to Bob and Dianne Russell at Octal Publishing, Inc., who helped turn around this project and create the great-looking ebook you're reading right now.

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Getting started with Windows 10

Whether you're training a classroom full of office workers or engaged one-on-one with a harried small business owner, your first challenge in introducing Windows 10 is helping each user to become comfortable with new ways of doing familiar tasks. The amount of change can be overwhelming, especially for nontechnical users who've grown accustomed to Windows 7 after years of everyday use.

This chapter offers a roadmap for providing that sort of reassurance, by showing off 10 features every new user should learn on their first day using Windows 10.

In this chapter, I focus on how to demonstrate these capabilities rather than digging into details. The goal is to avoid overwhelming the first-time user with step-by-step instructions; instead, you want to build a natural sense of excitement and what's possible.

Of course, what your users see on their screens might vary from what I describe here, based on what your IT department policy allows them to do.

Your options for signing in

The best place to begin introducing Windows 10 to a new user is the sign-in screen. Start by explaining the four different account types that Windows 10 supports:

- **Microsoft account** On desktop PCs and laptops that aren't joined to a Windows domain, this is the most commonly used account type. Signing in with a Microsoft account allows access to online services such

as Microsoft OneDrive and Outlook Mail. More important, it makes it possible for the user to sync settings (including saved passwords and access to Store apps) between Windows 10 devices.

- **Local account**   This is the traditional account type, consisting of a user name and password that are stored locally and not linked to any cloud services. It takes a few extra steps to create a local account, but some traditional users are more comfortable with this configuration.

- **Domain account**   These accounts are common on corporate networks powered by Windows servers running Active Directory services. This type of setup gives network administrators significant control over device configurations through the use of Group Policy.

- **Azure Active Directory (Azure AD)** Organizations that use Microsoft online services such as Office 365 can take advantage of its directory services without requiring that a PC be fully managed. The Join Azure AD button is on the Accounts page in Windows 10 Settings.

Figure 1-1 shows the sign-in screen as it appears on PCs running the Windows 10 Anniversary Update. Both of the accounts on this screen are Microsoft accounts; the option to show email addresses has been turned off.
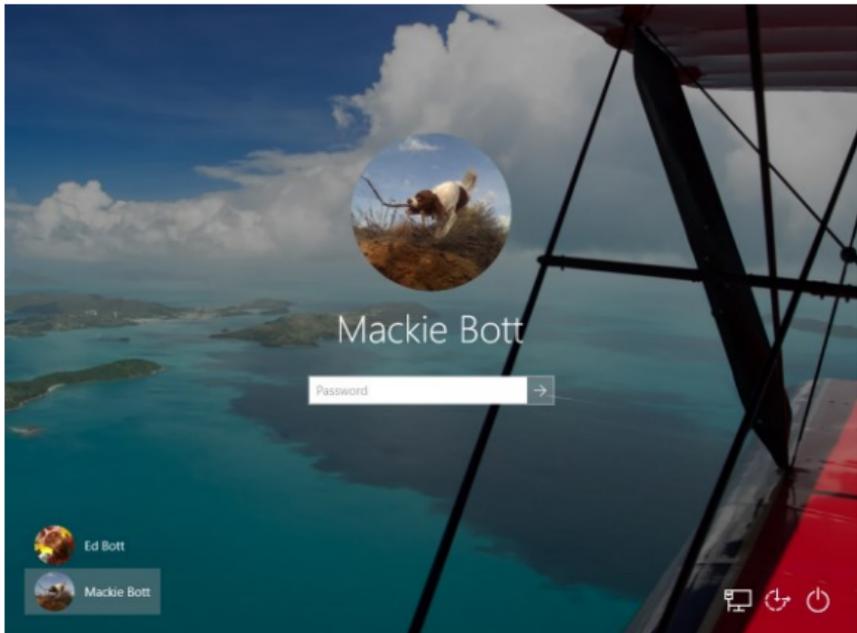
Figure 1-1: The sign-in screen your users see might look a bit different, depending on which account types are in use.

One common complaint you're likely to hear from users is that they're annoyed with the requirement to sign in, especially if they follow best practices and secure their account with a strong password made up of a mix of capital and lowercase letters, numbers, and symbols.

They're right: Signing in with a password can be inconvenient. That's why there are other sign-in options available, including setting up a simple PIN that can be used to sign in on a device after the user has entered that complex password.

Figure 1-2 shows the Sign-In Options page in the Settings app, where you can change an existing password or set up and manage a PIN.

Settings ← □ ✕

⚙ Sign-in options

☺ Windows Hello

Sign in to Windows, apps and services by teaching Windows to recognize you.

Learn more about Windows Hello

Face Recognition

[Improve recognition] [Remove]

Automatically dismiss the lock screen if we recognize your face

[⚪] Off

🔑 Password

Change your account password

[Change]

PIN

You can use this PIN to sign in to Windows, apps, and services.

[Change] [Remove]

I forgot my PIN

Figure 1-2: The PIN option on this page offers a way to reduce the inconvenience of signing in with a strong password. Organizations can control PIN policy.

It's worth noting, by the way, that a Windows 10 PIN requires a minimum of four digits, but for extra security you can also set a PIN with more than four digits. Using Group Policy, an administrator can enforce complexity requirements for PINs, including mandatory use of letters and symbols in addition to numbers. These policies are available under Computer Configuration > Administrative Templates > Windows Components > Microsoft Passport for Work.

Another sign-in option, Windows Hello, uses biometric identification such as a fingerprint or facial recognition. Setting up Windows Hello requires specialized hardware, such as the webcam with infrared features found on the Microsoft Surface Pro 4. If your users have Windows Hello–compatible hardware, setting up facial recognition is an especially impressive demonstration.

Take charge of Start

Over the past few years, the poor Start button has had its own identity crisis. In Windows 8, it disappeared completely, along with the Windows 7 Start menu. Windows 8.1 brought the Start button back, but only as a way to

switch between the Windows 8 Start page and the traditional desktop.

In Windows 10, the Start button is back in its familiar location on the left side of the taskbar. Clicking or tapping that button opens a menu of sorts, although Microsoft prefers to call this the Start experience.

Over time, you can expect to see the Start experience change slightly. Figure 1-3, for example, shows the Start experience as it appears in Windows 10, version 1511, which was released in November of 2015.
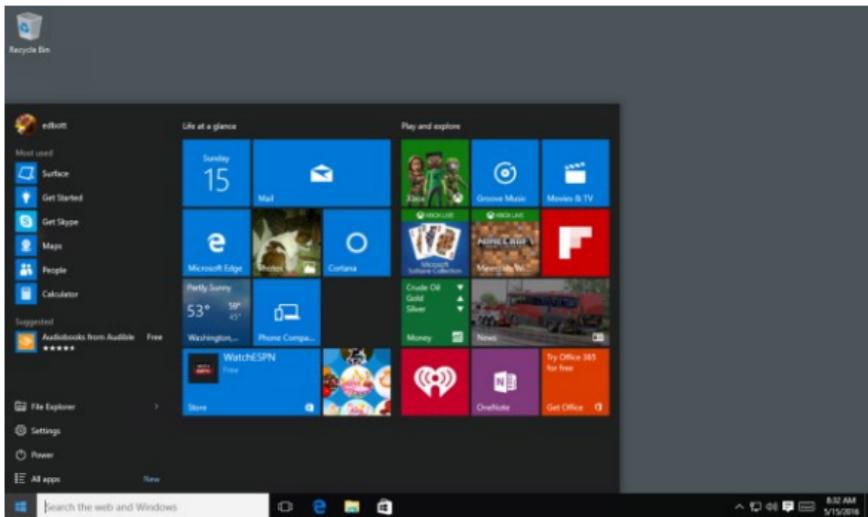
Figure 1-3: This version of the Windows 10 Start experience blends some aspects of the Windows 7 Start menu with the live tiles of Windows 8.

In that iteration of Start, you can click All Apps (just above the Start button and below Power) to

display a scrolling, alphabetical list of every installed app, including Windows desktop programs.

The Windows 10 Anniversary Update, which is scheduled for general release on August 2, 2016, brings some additional changes to the Start experience. That All Apps list, for example, becomes a permanent fixture on Start, and in Tablet Mode you can replace the pinned tiles with a scrolling full screen that shows all apps in alphabetical order. See Chapter 2 for a preview of those and other changes you can expect to see in the Anniversary Update.
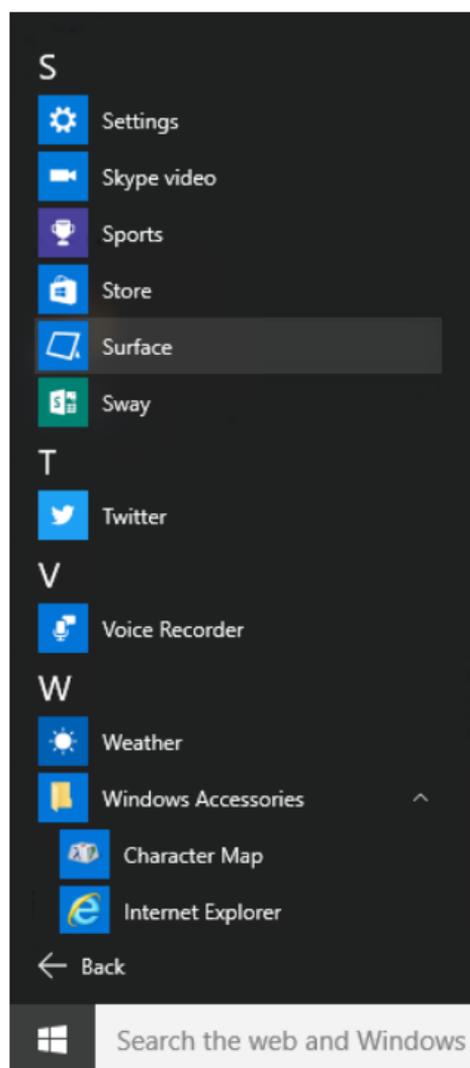
In Windows 10, you have a long list of personalization options for Start, which I cover more fully in Chapter 2. Just for starters, it helps to show users how to unpin, resize, and uninstall pinned tiles from Start, especially for some of the games and third-party apps that are included by default on Start.

This is a tile-by-tile process. Right-click any tile to open a shortcut menu like the one shown in Figure 1-4. Unpinning a tile from Start leaves it on the All Apps menu. Uninstalling an app removes it from that user's profile. After clearing away unwanted apps, pinning frequently used apps to Start and to the taskbar, and changing the size of pinned tiles, the experience feels much more personal.
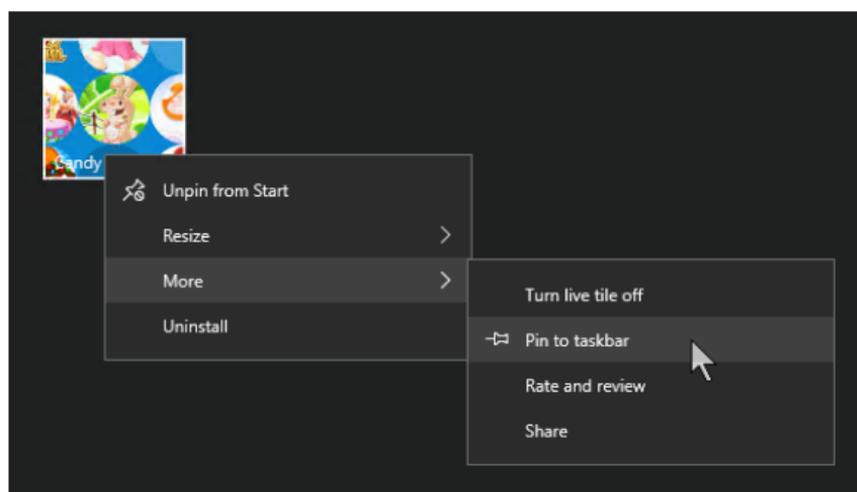
Figure 1-4: You can pin any app you find on Start to the taskbar for even quicker access. Right-clicking an app in Start provides these additional options, including the ability to unpin and uninstall an app.

Discover what's new on the Windows 10 desktop

After you move past Start and return to the desktop, even the most grizzled Windows veteran should be able to find familiar territory. The buttons on the taskbar bear a strong resemblance to their counterparts from earlier Windows versions, as do the notification area and clock on the right.

One Windows 10 addition worth pointing out to recent upgraders is the Task View button (to the right of the search box in Figure 1-5), which displays thumbnails of all open apps in the center of the display. (You can achieve the same results by using the keyboard shortcut Windows key+Tab.)
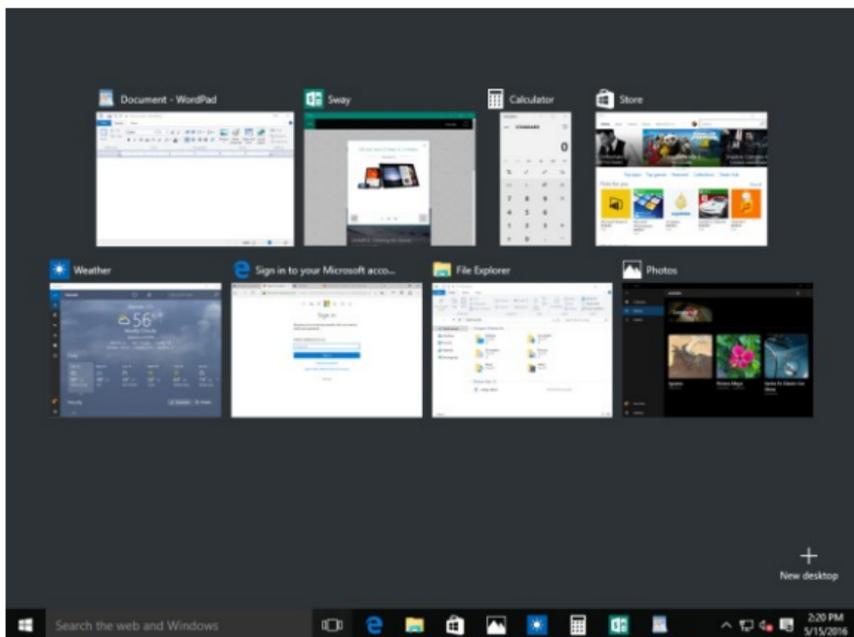
Figure 1-5: Task View shows thumbnails of all open windows. Simply click or tap one to switch to a different window.

Also new in Windows 10 is the addition of virtual desktops, which you can use to group open windows separately. I discuss this and the various window-snapping options in Chapter 2.

New apps and the Windows Store

Although this book focuses on Windows 10 on PCs and tablets, the Windows 10 platform extends far beyond those narrow borders to include the Microsoft Xbox One console, phones,

and even the Internet of Things (IoT). Thanks to the Universal Windows Platform (UWP), developers can write apps that target any or all of those platforms.

For anyone who previously used Windows 8, the apps delivered through the Store will be superficially similar. That earlier generation of apps offered many of the same advantages as their Windows 10 successors: For starters, they're more secure than traditional desktop programs. They can be easily reinstalled on other devices using the same Store account, and any settings are synced across devices, as well. One major difference in Windows 10 is that these more modern apps can run in a window and can thus be arranged alongside legacy desktop apps.

The Windows 10 Store offers access not just to apps, but also to music, games, movies, and TV shows. Figure 1-6 shows the Store's home page, illustrating the built-in search capabilities.
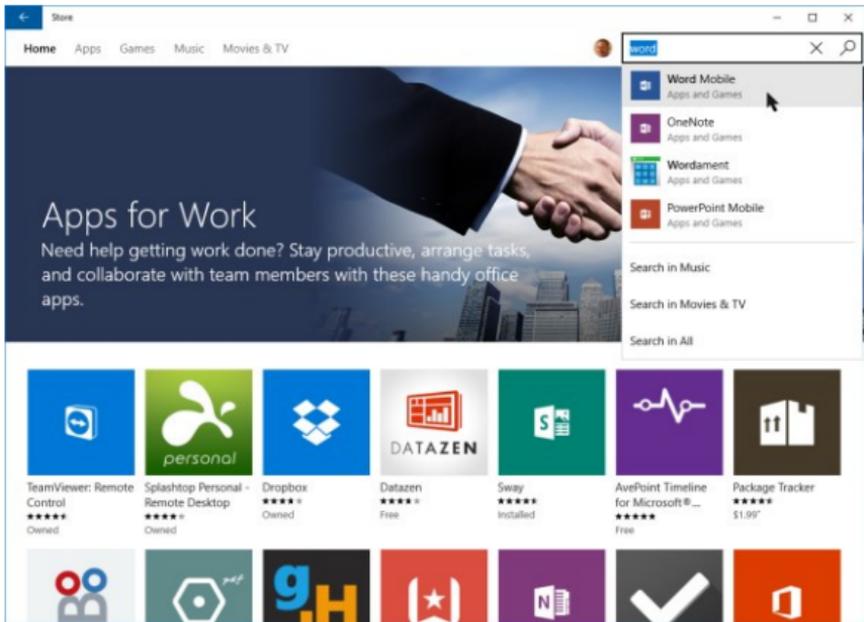
Figure 1-6: Type a term in the search box to find matching apps, games, music, and movies, or choose one of the options from the menu bar to browse by category.

In my experience, many longtime Windows users are likely to be skeptical of Store apps, believing that they're not capable of offering the same productivity as desktop programs. That's especially true for anyone who briefly tried the first generation of apps for Windows 8 and was underwhelmed.

Windows 10 includes a wide assortment of UWP apps: Mail and Calendar, Photos, News, and Weather, for example, as well as Groove Music and Movies & TV, both of which I cover in Chapter 4.

Figure 1-7 shows the Photos app in action. Normally, the left edge of the app shows only a column of icons, but clicking the so-called "hamburger" button—the three horizontal lines in the upper-left corner—expands that column to show labels and other settings. This option is common in UWP apps.
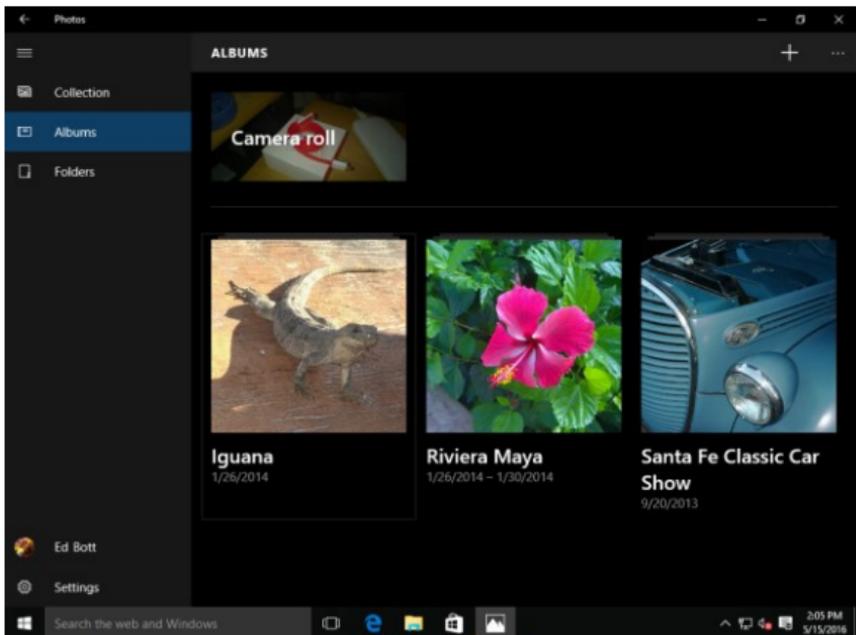
Figure 1-7: Click the small button in the upper left, the one made up of three horizontal lines, to open the menu beneath it. This interface element is common in Universal Windows Platform apps.

The Store includes apps that were originally written for Windows 8, which have different user interface conventions. That can be a source of confusion for users.

Microsoft Edge

One of the most fundamental changes in Windows 10 is a new default web browser, Microsoft Edge. The engineers who developed Edge concentrated on making it work with the web as it exists today, rather than trying to maintain compatibility with older versions, as was the case with Internet Explorer, the default browser in previous Windows versions.

Edge has a radically simplified user interface, with large controls that work equally well with a mouse or touch. As you can see from Figure 1-8, you can click the star on the address bar to save a link to a web page as a Favorite, the preferred option for sites you visit regularly, or to a Reading List, which is ideal for making a note of interesting pages you want to visit later.
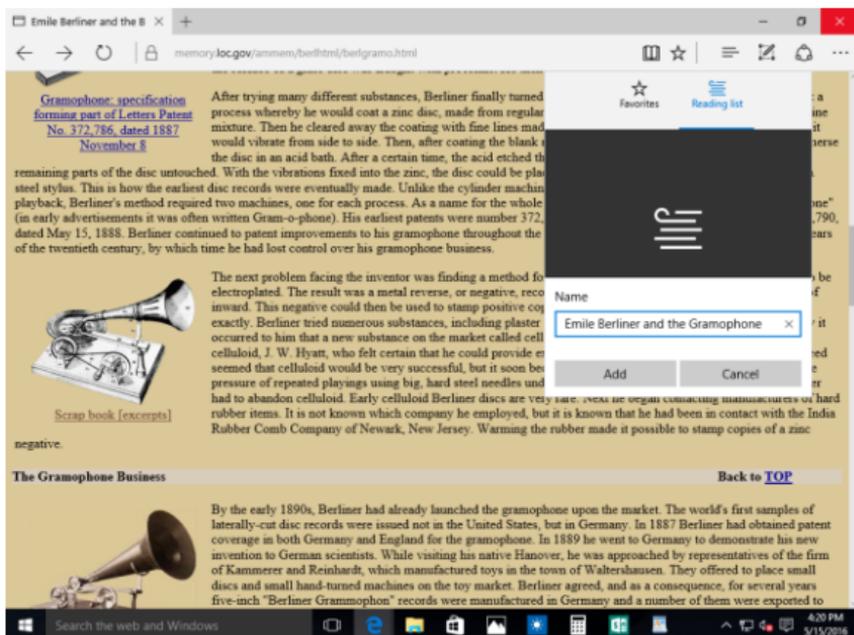
Figure 1-8: The simplified user interface of Microsoft Edge includes the options shown here, to add webpage links to the Favorites or a Reading List, both of which you can sync to other Windows 10 devices.

One of the most useful features in Edge is Reading View, which you turn on by clicking a button on the address bar. With Reading View on, Edge identifies the main content on the page, strips away clutter such as navigation elements and advertisements, and presents the content in a format that's typically much easier to read than the original.

Figure 1-9 shows an example of the webpage from Figure 1-8 after it's been converted into Reading View. The larger type and uncluttered

layout makes this long article much easier to read.
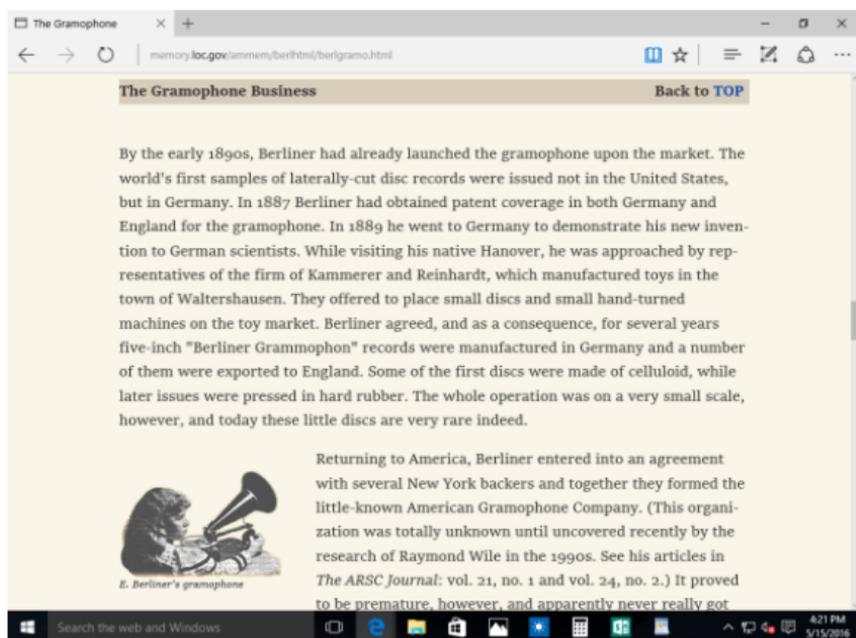
Figure 1-9: In Reading View, Edge strips away clutter and reformats the page with typography and margins that make longer articles much easier to read.

For users who prefer an alternative web browser, it's easy enough to switch. After installing the browser, open Settings > System > Default Apps, click the program listed beneath the Web Browser heading, and then choose the alternative.

Say hello to Cortana

Just to the right of the Start button is a search box. By default, it acts much like its counterpart in earlier Windows versions. Type something in that box and you get a list of matching apps, settings, files, photos, and so on.

That box serves a second purpose, as well, but only after the user specifically activates the Cortana service. With the option turned on, Cortana functions as an intelligent assistant, able to provide answers, reminders, news, and other information that's based on the user's interests and activities. Figure 1-10 shows Cortana in action.
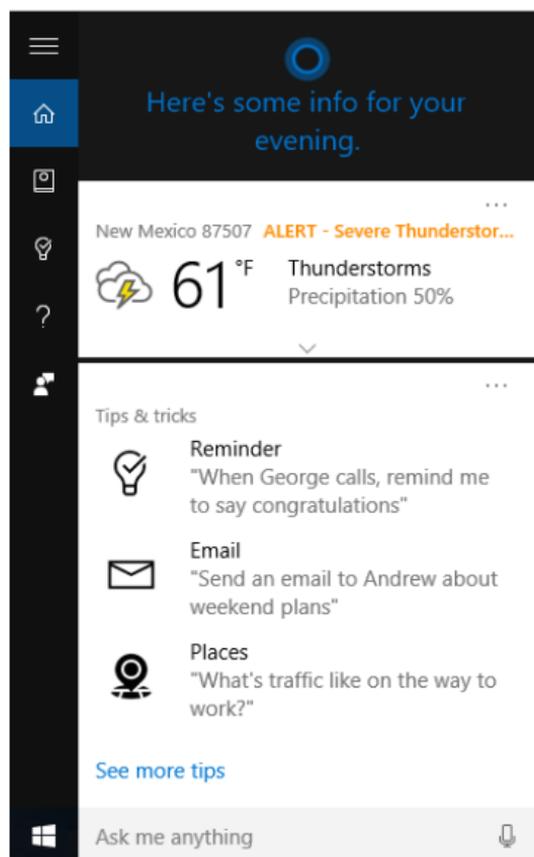
Figure 1-10: Cortana provides relevant information, including weather alerts for the current location and customized news and sports briefings. You can also interact directly with Cortana by typing or talking.

With the right hardware, Cortana can also respond to voice input, even waking up when you say "Hey, Cortana."

Organizations can choose to restrict the use of Cortana, of course, but among small businesses and home users it can be both fun and useful. Unlike similar services on other platforms,

Cortana offers an enormous array of customization options in its Notebook, shown in Figure 1-11. There, you can connect email and calendar accounts and tell Cortana more about your preferences (favorite sports teams, for example), making the results more personal.
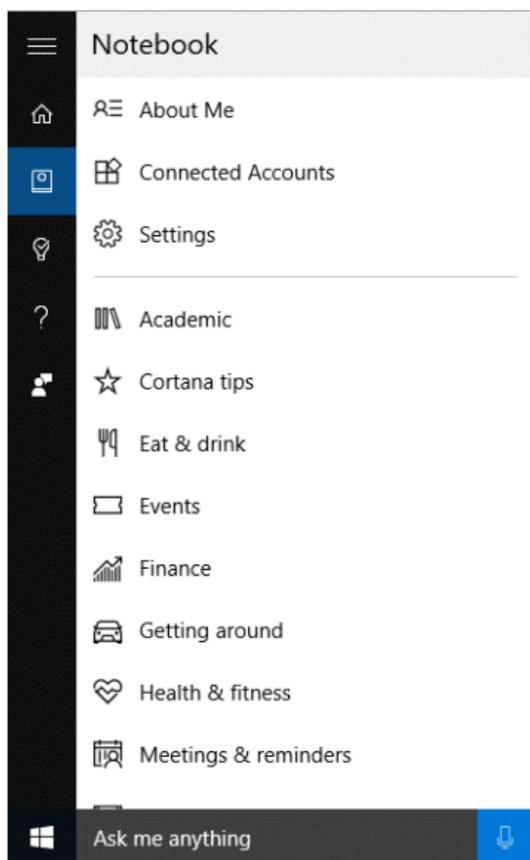
Figure 1-11: Each of the categories in Cortana's Notebook gives you a way to provide additional details about that category, or turn that category off completely if you prefer.

I talk more about Cortana's personalization options in Chapter 2.

Settings

If you need to change the look or feel of Windows, your starting point has traditionally been Control Panel. With Windows 10, the new go-to destination is the Settings app. It debuted, in very modest form, with Windows 8, but over time tasks that would previously have required the old Control Panel have been migrating to Settings. That process accelerates with the 2016 Anniversary Update, which adds a visual makeover to the Settings app.

Figure 1-12 shows the nine basic categories for all Windows 10 settings, each of which contains additional layers of organization.
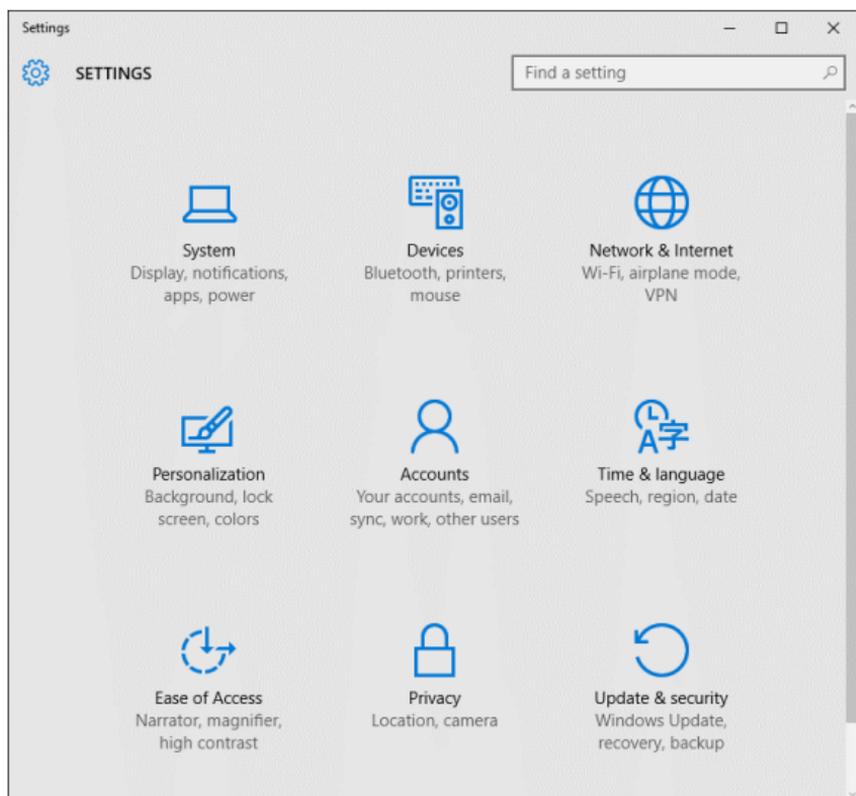
Figure 1-12: Over time, many configuration and personalization options that were previously part of Control Panel have gone.

You can click to dive deeper into each category and find its buried treasures, but the most important feature to show new users is the search box at the top of the page, which is extremely effective at tracking down the exact setting you're looking for. Even more impressive is that the results of those searches also return the occasional setting that is still in the old-style Control Panel.

Figure 1-13 shows one such set of search results, from Windows 10 version 1511. Note the generic gear icon alongside each of the new settings, compared with the more familiar photo-style icons next to Control Panel options. Those gears go away as of the Anniversary Update, replaced by distinctive iconography that follows the Windows 10 design guidelines.
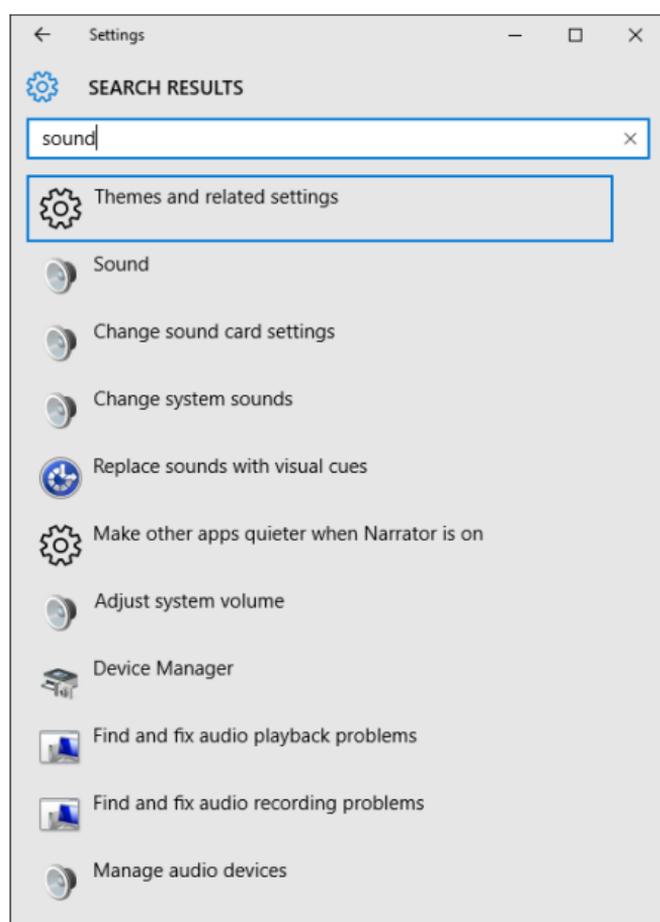
Figure 1-13: Using the search box in Settings returns results from Control Panel, as well. Intelligent indexing

finds related options even if they don't contain the exact search term.

Windows Update

The name's the same, but everything else about Windows Update is profoundly changed in Windows 10. Here are the most important differences that new users should know about:

- **Monthly updates are cumulative**   If you pull a Windows 10 PC off a shelf after several months of activity, you don't need to install all of the individual updates that were released during the intervening months. The most recent month's cumulative update has all the updates in a single package, like the one shown in Figure 1-14.
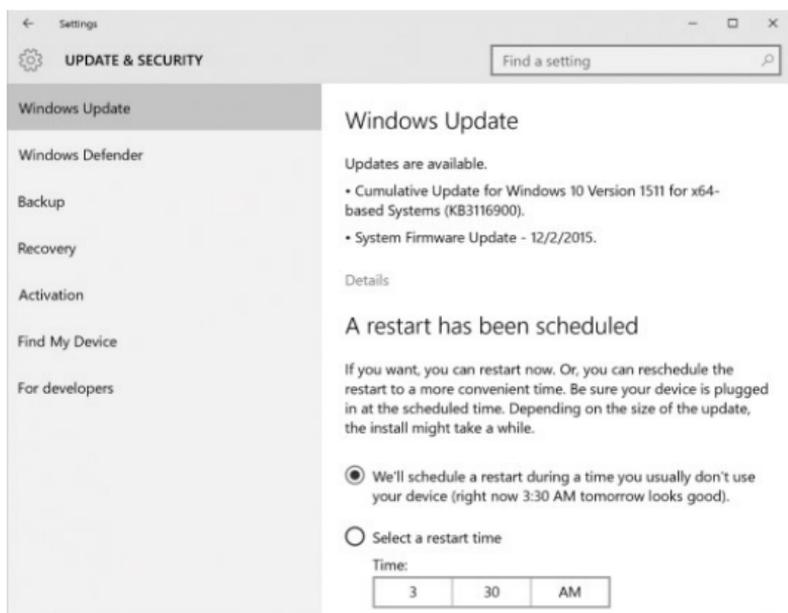
Figure 1-14: Cumulative updates in Windows 10 mean you don't see a long list of individual updates each month. You can reschedule those updates but you can't postpone them forever.

- **Updates include bug fixes and new features** Earlier Windows versions delivered new features only in paid upgrades; with Windows 10, you're likely to see new features, big and small, as part of a monthly update.

- **All updates are automatic** You can schedule when updates are installed (and in the Anniversary Update, this capability is significantly expanded), but you can't postpone them indefinitely. Businesses have a few options to defer reliability and feature

updates, but those typically require an IT staff to configure.

Recovery

One of the most impressive features in Windows 10 is its ability to recover from serious problems with the click of a button or two. The Reset feature is ideal for getting a fresh start or preparing a PC for someone else to use. In the latter scenario, you can choose to clean personal data from the drive so that it can't be easily recovered, as shown in Figure 1-15.
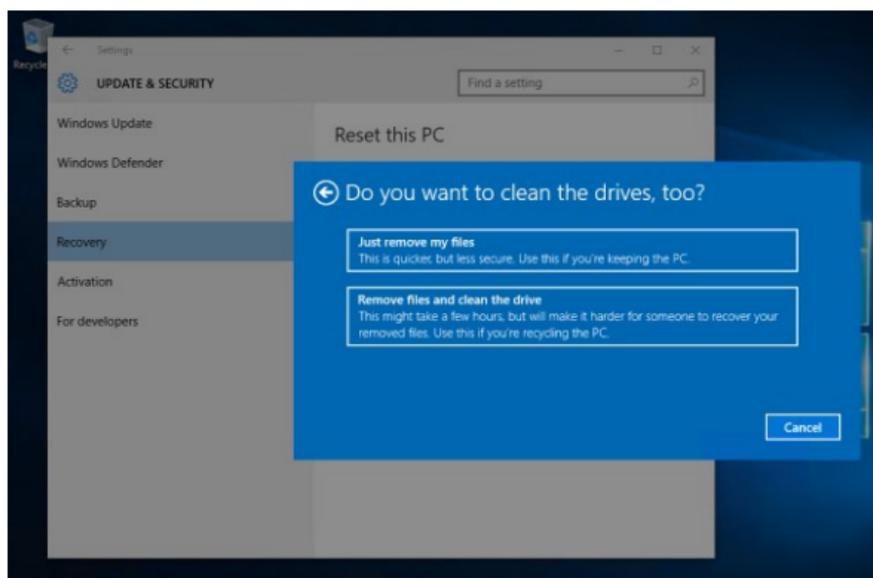
Figure 1-15: Using the Reset option for Windows 10, anyone can do the equivalent of a clean install without requiring advanced technical skills.

Embrace the cloud

Windows 10 was designed with the expectation that you have ready access to the global Internet. One of the key pieces of that architecture is OneDrive, a cloud-based service capable of storing files, photos, music, and settings from every Windows PC on which you sign in with a Microsoft account.

The OneDrive synchronization client, included with Windows 10, gives you the option to move your local Documents and Pictures folder into the cloud, making for an extremely effective backup mechanism. The OneDrive Settings dialog box, shown in Figure 1-16, includes these options on a dedicated tab.
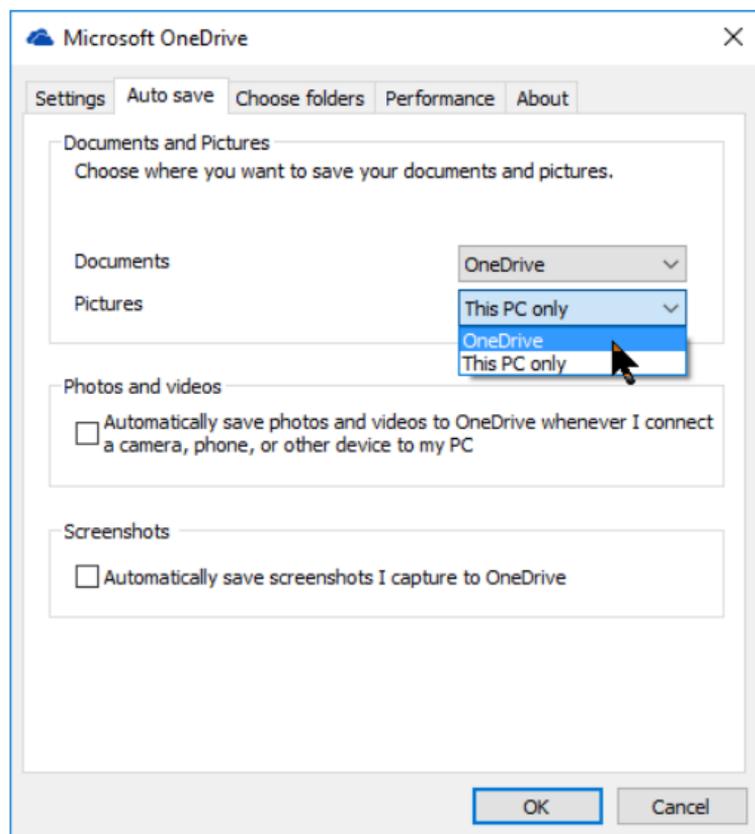
Figure 1-16: Using Microsoft OneDrive, you can move your working files and photos into the cloud, for backup and easy access from other devices.

Learn to love change

For this chapter, I promised a list of 10 facts that every new user needs to know about Windows 10.

If you've been paying attention, you know this final item is actually number 11.

That's oddly appropriate, because it illustrates one of the survival skills your users need to adopt with Windows 10: Things will change, often when you least expect them. In the era of "Windows as a service," you can expect a much faster pace of change in the way things work. Some of those changes will be small and welcome; others will be significant and require some adjustment.

For the most part, the big wrenching changes will appear as feature updates, delivered once or twice a year. After the initial release of Windows 10 in July 2015, for example, Microsoft delivered a major update in November 2015. In the process, it introduced a new version numbering scheme. Version 1511 identifies the year and month of the feature update, just as the Anniversary Update is version 1607 (July 2016).

In the not-so-distant past, a new version of Windows arrived every few years. In the new world, you can expect at least one and perhaps two such upgrades every year.

Personalizing the Windows 10 experience

Every Windows 10 PC starts with a default configuration. PC makers add their own touches, typically in the form of add-on software and custom tiles on Start. In organizations, network administrators can install and remove software during the deployment process and can use Group Policy to define capabilities on PCs that are joined to the Windows domain.

After all that, it's up to the user to personalize the experience.

Windows 10 includes an impressive array of customization options. Some are purely esthetic: Users can change accent colors, control the transparency of the taskbar and Start menu, and add a personal photo as a desktop background, for example.

Other customizations—such as pinning apps to Start and to the taskbar—help make it easier for people to organize the tools they use every day.

It's tempting to think of all these personalization options as mere eye candy, trivial in comparison to more "serious" configurations options. But those seemingly small changes help people become truly comfortable with new technology, and that ultimately translates into productivity.

Start

In the beginning, more than 20 years ago, there was the Windows 95 Start button, which actually included the word *Start*, alongside the stylized Windows flag logo.

That distinctive logo is still in the same place at the left of the Windows 10 taskbar, but the text is now hidden by default. Click the button in the upper-left corner to display labels for the column of icons on the left, with Start at the top.

Despite two decades' worth of visual changes, what happens when you click the Start button has remained consistent through the years, at least in broad terms. In Windows 10, Start blends elements of the original Windows 7–style Start menu and the Windows 8 Start screen. The result looks something like what you see in Figure 2-1.
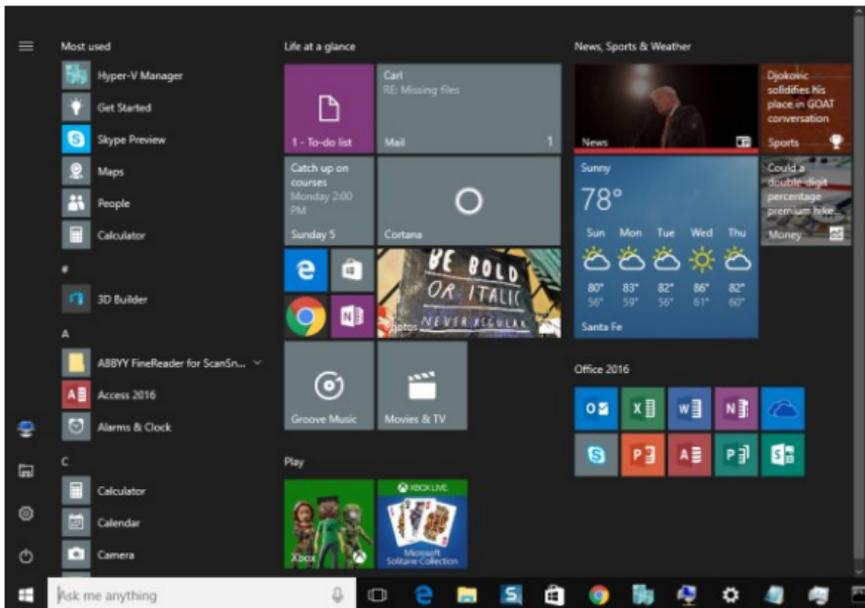
Figure 2-1: Since the initial release of Windows 10, Start has evolved. This layout, with a scrolling alphabetical list of apps on the left, is new in the 2016 Anniversary Update.

Note The arrangement of elements on your Start menu might look a bit different from what you see in Figure 2-1. If you see an All Apps button instead of a scrolling list, for example, you're running Windows 10, version 1511. The changes visible here are a part of the Anniversary Update, version 1607, which was available as a near-final preview at the time this book was prepared.

Building the perfect Start menu in Windows 10 isn't something you do in one session. Instead, it's an iterative process that occurs over time, as you remove clutter, add new apps, and arrange tiles and folder shortcuts for quick access. Some of those customizations involve dragging and dropping; others rely on shortcut menus that you can access with a right-click. A few global options appear in Settings > Personalization > Start, as shown in Figure 2-2.
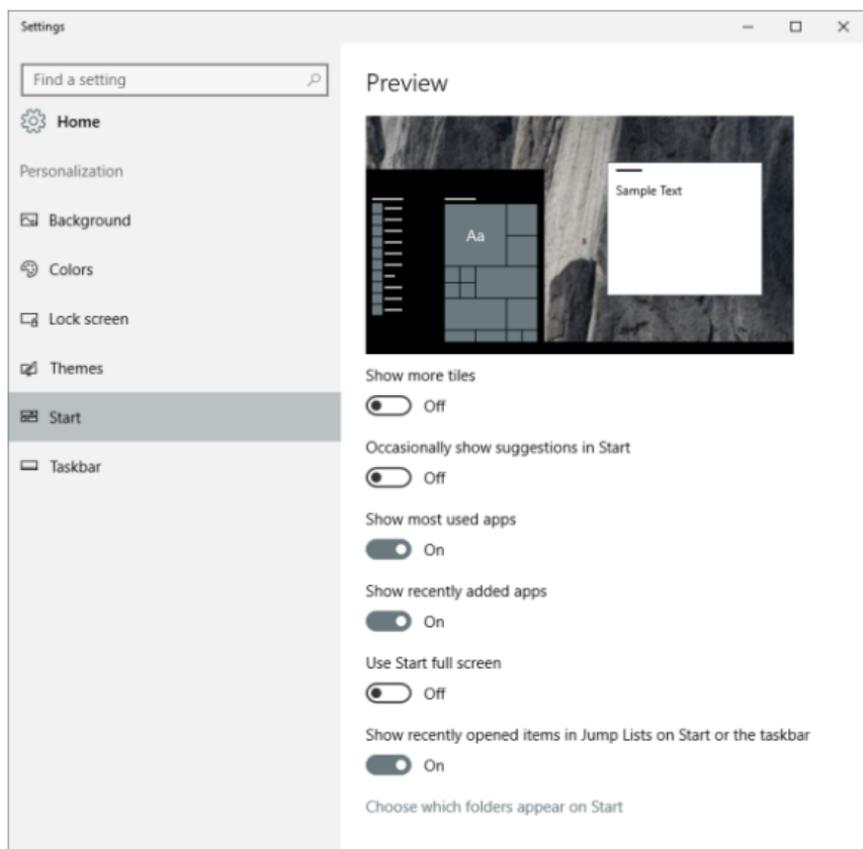
Figure 2-2: This batch of settings applies to the entire Start menu. If you find the most-used-apps list superfluous, turn it off to clear its space.

On PCs you own and control, how you choose to arrange Start is strictly a matter of personal preference. (In corporate settings, administrators might dictate an initial layout and restrict other settings.) You can, for example, make any of the following changes:

- **Customize the list of icons in the left column** By default, that slender column of

icons just above the Start button shows your user profile picture and a Power button as well as icons for File Explorer and Settings. You can remove either of those last two items and add some shortcuts to commonly used folders, such as Documents and Downloads. You can also opt to show icons for your user profile folder. Here's what one such menu looks like after some customizing.
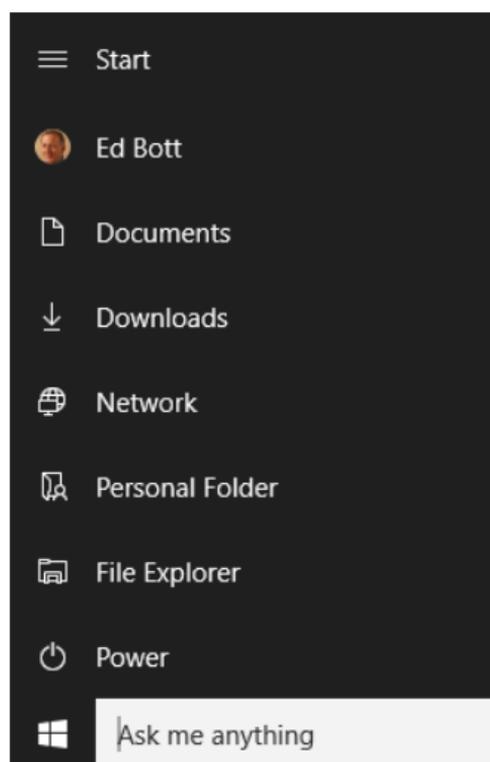
- **Change the size of Start**   To make Start taller or shorter, drag the top edge. Drag the right edge to make room for extra groups of

tiles in the space on the right (the width of the left side is fixed). If you want Start to occupy the entire display, select the Use Start Full Screen option in Settings.

- **Add or remove tiles**   Drag any icon from the scrolling alphabetical list of apps and drop it on the right side to pin it to Start. To remove a pinned tile from Start, right-click it and then, on the shortcut menu that opens, click Unpin From Start. To completely remove an app you don't want, right-click its tile and then click Uninstall. (Note that you cannot uninstall some apps included with Windows.)

- **Turn live tiles on or off**   Live tiles show information from the associated app: the subject line and sender's name for email messages, upcoming Calendar appointments, weather forecasts, news headlines, and so on. If you find the live-tile information from a specific app distracting, right-click the tile, click More, and then click Turn Live Tile Off.

- **Resize tiles**   Windows 10 supports a total of four different tile sizes: Small, Medium, Wide, and Large. Not every app supports every tile size. The Large size is ideal for apps like Weather that provide detailed

information on live tiles. The Small size shows no live tile information and is best suited for desktop apps. To change the size of a tile, right-click it and then choose Resize.

- **Arrange tiles into groups**   You can drag individual tiles anywhere on the tile space, which scrolls down if necessary. Tiles snap automatically into place on an invisible grid, with adjacent tiles grouped under headings that you can customize by clicking and typing. Dragging a tile away from existing tiles creates a new group.

Note Using Group Policy and deployment tools, network administrators can create a standard Start menu and apply it to domain-joined machines. To take advantage of this option, first create a Start layout that has the settings and arrangement of tiles that you want to assign to users. Use the Windows PowerShell cmdlet Export-StartLayout to generate an XML file containing those settings and save it on a network share or in a local folder. Finally, open Group Policy > User Configuration > Start Menu And Taskbar, set the Start Layout policy object to Enabled, and then type the location of your Start Layout file. Note that when this policy is turned on, your users can't make any customizations to tiles on Start.

Cortana and the search box

The search box, just to the right of the Start button, is one of the most useful features in all of Windows 10. If you're looking for an app or a Windows setting, the fastest way to find it is usually to just begin typing in the search box. Windows returns results instantly, refining them on the fly as you type. It usually takes only a few letters to narrow down your search.

Figure 2-3 shows the search results after typing just four letters, for example, with results organized by category—Apps, Settings, Photos, Documents, and so on.

Best match

Task Manager
Desktop app

Apps   >

○ **Task** Scheduler

▣ **Task**Bar Icon

Settings   >

▭ **Task**bar settings

▭ **Task**bar notification area

▣ **Task** Manager

Photos   >

Documents   >

▣ Ch05 - **Task** Manager_CE_EB2.docx

Web   >

○ task

⬚ ⚙ ▯ ▯ ⊡ ▭ ♫ ✉ ▦ ⚿ ○

⊞ task
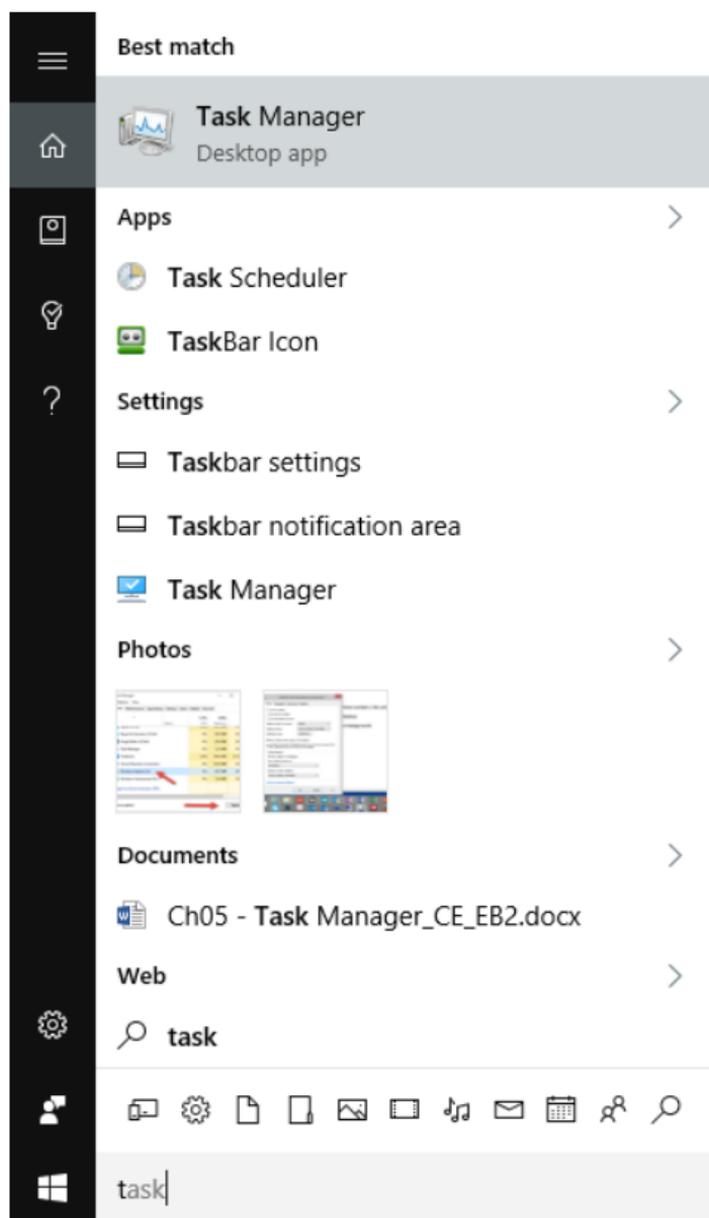
Figure 2-3: As you type in the search box, the list of results updates immediately. Use the icons just above the search box or click a category to show just those results.

If you know the exact category of the item you're searching for, you can refine the search by using the row of icons just above the search box to pick that category. Most of the icons are fairly obvious, but if you're puzzled, just move your mouse pointer over one to see what it stands for.

Based on that description, the behavior of the Windows 10 search box isn't all that different from what you and your users have become accustomed to in previous Windows versions. But all that changes as soon as you flip the On switch for Cortana, Microsoft's intelligent personal assistant.

With Cortana on, keyword-based searches continue to work as expected. But Cortana also has a few extra tricks up her sleeve. And yes, "her" is the right pronoun to use here. Cortana is named after a female character in the popular game Halo, and she communicates with a very natural-sounding female voice if you ask a question.

She also has a sense of humor. I couldn't remember exactly which game the name *Cortana* came from, so I clicked the microphone button on the right side of the search box and asked

what I thought was a perfectly reasonable question. This is what I received in reply.
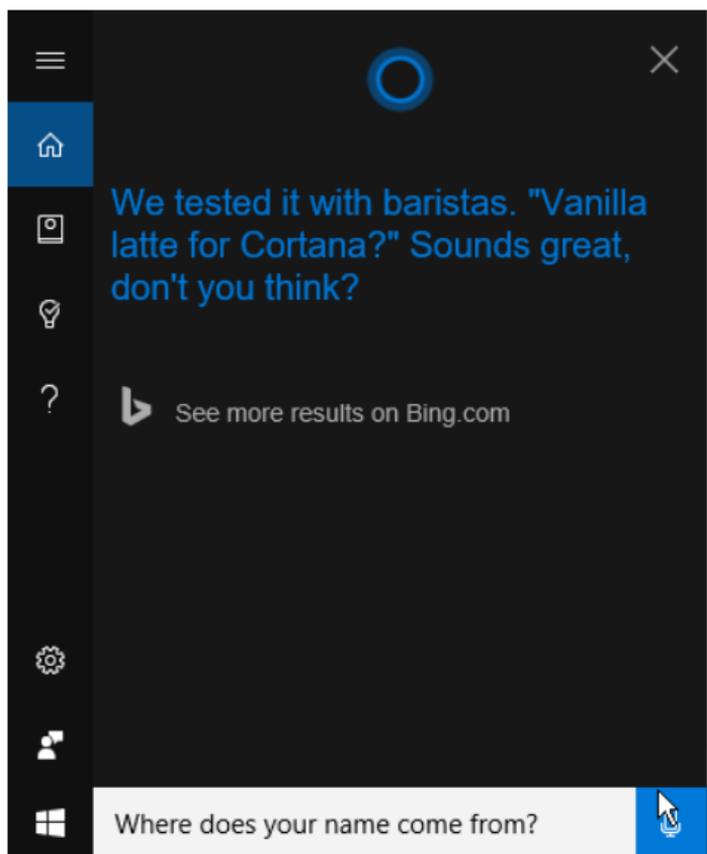
Actually, that's pretty funny, and it's just one of the small tricks Cortana can do. If your hardware has a suitable microphone array, you can ask questions by starting with "Hey Cortana." To turn on that feature, click in the search box and click the Settings icon on the left. That long list begins with a switch you can use to turn Cortana on or off at any time. Slide the Hey Cortana switch to the On position, as shown in Figure 2-4, to

activate voice control, and then use the additional voice training features to improve recognition.
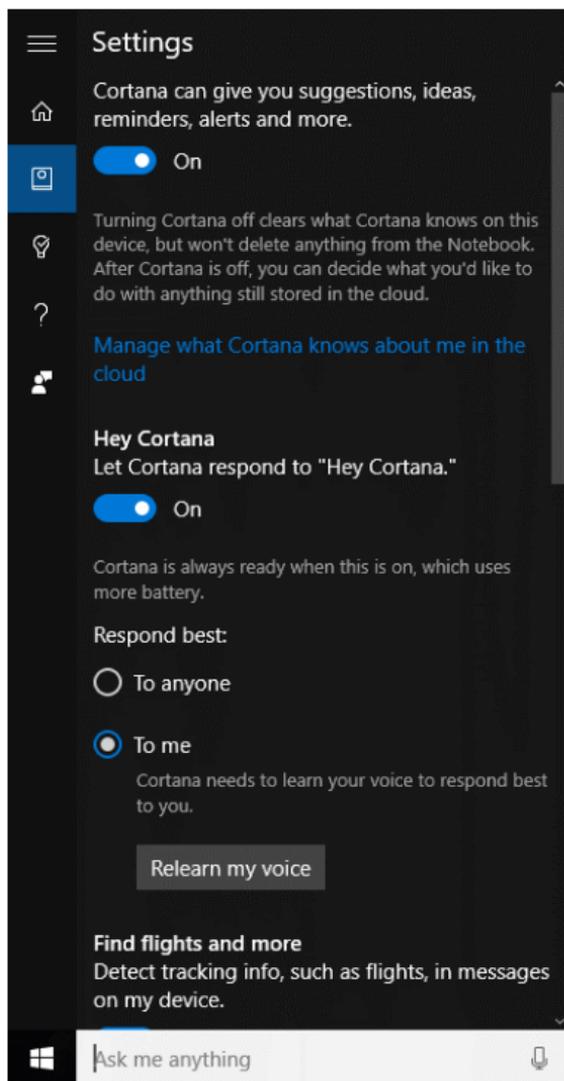
Figure 2-4: On a Windows 10 PC with a high-fidelity microphone array, you can talk to Cortana.

Cortana requires that you sign in with a Microsoft account, which connects to a web service that is continually evolving. After making that initial connection, you can open Cortana's Notebook, shown in Figure 2-5, to fine-tune what Cortana keeps track of for you.
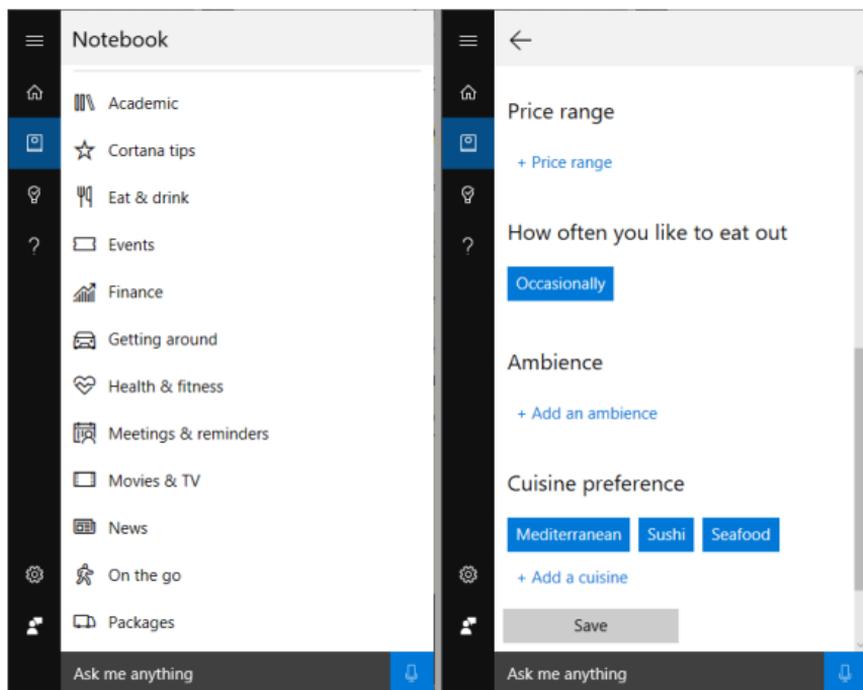
Figure 2-5: Use this Notebook to tell Cortana about what you're interested in and what you really don't care about.

If you connect email and calendar accounts, Cortana can keep track of your schedule and alert you when it's time to leave, based on live traffic conditions. You can have Cortana set reminders, keep track of packages and

upcoming flights, monitor stock prices for ticker symbols you specify, and deliver news headlines, weather forecasts, and sports results, all based on the interests stored in your Notebook.

Customizing the background and lock screen

Our distant ancestors painted pictures on the walls of their caves. Modern humans can be considerably more creative in the way we decorate the displays we stare at for much of the day, but the impulse is the same: to create a comfortable, familiar environment.

Most options for changing the parts of Windows you see when you're not working with an app are now under the Personalization heading in Settings. Begin with the Background, which defines what you see on the Windows desktop. Your options include a picture of your own choosing, a solid color, or a slideshow of images from a specific folder. As Figure 2-6 illustrates, when you choose Picture, Windows 10 remembers your five most recent choices.
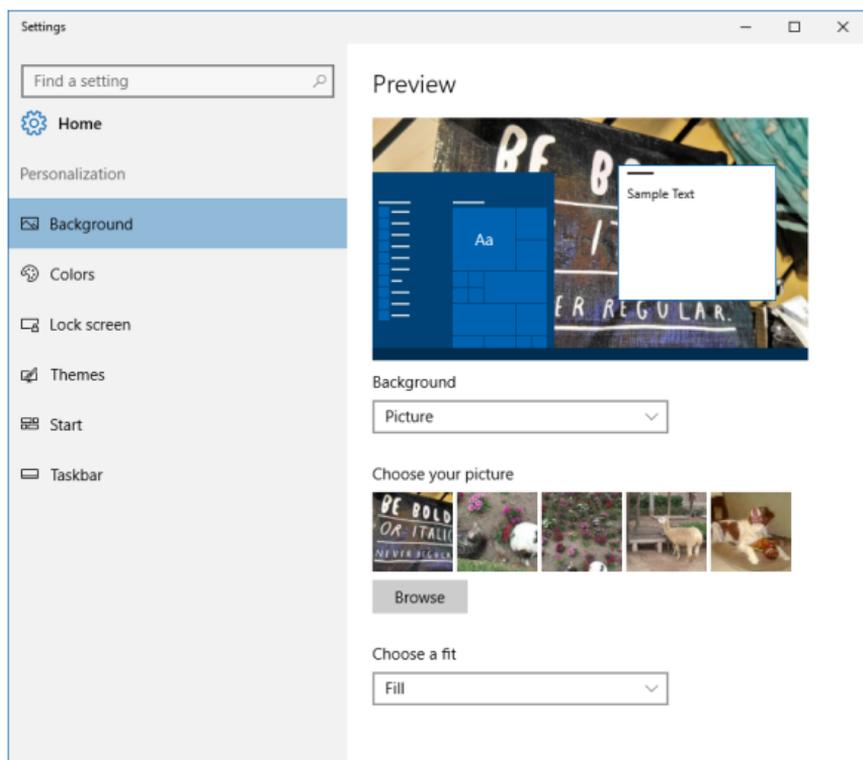
Figure 2-6: Using a picture as the desktop background works best when its dimensions are roughly the same as the display resolution.

 (For users with more than one display, here's a fun trick to pass along: Choosing a picture uses that background image on both displays. Right-click any photo from the selection of five pictures and use the shortcut menus to set that picture for a specific monitor.)

Windows 10 uses color less liberally than earlier versions did. In fact, default settings set a dark or light theme, with accent colors turned off. For those who prefer a bolder approach, open

Settings > Personalization > Colors to see the options shown in Figure 2-7. In addition to choosing an accent color, you also must choose where to show it.
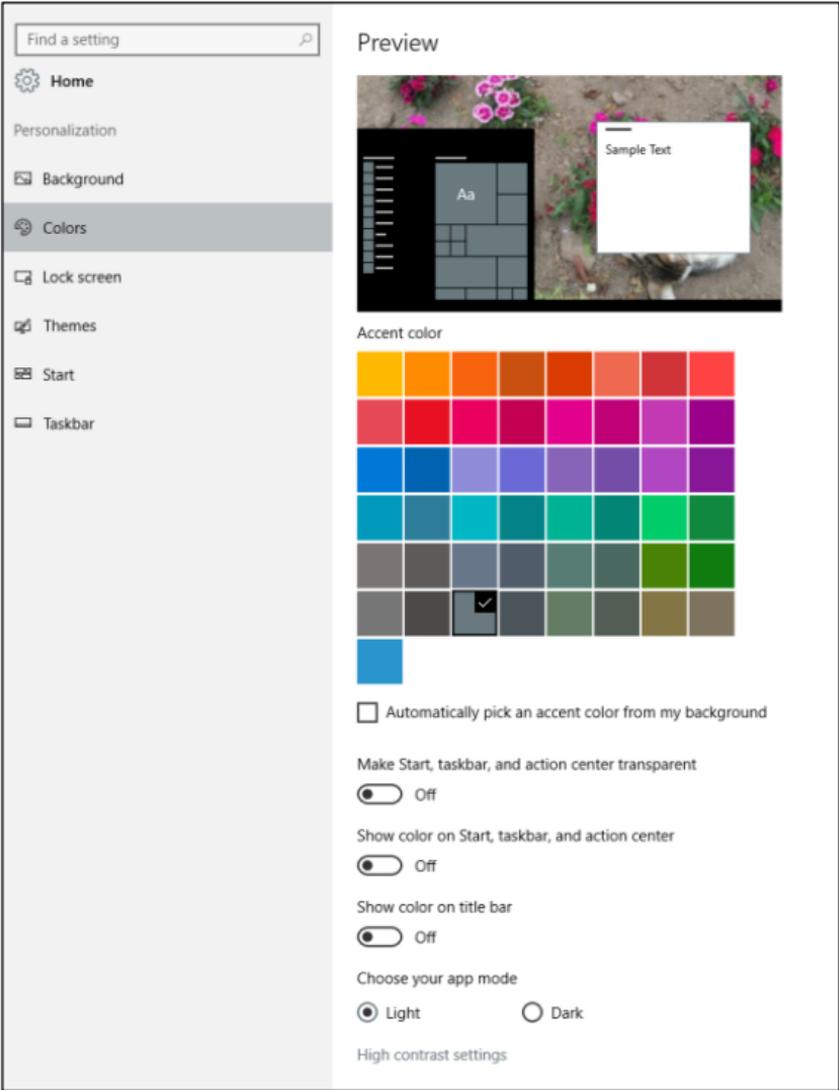
Figure 2-7: The accent color you choose here appears on Start menu tiles and other places where a splash of

color is needed. Flip the other switches to On to use the same color in parts of Windows and desktop programs.

By default, accent colors appear in Start, as the background for tiles that don't specify their own color, and in apps such as Groove Music (look at the Now Playing bar on the bottom of the Groove window.) Use the first two switches on the Colors tab to turn transparency on or off and to make the accent color appear as the background for Start, the taskbar, and Action Center. Flip the Show Color On Title Bar switch to On if you want your accent color to appear in the title bar of Windows apps and desktop programs, as well.

The final major look-and-feel option is the lock screen. On this tab, you can specify a picture or slideshow that you want to use as the background when your PC has been idle for the amount of time (specified under Screen Timeout Settings). Beginning with the Anniversary Update, you now have the option to use the same picture on the lock screen and the sign-in screen where you enter your password or PIN.

Figure 2-8 illustrates the Windows Spotlight option, which uses dramatic background pictures supplied by Microsoft and also occasionally provides suggestions.
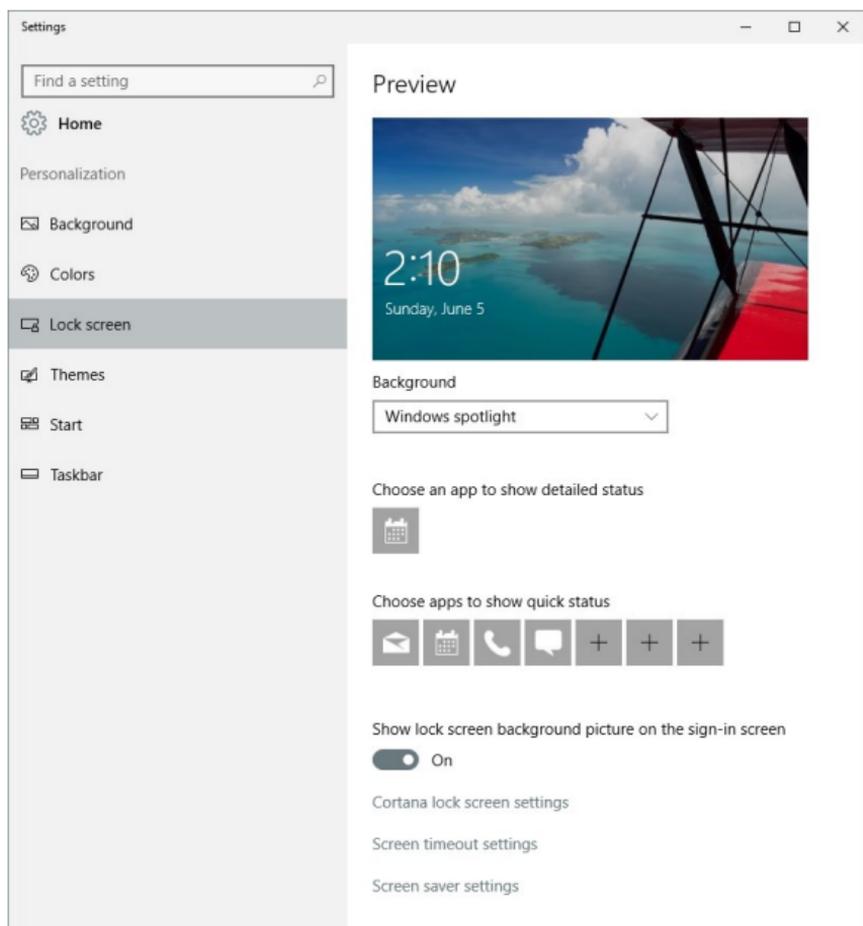
Figure 2-8: Select a picture or a slideshow to use as the background when your PC is locked, or you can choose Windows Spotlight, which provides a steady stream of interesting images from Microsoft.

Taskbar and notification area

The taskbar is another piece of Windows with a long, rich history.

Figure 2-9 shows the taskbar at a glance, as it appears in the Windows 10 Anniversary Update (version 1607).
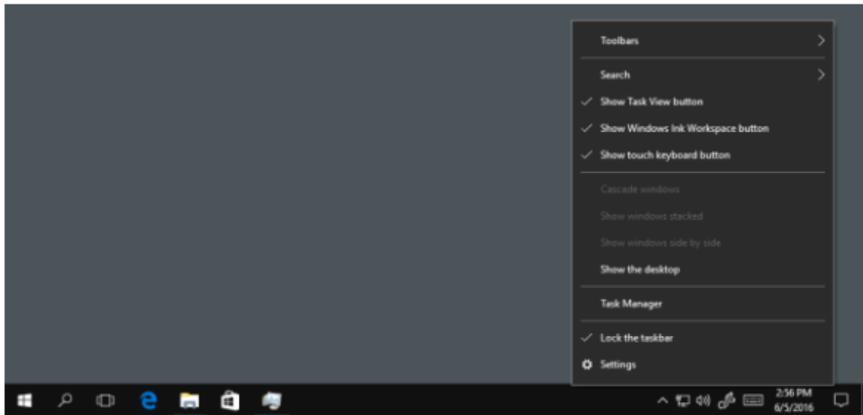
Figure 2-9: The Windows 10 taskbar contains most of the familiar touchstones from earlier Windows versions. Note the search and Task View buttons as well as the Notifications button at the far right.

The core functions of the taskbar are the same as they've ever been: I've already talked about the Start button on the far left; on the right side, the icons to the left of the clock should also be familiar. The Search box (which you can configure to just show the magnifying-glass icon, as in Figure 2-9) is new, as is the Task View button. On the far right, a notifications icon shows or hides the Action Center.

Right-click any empty space on the taskbar to open a shortcut menu with options to show and hide some items as well as an extremely useful Lock The Taskbar option, which keeps users

whose mouse skills are less than expert from accidentally dragging the taskbar to either side or the top of the display. A very small number of people prefer the taskbar at the top of the screen or, less frequently, along the side; but in my experience it most often occurs inadvertently, and causes consternation for the user who wound up with an extremely unfamiliar arrangement. (If you get a call from someone who's done that, the solution is to have them drag it back into its proper place and then lock it.)

Note Your users might be tempted to use an option on the taskbar menu to hide the touch keyboard button, especially if their PC is not equipped with a touchscreen. Don't be too quick to make that change, though. Even on a conventional desktop PC, that onscreen keyboard works extremely well with a mouse. It's useful for entering symbols as well as accented letters (click and hold the letter e or n, for example, to see options for è and ñ, which otherwise require memorizing obscure codes). And it's ideal for entering emoji to add a light touch to a message or social-media post.

If you're using version 1511 of Windows 10, you'll find taskbar settings in the old Control Panel. Effective with the Anniversary Update, you

can find a Taskbar page under Personalization in the new Settings app. Figure 2-10 shows those settings in their new home.
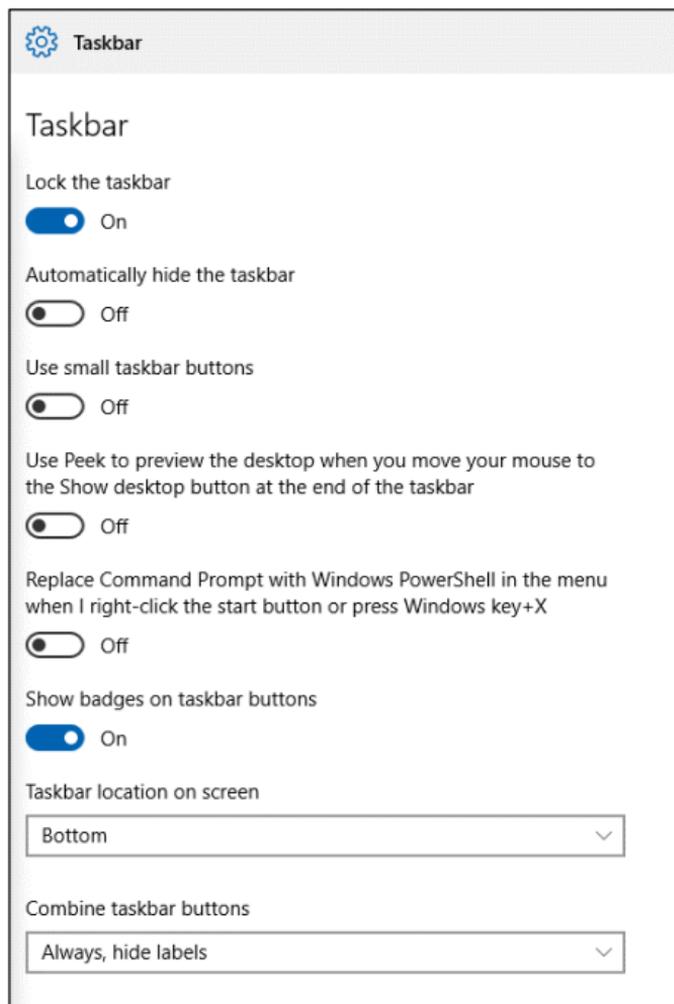
Figure 2-10: Beginning with the Anniversary Update, version 1607, these taskbar options move to the Settings app.

Action Center

Windows has a few things to say. So do some of your apps.

In the past, those messages would have been delivered as "toast" alerts: small pop-ups in the lower-right corner of the screen that appear for a few seconds and then vanish. With Windows 10, those messages have a more persistent home in the Action Center, which appears on the right side of the screen when you swipe in from the right edge of the display on a touchscreen device or click the notifications icon in the lower-right corner of the taskbar.

The Action Center also includes an assortment of Quick Action buttons at the bottom of that pane. Beginning with the Anniversary Update (version 1607), you can add, remove, and rearrange these buttons. Go to Settings > System > Notifications & Actions to work with the options shown in Figure 2-11.
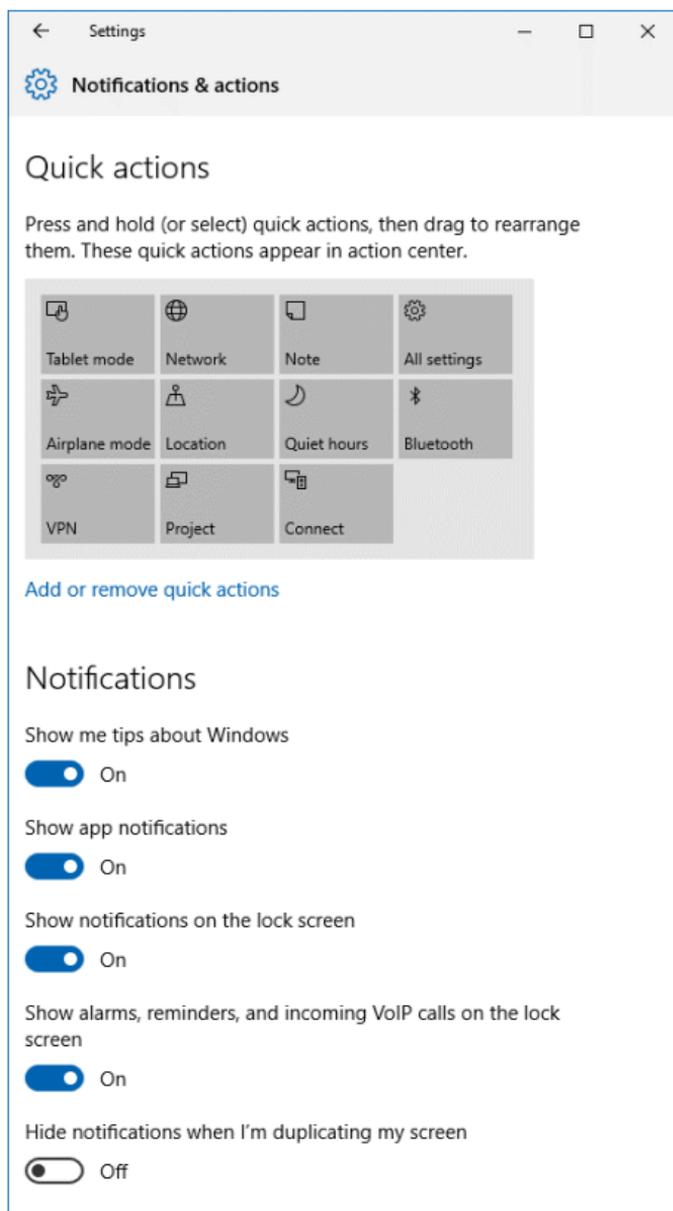
Figure 2-11: If you find notifications more annoying then helpful, consider setting some or all of these sliders to Off.

Those notifications can be tremendously helpful or downright annoying, depending on your preferences and your mood. Turning off the Show App Notifications button is the most drastic response. For more fine-grained control, keep scrolling down the Notifications & Actions page until you reach the full list of apps, like the one shown in Figure 2-12. There, you can allow some apps to interrupt you with notifications while silencing those that are too chatty. You can also avoid duplicate notifications when using multiple apps for the same job—Mail and Outlook 2016, in this example.
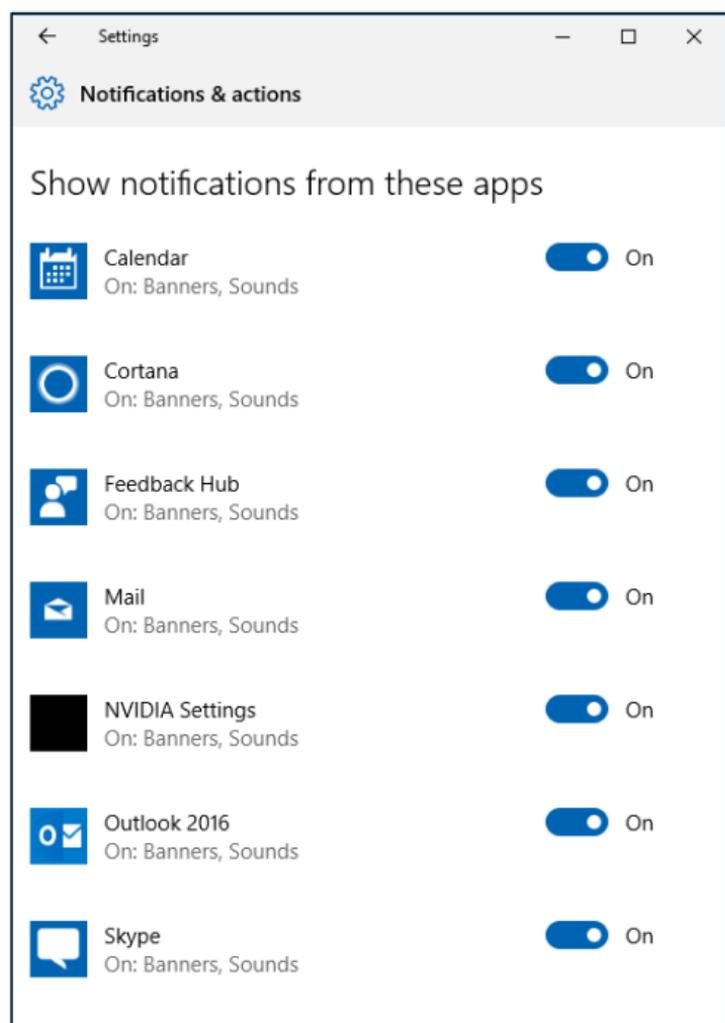
Figure 2-12: If a particular app is responsible for too many notifications, silence it by sliding its Show Notifications switch to Off.

Optimizing for touch

On a device that has a touchscreen in addition to a keyboard and pointing device, you can use whichever actions feel most natural to

accomplish specific tasks. For example, you can swipe in from the right side of the touchscreen to display notifications, or swipe from the left to switch into Task View.

When you use a tablet or hybrid device that has only a touchscreen, with no keyboard or pointing device at hand, you can switch into Tablet Mode, which changes the behavior of Windows 10 to make it work more effectively with touch-based gestures.

To switch into (or out of) Tablet Mode, swipe inward from the right side of the screen and tap the Tablet Mode button in Quick Actions. Figure 2-13 shows File Explorer running in Tablet Mode, with Action Center open on the right side.
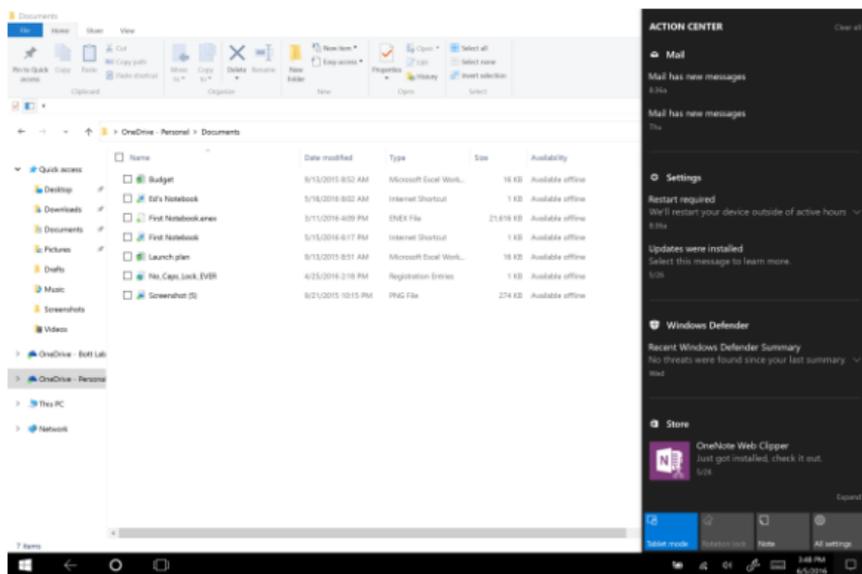
All apps run in full screen in Tablet Mode although they can be snapped side by side. One other touch-friendly change when Tablet Mode is on is the increased spacing in File Explorer folder listings, making it possible for even large fingers to confidently make a selection.

The taskbar itself becomes much simpler in Tablet Mode. The search box changes to an icon, and a new Back button appears to the right of the Start button. In Tablet Mode, taskbar buttons are not visible; instead, you swipe in from the left and use Task View or tap Start to open a full-screen listing of pinned tiles with the option to see all apps. Figure 2-14 shows this Start screen as it appears in the Anniversary Update, version 1607.
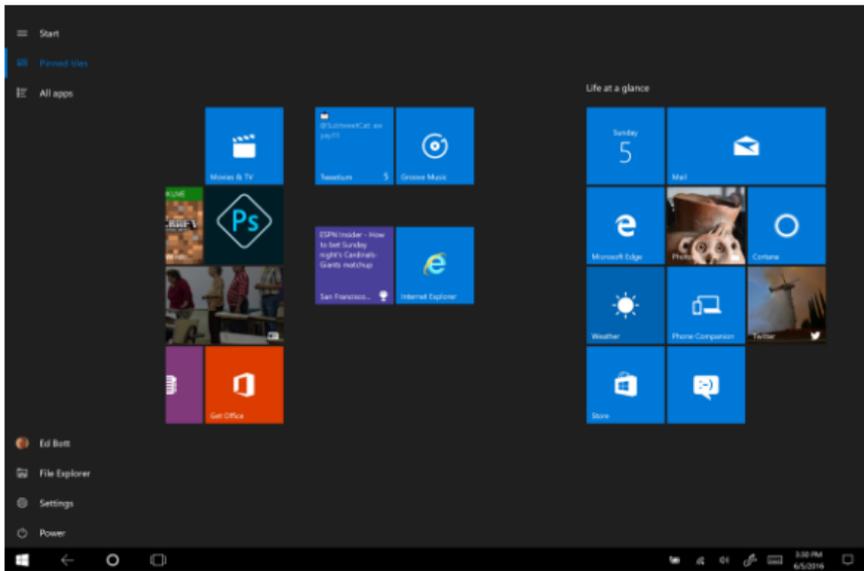
Figure 2-14: In Tablet Mode, Start occupies the full screen, with options in the upper left to switch between pinned tiled and all apps.

If you don't have a physical keyboard, a virtual keyboard like the one shown in Figure 2-15 is essential. In Tablet Mode, this keyboard is docked by default to the bottom of the screen and includes AutoComplete capability to simplify typing.
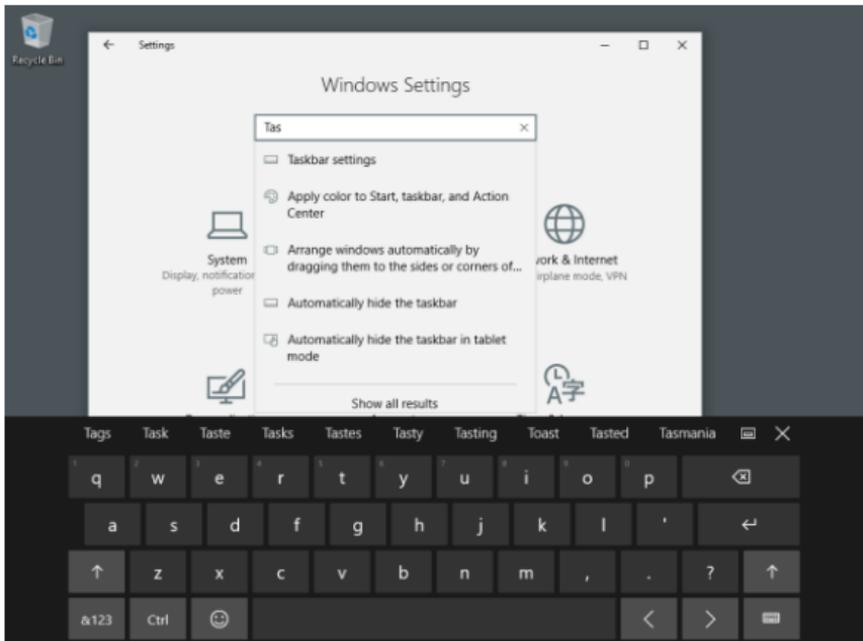
Figure 2-15: In Tablet Mode, when no physical keyboard is normally available, the virtual keyboard is essential. Tap that smiley face to see an amazing selection of emoji.

Arranging apps

With Windows 10, you can open dozens of windows, which is both empowering and frustrating at the same time. One of the most important techniques to teach users is how to organize and navigate between all those tasks. This section introduces the most common options.

Task View and other window-switching tricks

Most Windows users know the oldest of window-switching shortcuts: Alt+Tab. For Windows 10, the alternative is a bit easier: Click the Task View button on the taskbar to switch between open windows, using rows of thumbnails, as shown in Figure 2-16. (As an alternative, try the newer keyboard shortcut: Windows key+Tab.)
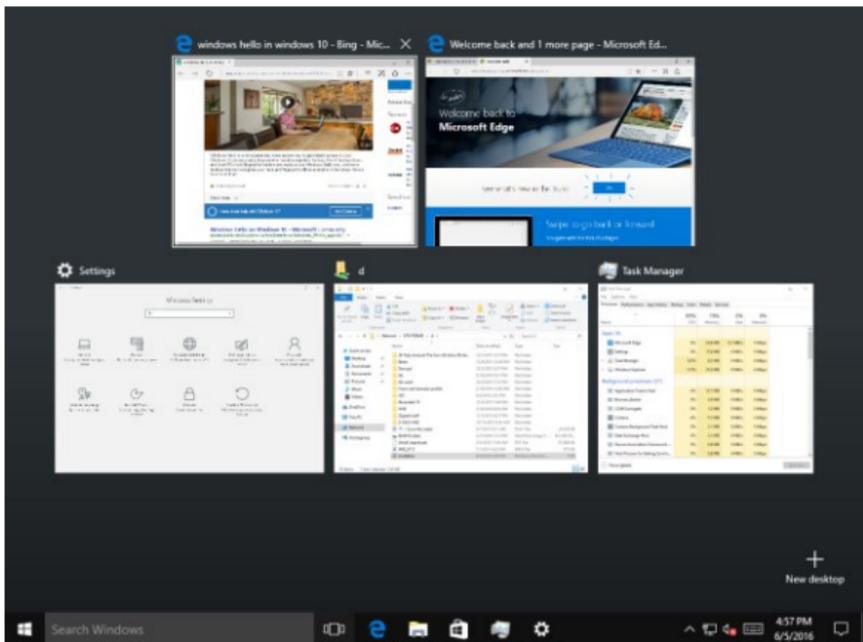
Figure 2-16: In Task View, you can switch between open apps and windows by pointing and clicking.

Virtual desktops

Power users have been using virtual desktops on Windows for years, using third-party software. With Windows 10, this capability is built directly into the operating system. Click the Task View button and then click New Desktop to create a new virtual desktop. You can switch between desktops, opening and moving apps between each one, by using Task View.
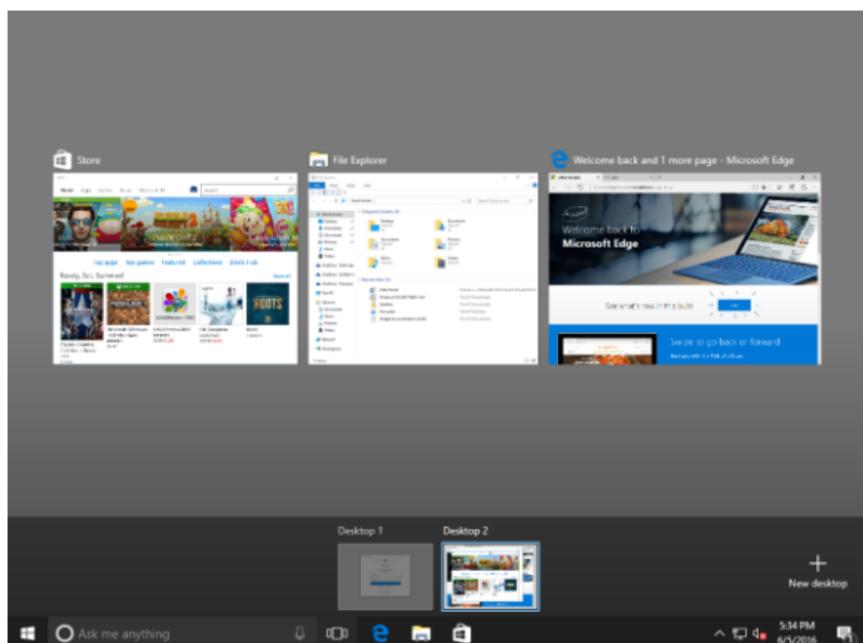
Figure 2-17: To move open apps between virtual desktops, drag thumbnails from the center onto the desktop thumbnails at the bottom.

Snap it

The ability to snap a window to one side of the screen has been part of Windows for many years. Drag a window to either side of the screen (or use the keyboard shortcuts Windows key+left arrow/right arrow) and it snaps into position, occupying exactly half the screen.

Windows 10 adds a subtle but useful refinement to this capability. When you snap a window to either side, thumbnails for other open windows appear alongside, as shown in Figure 2-18. The assumption is that you want to see two windows side by side, which you can accomplish by clicking one of those thumbnails.

Shake it

The last little trick for manipulating the arrangement of windows on the screen is a technique called "Aero shake." It's a vestige from a bygone era, as the name suggests, but it works perfectly at its main task. When you're working with a single window, you sometimes want to minimize all other windows on the screen. The Aero task gesture does exactly that: Aim the mouse pointer at the title bar of the window you want to keep in the foreground, and then click and hold as you move it back and forth, briskly but not violently.

After a second or two, all windows except the current one minimize, letting you focus on the task at hand. To restore all windows to their previous position, repeat the "shake" gesture.

Hear about it first.
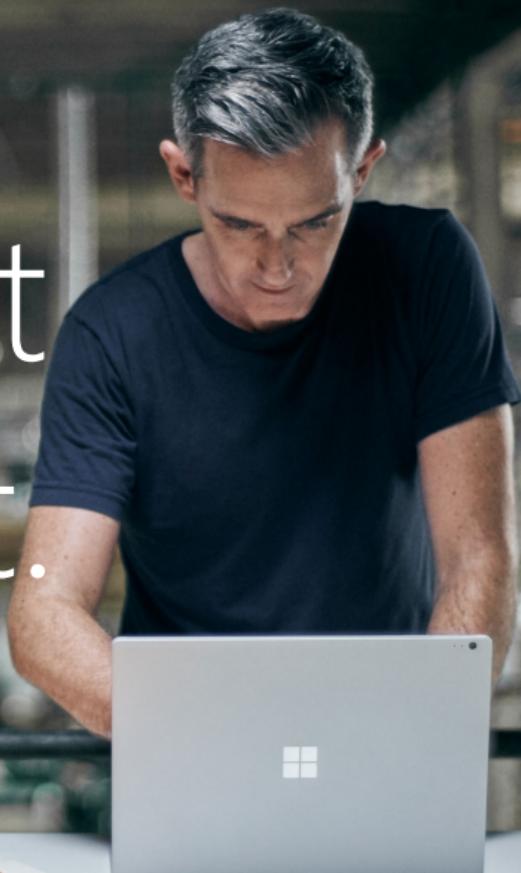
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Staying secure

If you're responsible for teaching people the basics of computer security, one lesson is paramount: Securing a Windows PC is an ongoing process.

In modern computing, there are no magic hardware bullets, nor are there any software magic spells that can ward off evildoers. Instead, an effective security regimen includes multiple layers of protection—hardware and software, policies and configurations, and above all regular training for users on how to

identify and avoid common online snares.

And even then it's possible that a PC or network under your control will fall victim to some sort of attack. Because the bad guys are persistent and change tactics regularly, even a smart, well-trained user can be fooled by social engineering or a realistic-looking phishing site. In fact, some experts suggest that even with security measures in place you should assume that your network and individual PCs will be compromised at some point. In that case, the most important skill to learn is how to recover as quickly as possible, with as little damage as possible.

I'm not sure I endorse such a fatalistic point of view, especially when talking to a nontechnical audience. But it's certainly true that identity theft and ransomware, to name two popular threats, have become epidemic in recent years. These threats usually find their way onto PCs through malicious software and websites, and the cleanup process can be time-consuming and expensive.

As a trainer, your goal is to help people make effective use of the security tools that Windows 10 includes.

Securing your user account

The single most important security precaution anyone should take with a Windows 10 PC is to create a strong, unique, impossible-to-guess password (or passphrase). That step prevents someone with physical possession of your PC from gaining access to the valuable information it contains—if a portable PC is lost or stolen or an intruder sits down in front of a desktop PC, don't make their job any easier by using a weak password or, worse, no password at all.

For accounts that are tied to online services, you can configure an additional layer of security called *multifactor authentication* or, more commonly, two-factor authentication (2FA). With 2FA turned on, you set up a trusted device, such as a smartphone, typically by signing in to the service, scanning a barcode, and entering a code on that device to prove that it belongs to you.

If you sign in to Windows using a Microsoft account, you can turn on 2FA by visiting

https://account.live.com/proofs/, typing your password, and then choosing the Two-Step Verification option. This makes it possible for you to receive security codes via email, text message, or an authenticator app.

With that first step out of the way, any attempt to sign in on an unrecognized device using that account requires that you enter the password and then provide an additional secret code from the trusted device. This can be received as a text message or generated by an authenticator app on the device. For a Microsoft account, you can have a notification request sent to your device, as shown in Figure 3-1.
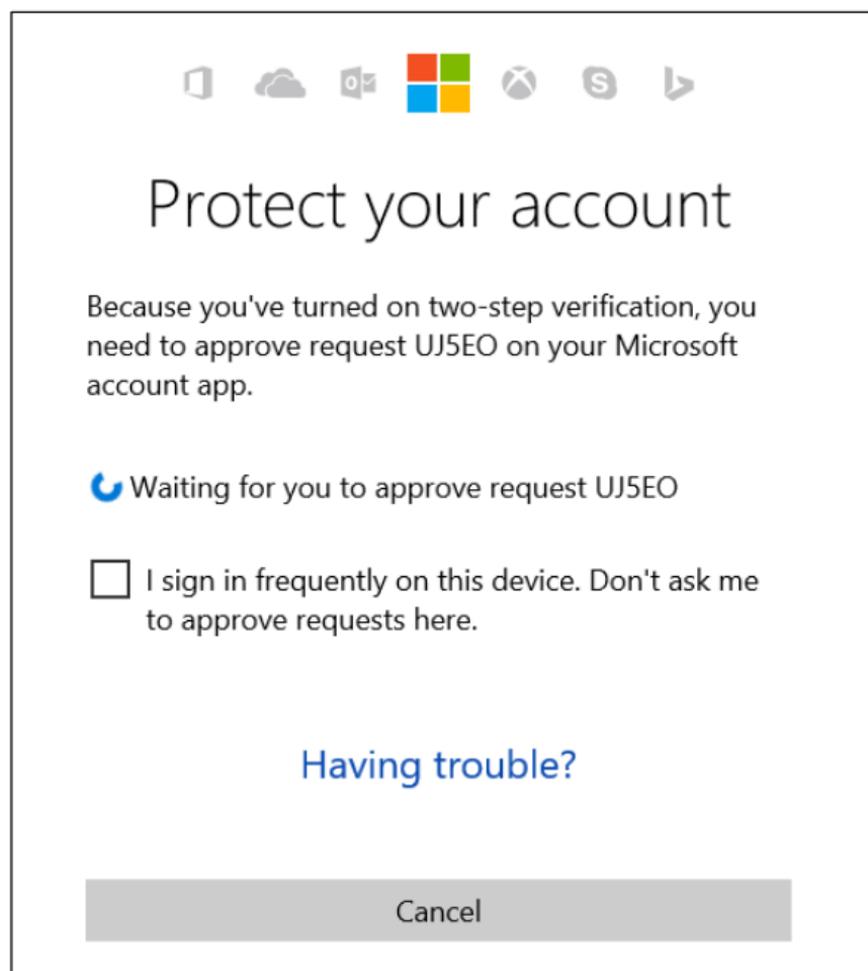
Figure 3-1: Select the check box here if you're setting up a new PC and you want to add it to your list of trusted devices. Leave that check box cleared if you're using a borrowed or untrusted PC.

You can choose from multiple authenticator apps, which all follow an open standard for generating one-time passwords that use a shared cryptographic key and are time-based.

Microsoft offers an Authenticator app for Windows Phone and a separate Microsoft Account app for Android devices; both are free. If you have an iPhone, you can use the Google Authenticator app or a third-party alternative. Figure 3-2 shows what the security request from the previous figure looks like when sent to the Microsoft Account app on an Android phone.
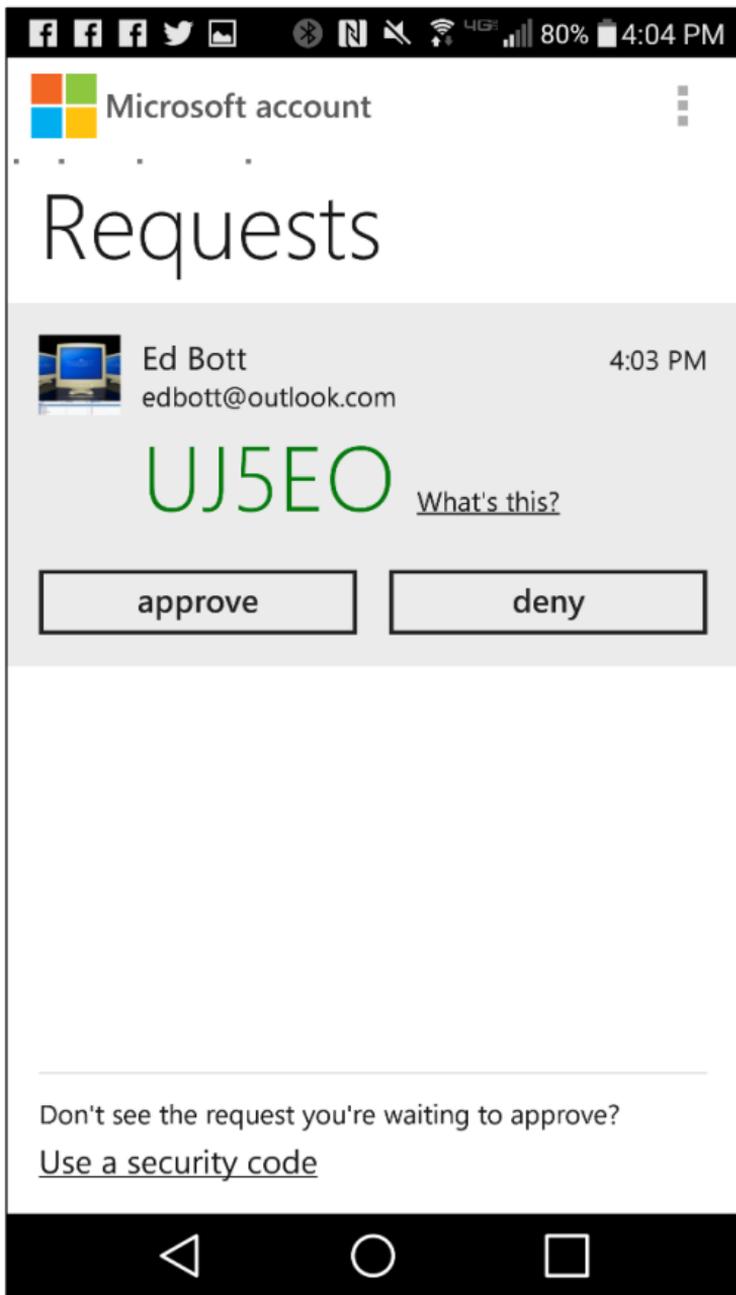
Figure 3-2: When you sign in to your Microsoft account for the first time on a new device, you might be asked to approve a security request using a smartphone

app—in this case, the Microsoft Account app on an Android device.

If your organization uses Microsoft Office 365 or Azure Active Directory and you want to turn on 2FA, you need the Azure Authenticator app. For detailed instructions on how to acquire and set up 2FA using this app, read this article: https://azure.microsoft.com/documentation/artic les/multi-factor-authentication-azure-authenticator/.

And, of course, on hardware that supports Windows Hello, such as Microsoft's Surface Book and Surface Pro 4, you can use a fingerprint or facial recognition to establish your identity.

Securing your data

If your PC is lost or stolen, anyone with physical access to it can try to access the data on it even if they can't sign in with your account credentials. Simple documents can contain important secrets, including bank account details, Social Security numbers, and other information that can potentially be used for identity theft.

The best protection against that kind of theft is to encrypt drives, especially on mobile devices,

so that an attacker who gains access to that drive can't read its contents.

All editions of Windows 10 support a feature called Device Encryption, which is available on devices that include a Trusted Platform Module (TPM) chip and support the InstantGo (Connected Standby) standard. To check whether your device supports this feature, go to Settings > System > About, and then scroll to the bottom of the page. If you see a Device Encryption heading like the one shown here, you're in business:

Device encryption

Device encryption helps protect your files and folders from unauthorized access in case your device is lost or stolen.

Device encryption is on.

Turn off

Related settings

Additional administrative tools

Bitlocker settings

Device manager

System info
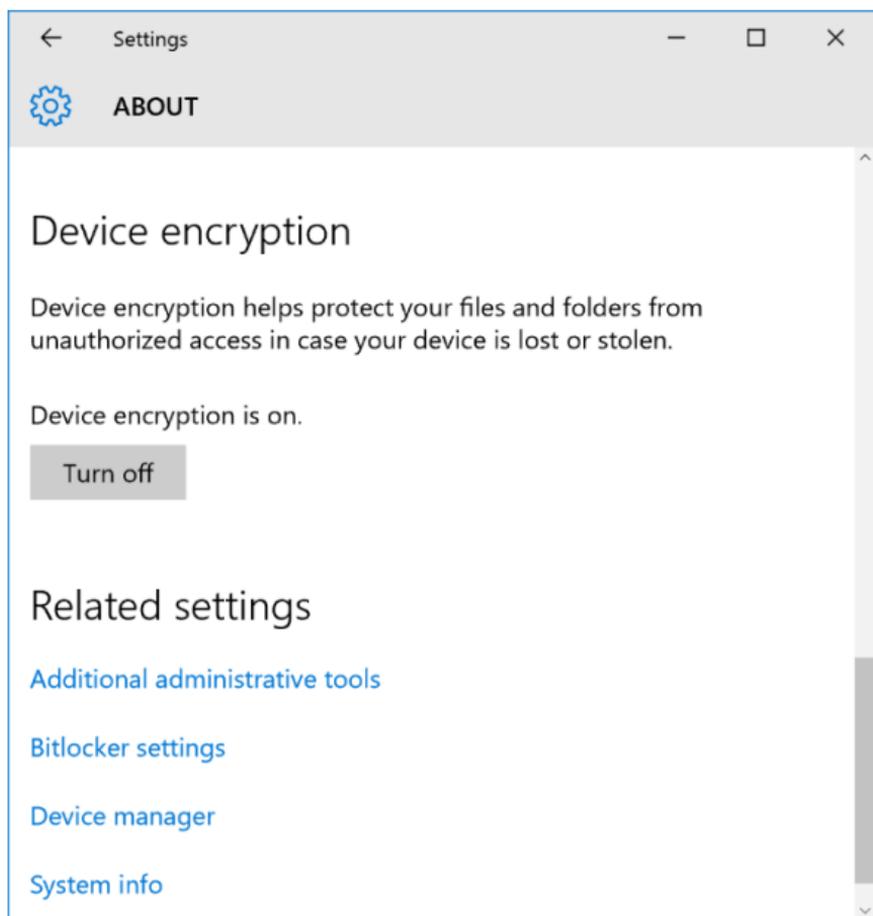
Although the Device Encryption feature is on by default, the encryption only works if you sign in using a Microsoft account, which then acts as the encryption key.

On PCs running Windows 10 Pro, Enterprise, or Education editions, you have an additional security option called BitLocker Drive Encryption. To encrypt the system drive using BitLocker, the device must have a TPM chip, which means most

modern Windows-based laptops designed for business use qualify.

BitLocker Drive Encryption is available for non–system drives, including external backup drives and removable media. Your starting point for turning on BitLocker encryption is Control Panel, where the options are filed under the System & Security heading, as shown in Figure 3-3.
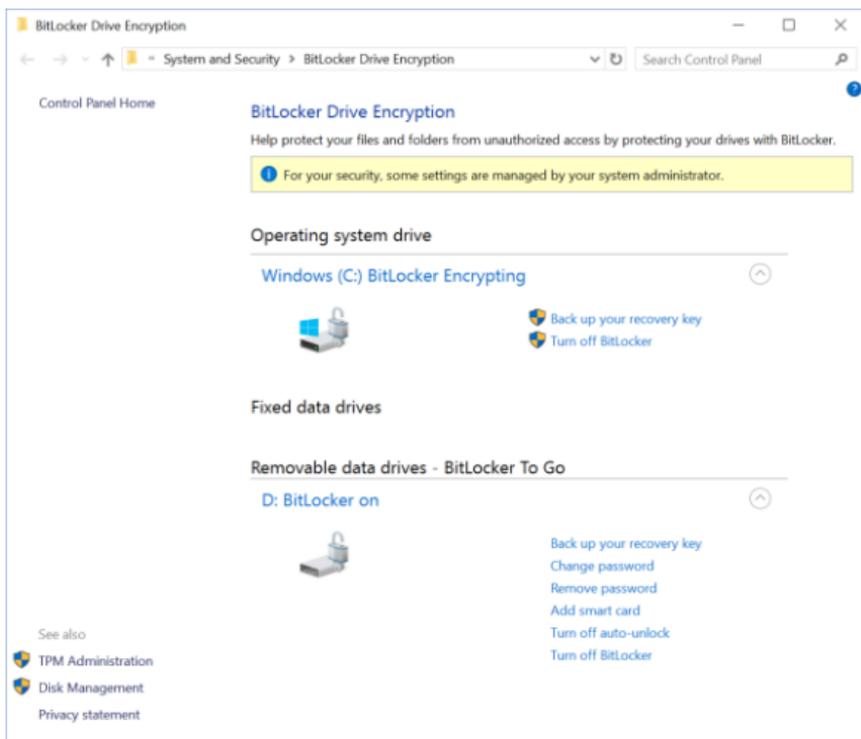
Figure 3-3: Use this Control Panel page to manage encryption on system drives and fixed or removable data drives.

On any device you travel with, it's crucial to encrypt the system drive so that your secrets

remain safely locked away if your laptop is lost or stolen. But one thing most people don't know is that you can also use BitLocker To Go to encrypt removable storage devices, such as USB flash drives.

You can only manage BitLocker To Go on a system running Windows 10 Pro, Enterprise, or Education. But after you encrypt a USB flash drive for the first time using a password, you can unlock that drive and use it on a system running any modern version of Windows, including Home editions.

In File Explorer, a removable drive encrypted with BitLocker To Go appears with a padlock icon, as shown in Figure 3-4. Type a password to unlock it, and use the options in that password box to decide whether you want that drive to automatically be unlocked when you sign in on the device to which it's attached.
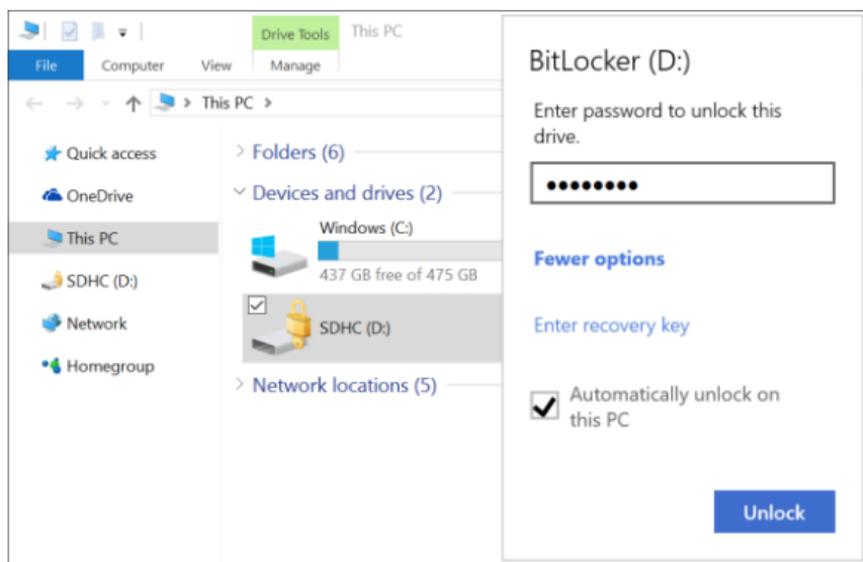
Figure 3-4: Use the Automatically Unlock On This PC option for a removable drive such as a MicroSD card that you use for auxiliary storage. If you lose the drive, whoever finds it won't have the password and won't be able to read its files.

Encryption is serious stuff. If you're unable to start your system normally, you might be prompted to enter a recovery key. This is a 48-digit numeric value that serves as a backup for unlocking an encrypted drive. If you can't access an encrypted drive and you can't find the recovery key, that data is lost forever.

The moral of the story is to back up that key and save it in a safe place.

You are prompted to back up your recovery keys when you first turn on BitLocker for a given drive. If you skip this process, or if you just want

to save a new copy of the recovery key for a drive that is already encrypted, just open Manage BitLocker in Control Panel and click Back Up Your Recovery Key. (And note that each drive has its own recovery key.)

As Figure 3-5 shows, you have a choice of three backup options. (The first option will be slightly different on a device that's joined to an Active Directory domain or Azure AD.)
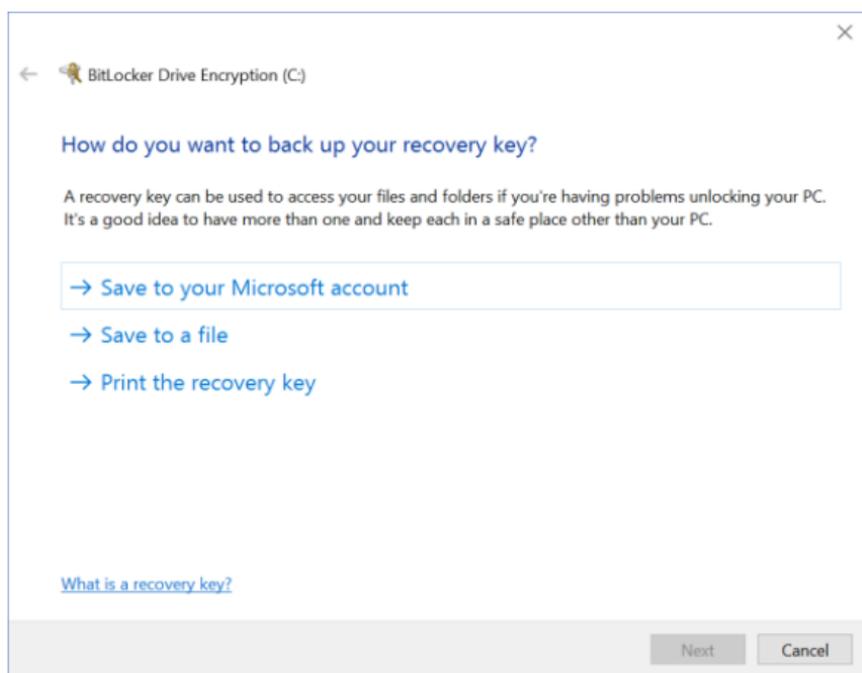
Figure 3-5: Backing up the recovery key for an encrypted drive is an essential precaution against accidentally losing all data on that drive.

For a PC you own and control, saving the BitLocker recovery key to your Microsoft account

is the most convenient option and the fastest way to ensure that you can get back in business in the event of encryption problems. Tell your users to go to https://onedrive.com/recoverykey and sign in to see an online listing of encryption keys for all drives for which they've turned on encryption. In fact, it's a good idea to visit this page occasionally to clean up listings for old keys that are no longer necessary.

Keeping Windows up to date

The single most important thing anyone can do to keep a computer safe is to keep it up to date. Historically, the most widely distributed types of malware take advantage of vulnerabilities that were previously patched, sometimes months or even years earlier.

Windows 10 makes several major changes in the way Windows Update works. New users, with or without a technical background, need to be aware of these changes so that they can avoid interruptions in their work.

The first major change is that all updates are cumulative. Longtime users are familiar with the tedious task of restoring an operating system

image and then having to download dozens or even hundreds of individual updates just to get caught up. With each newly released update in Windows 10 (like the one shown in Figure 3-6), you can "catch up" in a single step.
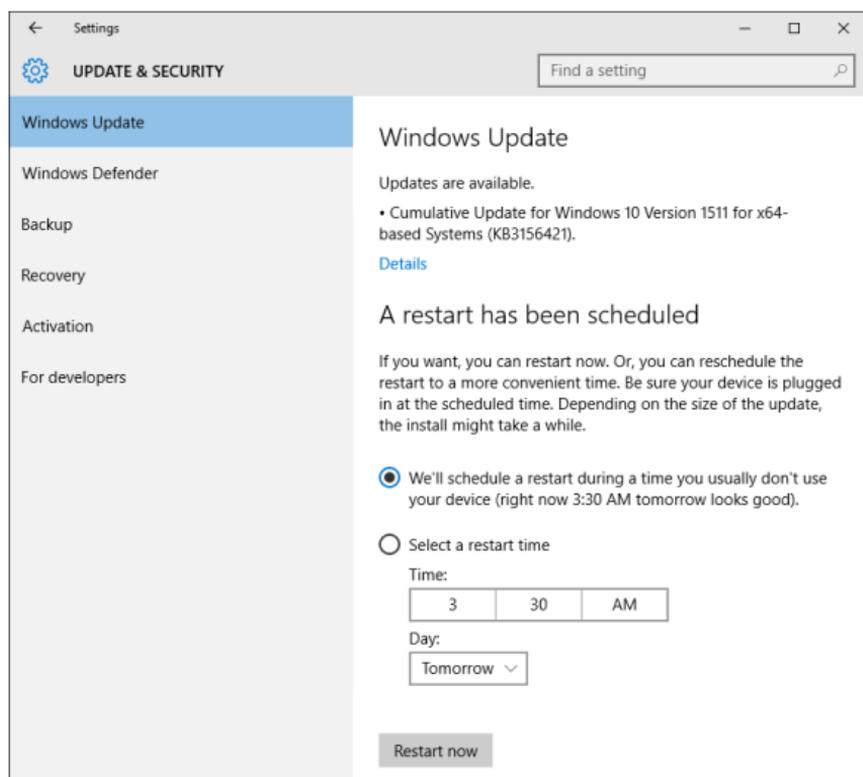
Figure 3-6: In Windows 10, all updates are cumulative, so you never need to scroll through a long list of updates to catch up.

The second big change in Windows 10 is that you no longer have the option to skip updates. After updates are downloaded, Windows schedules a restart. From the Windows Update

page in Settings, you can postpone that restart by a few days, but you can't do so indefinitely, as was possible with earlier Windows versions.

In Windows 10, version 1511, you can configure Windows to notify you so that you can adjust the schedule for a restart. Go to Settings > Update & Security > Advanced Options to make this change, as shown in Figure 3-7.
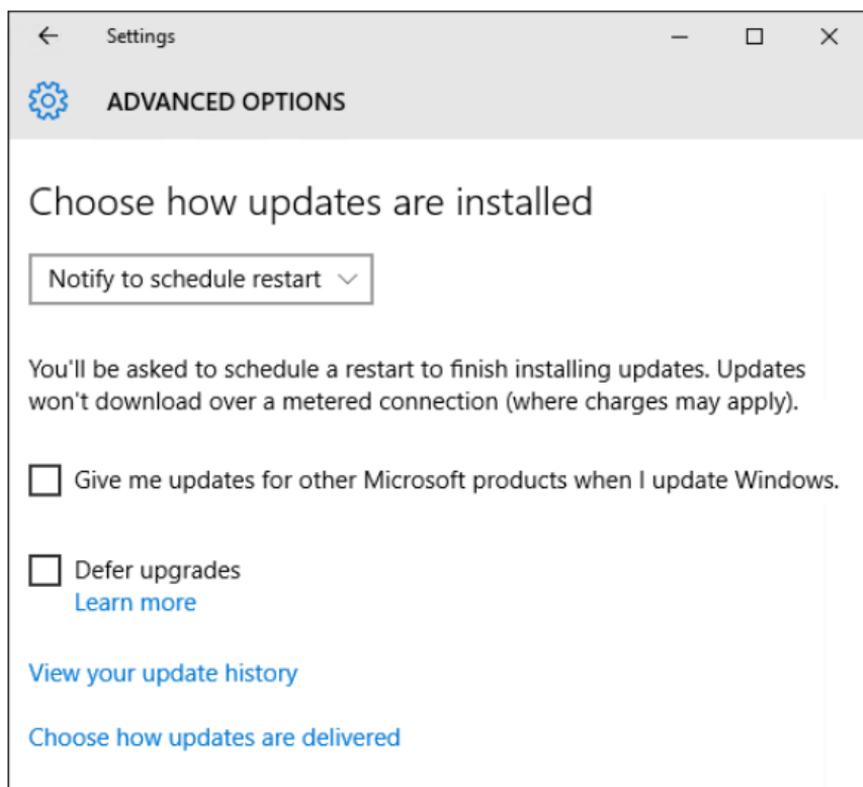
Figure 3-7: In version 1511, you have the option to configure Windows Update so that you receive a notification before restarting.

Effective with the Anniversary Update, version 1607, the Advanced Options page changes slightly to reflect a new feature called Active Hours. As Figure 3-8 shows, you can configure a period of up to 12 hours each day during which updates will not be automatically installed and will not disrupt your work.
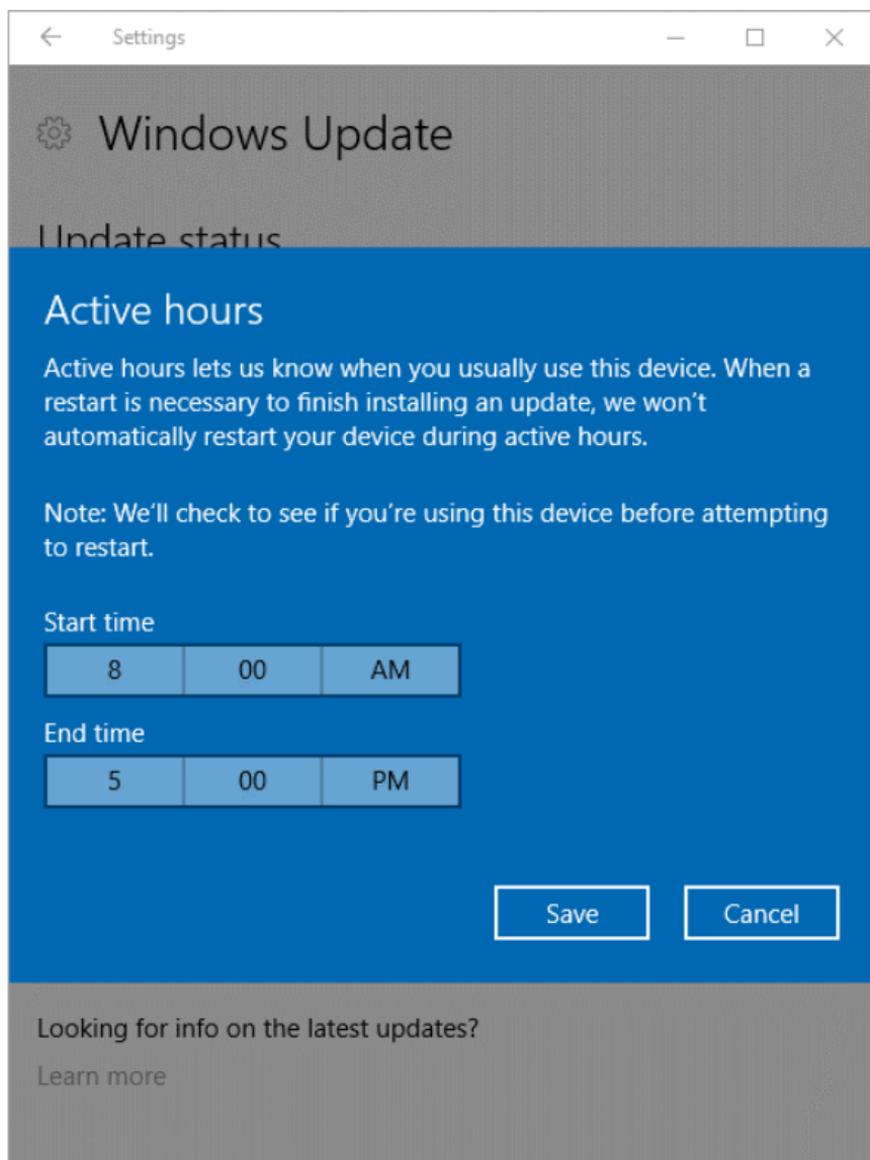
Figure 3-8: Effective with version 1607, you can set aside up to 12 hours from each day as Active Hours, during which Windows Update won't interrupt your work to automatically restart and install the most recent updates.

As I mentioned earlier, users can't postpone updates from the Windows Update page in Settings, as was possible in earlier versions. But IT pros, network administrators, and power users running Pro, Enterprise, and Education editions of Windows 10 have the option to delay updates using two Group Policy settings formally known as Windows Update for Business. You can find these settings in Group Policy Editor: Computer Configuration > Administrative Templates > Windows Components > Windows Update > Defer Windows Updates. Following are the two Group Policy settings:

- **Quality Updates**   These are the cumulative updates that fix security and reliability problems in Windows. You can defer these updates by up to 30 days.

- **Feature Updates**   These are the big updates that were once called upgrades and increment the version number—version 1511, version 1607, and so on. Businesses have the option to set delay installation of this type of update on Windows 10 Pro, Enterprise, and Education by up to an additional 180 days.

Occasionally, an update causes problems on a particular system or in a specific configuration. Fortunately, those instances are rare, but when

they do occur, the first step is to remove the
update causing the problem. Begin by viewing
the Update History page in Settings, as shown in
Figure 3-9; then, use the Uninstall Updates link at
the top to temporarily remove the problematic
update.

← Settings   —   □   ✕

⚙ **VIEW YOUR UPDATE HISTORY**

Uninstall updates

Uninstall latest preview build

Update history

Cumulative Update for Windows 10 Version 1511 for x64-based Systems (KB3156421)
Successfully installed on 6/9/2016

Update for Windows 10 Version 1511 for x64-based Systems (KB3140741)
Successfully installed on 6/9/2016

Security Update for Adobe Flash Player for Windows 10 Version 1511 for x64-based
Systems (KB3163207)
Successfully installed on 6/9/2016

Update for Windows 10 Version 1511 for x64-based Systems (KB3152599)
Successfully installed on 6/9/2016

Windows Malicious Software Removal Tool for Windows 8, 8.1, 10 and Windows
Server 2012, 2012 R2 x64 Edition - May 2016 (KB890830)
Successfully installed on 6/9/2016

Figure 3-9: This page in Settings shows all installed
updates, with the option to uninstall an update if it
appears to be the cause of problems.

Updates to device drivers can also be delivered through Windows Update and in some rare cases can cause problems. You need to remove those drivers through the Device Management tool.

After removing the problematic update, visit https://support.microsoft.com/en-us/kb/3073930 and download a troubleshooter that you can use to hide those updates temporarily. Figure 3-10 shows this troubleshooter in operation.
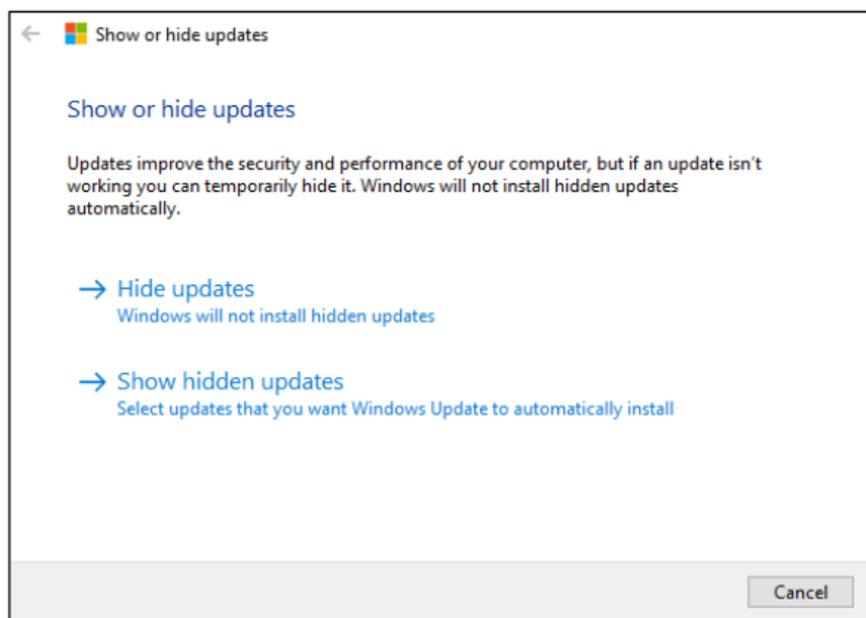
Figure 3-10: Download and run this troubleshooting tool to prevent a specific update or driver from being installed by Windows Update. Clicking Hide Updates displays a list of available updates from which to choose.

Windows Defender

Windows Defender is the built-in antivirus for Windows 10. Like dozens of third-party alternatives, it performs real-time scanning and occasional full scans in search of malicious software that might have snuck onto the system. When it finds a known threat, it quarantines the offender, providing a notification like the one shown here:
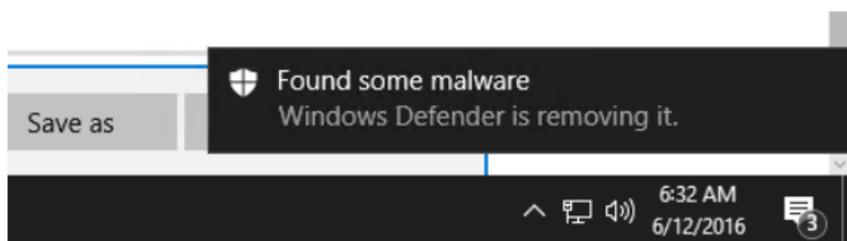
Showing security software in action is always valuable, but it's also something like playing with live explosives. You certainly don't want to use actual malware to demonstrate features. So what's the alternative? Visit eicar.org, where you can find official test files created specifically for the purpose of testing security software. Figure 3-11 shows the Windows Defender program window after I attempted to download one of the test files. Notice how I can choose to show details about the quarantined file and demonstrate to users how to click the Remove button to get rid of it (or use Restore to recover

a safe file that was mistakenly identified as malware).
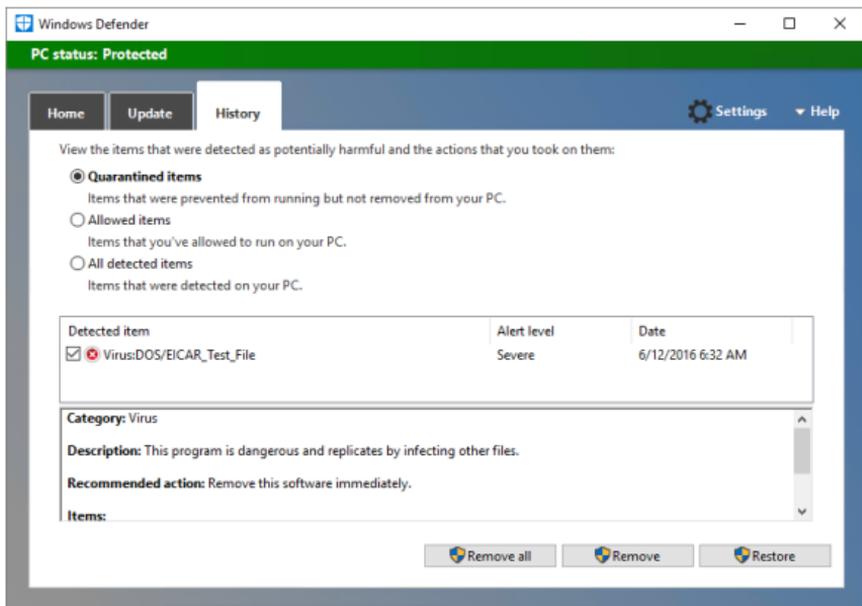
Figure 3-11: This screenshot shows Windows Defender with the History tab selected and a single detected item rated Severe, with options to Remove All, Remove, or Restore.

Microsoft's enterprise antivirus software uses the same scanning engine and signature files. If your organization uses third-party security software, Windows Defender steps quietly into the background.

Windows SmartScreen

The SmartScreen feature, which has been available in all modern versions of Windows,

uses a reputation-based system to protect you from malicious websites (including so-called *phishing* sites that impersonate a legitimate website with the intent of fooling visitors into typing their account credentials) and also to check the safety of executable files you download from the web.

Originally, SmartScreen was a feature found exclusively in Internet Explorer. With Windows 10, its area of coverage is expanded to include all downloads, regardless of how they arrive.

The best way to demonstrate how SmartScreen works is to use Microsoft's official test page at http://demo.smartscreen.msft.net. Figure 3-12 shows a few of the links you can click at this page, with each one triggering the same warnings you would see if you had visited an actual malicious site.

SmartScreen Demo Pages

These pages are just for demonstration ... nothing is *actually* malicious.

URL Rep Demos

Prompt User: Is This Phishing?

Alert the user to a suspicious page and ask for feedback

Phishing Page

A page known for phishing that should be blocked

Malware Page

A page that hosts malware and should be blocked

Blocked Download

Blocked from downloading because of its URL rep

Exploit Page

A page that attacks a browser vulnerability

Malvertising

A benign page hosting a malicious advertisement

Figure 3-12: These demo pages are a safe and thorough way to show others exactly what they'll see when they encounter a known malicious website or a suspicious page.

Figure 3-13 shows how Microsoft Edge warns of a possible phishing site, for example. Note that other browsers might not show the same warnings.
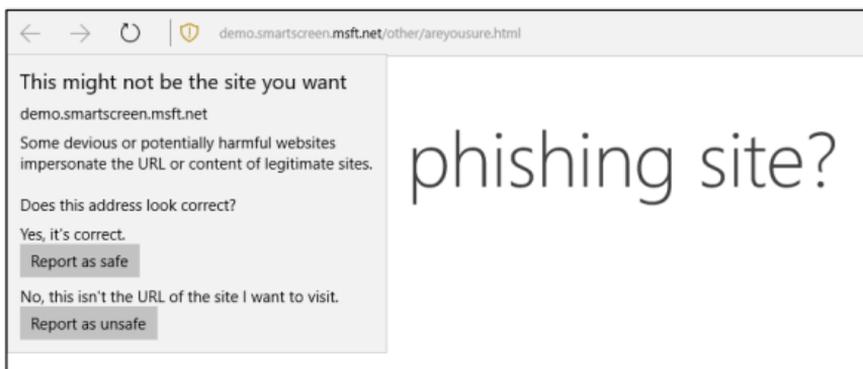
Figure 3-13: This is just a demo page, but if it were the real thing your report would be used as input to classify the same page for future visitors.

And Figure 3-14 shows what you see after SmartScreen Filter identifies a known piece of malicious software and prevents it from downloading.
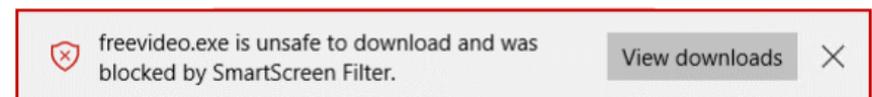
Figure 3-14: This blood-red warning indicates a file that is known to be malicious and is blocked from downloading, with no option to override that decision.

Finally, Figure 3-15 shows what happens when you try to run a downloaded app that hasn't established a positive reputation. It's not digitally signed by a trusted software publisher and it hasn't been downloaded enough yet to be cleared as safe. In the interests of safety, Windows blocks execution of the file.

Windows protected your PC

Windows SmartScreen prevented an unrecognized app from starting. Running this app might put your PC at risk.
More info

Don't run

Figure 3-15: With Windows 10, SmartScreen extends beyond the browser. In this case, the feature has blocked an unrecognized file that might be potentially dangerous.

If you're certain that the file is safe, you can click More Info to see options that allow you to run it.

Privacy settings

In our always-on, always-connected world, devices and servers are constantly communicating with one another. The inevitable by-product of all that chatter is the exchange of a great deal of information. You have every right to be concerned about how that information is collected and used and you should be aware of controls available for you to adjust privacy settings to your comfort level.

With Windows 10, your first step should be to read the Microsoft Privacy Statement, which is published at https://privacy.microsoft.com and is

updated occasionally. Yes, it's a legal document, but it's also written in fairly plain language and doesn't require advanced technical skills to read.

After you familiarize yourself with that document (OK, you probably didn't read it, but at least now you know how to find it), you can visit the Privacy section in Settings, where you'll find dozens of options in a long list of categories.

Probably the most widely publicized type of data collection from Windows 10 is called *telemetry*. This information, in aggregate, helps Windows engineers build a more secure and reliable operating system, the company says.

Telemetry reports, which are sent occasionally to Microsoft's servers, include data about how you and your users interact with Windows, such as how frequently or how long you use certain features or apps and which apps you use most often. Telemetry also includes enhanced diagnostic information collected when a system or app crash occurs. Other reports measure the reliability of devices, the operating system, and apps.

In Windows 10, telemetry data is stored on dedicated servers that are used exclusively for

reliability purposes. All telemetry data includes an anonymous device ID and device type. The point of those identifiers isn't to tag an individual person; rather, that ID is essential to determine whether 100 identical problem reports are from a single device or from 100 different devices. Telemetry reports don't include any of your files, and there's no personal information such as your name, email address or account ID.

Windows 10 has three telemetry settings: Basic, Full, and Enhanced.

- **Basic** This information includes information about security settings, quality-related info (such as crashes and hangs), and application compatibility.

- **Enhanced** This level includes the Basic information and adds details about how Windows and Windows apps are used, how they perform, and advanced reliability information.

- **Full** This setting, which is the default for Windows 10, includes all information from the previous levels, plus additional details necessary to identify and help to fix problems.

On Windows 10 Home or Pro, you can change telemetry collection to the Basic level by going to Settings > Privacy > Feedback & Diagnostics, as shown in Figure 3-16. The setting is one of three under the Diagnostic & Usage Date heading.
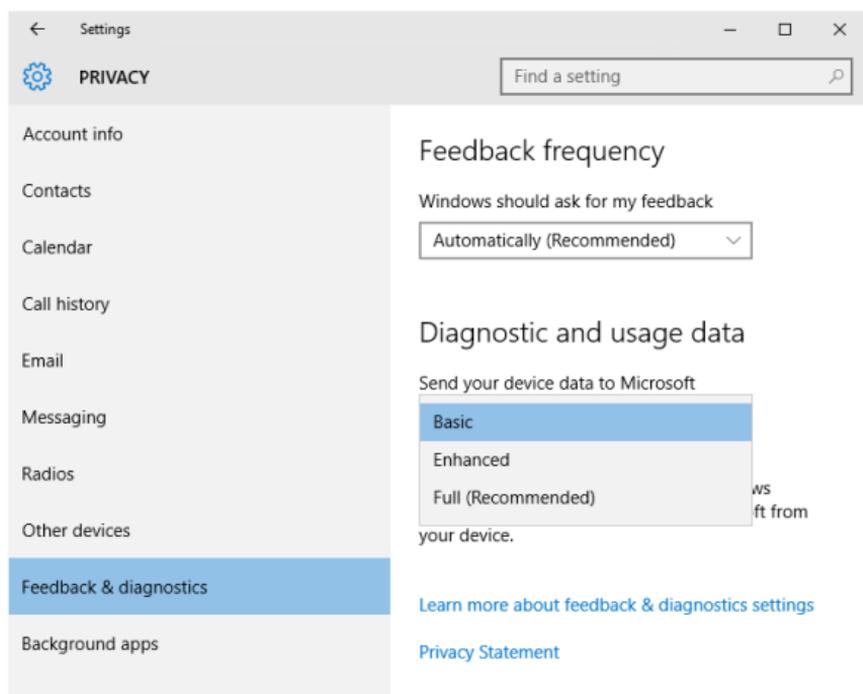
Figure 3-16: To limit telemetry data to just the bare minimum, including error reports, change this setting to Basic.

Most other information that leaves your Windows 10 PC does so because you used a feature that requires that data. If you upload a file to OneDrive, for example, Microsoft makes a

copy of that file and indexes it so that you can find its contents quickly. Cortana can provide reminders about upcoming meetings and appointments, but only if you grant permission to view the contents of your calendar. If you use the on-screen keyboard and its AutoComplete or AutoCorrect features, Windows dutifully notes those changes so that it will do a better job next time. If you sync settings, Favorites, and passwords between Windows 10 PCs, that information needs to be collected and stored.

If you're concerned about privacy, it's certainly a good idea to go to Settings > Privacy and work your way through all of the categories you find there. Perhaps you don't want Windows to track your movements on a mobile device. Although that awareness can help Windows and Cortana make more relevant suggestions, it can also create a literal trail of where you've been. If that bothers you, turn off the top two settings on the Location page. By default, these are turned on, as shown in Figure 3-17.
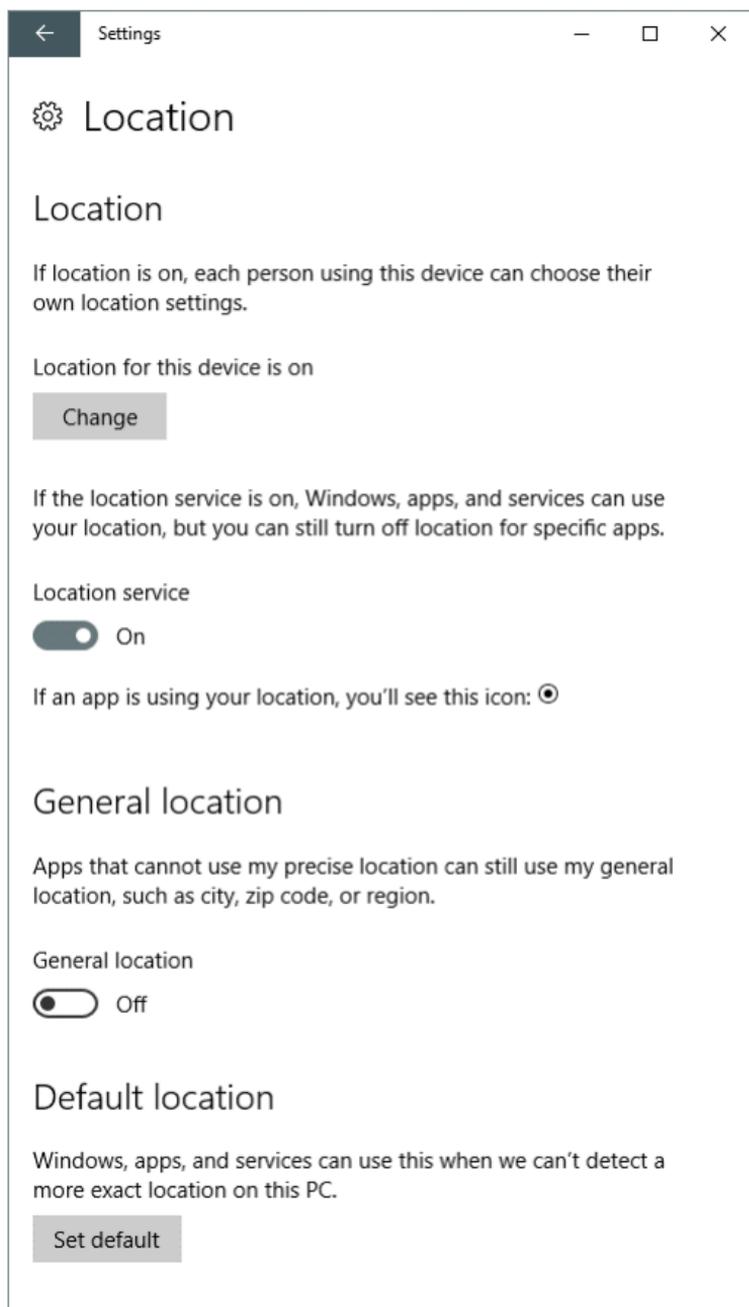
Figure 3-17: Modern mobile devices can keep track of where you go. If you'd rather not share that information, turn off the top two settings here.

Finally, you can control whether apps have access to your hardware, such as microphones, webcams, and cellular radios. You can also exercise control over how Windows and Cortana use your voice and writing to make suggestions for you.

Having fun

Out with the old, in with the new. That seems to be the philosophy for the collection of digital media and entertainment apps included with Windows 10.

Long-time Windows users are no doubt familiar with several legacy apps designed to manage and play back digital media files. The best known, by far, is Windows Media Player, which survives in Windows 10 with no noticeable changes from its incarnation in Windows 7. On devices that have been upgraded from earlier Windows versions, you might also find the venerable Windows Photo Viewer.

Windows 10 includes three Universal Windows Platform (UWP) apps that take over the digital media functions previously handled by those legacy apps: Groove Music, Photos, and Movies & TV. Because these are UWP apps, they update themselves automatically through the Store. In

addition, all Home and Pro editions of Windows 10 include an Xbox app and some games.

These apps all have some common interface conventions as well as online connections. This chapter focuses on training users to take advantage of those common features.

Setting default digital media apps

Although the new digital media apps are installed by default with Windows 10 and can't be removed, that doesn't mean you have to use them. Users who prefer the older Windows Media Player or would rather use a third-party alternative for specific tasks are free to do so.

To see the current defaults for handling specific file types, open Settings > System > Default Apps. (You can also find this page on the All Apps list, under Windows System > Default Programs). The categories on this list include Music Player, Photo Viewer, and Video Player. As you can see in Figure 4-1, each category shows the icon of the current default app, and clicking that app (or the plus sign for a category that doesn't have a default) offers a choice of

programs that are appropriate for handling those file types.

⚙ Default apps

Music player

⊙ Groove Music

Photo

Choose an app

⊙ Groove Music
Recommended for Windows 10

Video ⟳ MediaMonkey

▷ Windows Media Player

Web b ⊞ Look for an app in the Store

Reset to the Microsoft recommended defaults

Reset

Choose default apps by file type

Choose default apps by protocol

Set defaults by app

The Default Apps page doesn't distinguish between Store apps and traditional desktop programs such as Windows Media Player, Windows Photo Viewer, or third-party alternatives.

Oh, and that "out with the old" part I mentioned at the beginning of this chapter? Two features from earlier Windows versions are missing from Windows 10:

- The software required to play DVDs is not included with Windows 10, reflecting the reality that most new PCs don't include DVD drives. PCs that include this hardware typically also ship with third-party playback software that includes the necessary software. The free VLC media player (available from https://videolan.org) is a perfectly good option if you find yourself unable to play back a DVD or a digital file created in the MPEG-2 format used by DVDs.

- Windows Media Center, a signature part of "premium" Windows versions since 2002, is also not included with Windows 10. Its features have largely been supplanted by devices that connect directly to a TV,

including the Microsoft Xbox One and streaming media devices. (See the discussion of the Miracast feature in Chapter 6 for one such example.)

Groove Music

The old Windows Media Player is the software equivalent of a Swiss Army knife, handling playback of music and movies and even throwing in some photo viewing capabilities. The newer Groove Music, as the name makes abundantly clear, is designed exclusively for playing music files.

Both programs support common compressed digital music formats: MP3, WMA, and AAC (the format used for purchases from Apple's iTunes Store). It also supports playback of WAV files. Windows 10 adds support for the FLAC format, which uses lossless compression to save storage space without affecting the quality of the recording.

Note In the early days of the digital media revolution, many music tracks were sold with digital rights management (DRM). These restrictions tied that music to specific devices. Today, most digital media files available for purchase from online sources can be freely copied between devices. Files downloaded for

offline playback from a subscription service such as Groove Music Pass still use DRM.

Anyone with an older music collection might still have some DRM-protected purchased files in that collection, in WMA or AAC format. These protected files can't be played back in Groove Music. Likewise, tracks that are downloaded from non-Microsoft subscription music services can't be played back using Groove Music. To identify this type of file, right-click its entry in File Explorer and click Properties. Click the Details tab and scroll down to the Content section, where you'll find a field with the name "Protected." An entry of Yes here means the file has DRM applied to it.

The Groove Music library can draw from the contents of local folders (by default, this includes any files in the Music folder in your user profile) and from shared network folders. The library can also include compatible music files stored in the Music folder in Microsoft OneDrive. The Groove Music Pass service provides access to an enormous online library (more than 40 million songs) that you can stream over the web. Using the Groove Music app, you can stream albums using a Groove Music Pass or download those tracks for offline use. (Those tracks are restricted to playback on up to four devices.)

The user interface for Groove Music brings all those sources together into a single unified

library. Figure 4-2 shows the Groove Music home page as it exists beginning with the Anniversary Update, showing recent activity and suggested playlists.
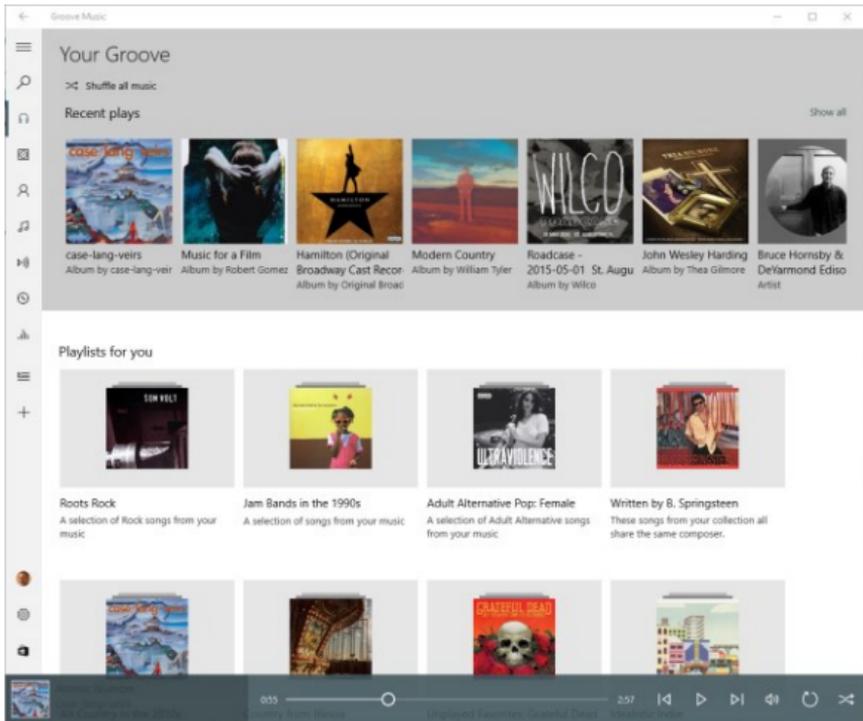
Figure 4-2: The Groove Music home page shows your recent activity and offers suggested playlists. Use the icons on the left side of the screen to change the view to albums, artists, playlists, and so on.

The Groove Music app offers an excellent opportunity to demonstrate how *responsive apps* work. When you change the size of the window, the app responds by reconfiguring the elements of the user interface so that they make sense instead of forcing you to use scrollbars to see

content that doesn't fit. Figure 4-3, for example, shows what you see if you choose the Now Playing tab and then shrink the Groove Music app to a small rectangular window. As the window shrinks, you can actually watch interface elements, such as the listing of tracks on the current album, gracefully disappear. Note also how the progress slider and playback controls stack.
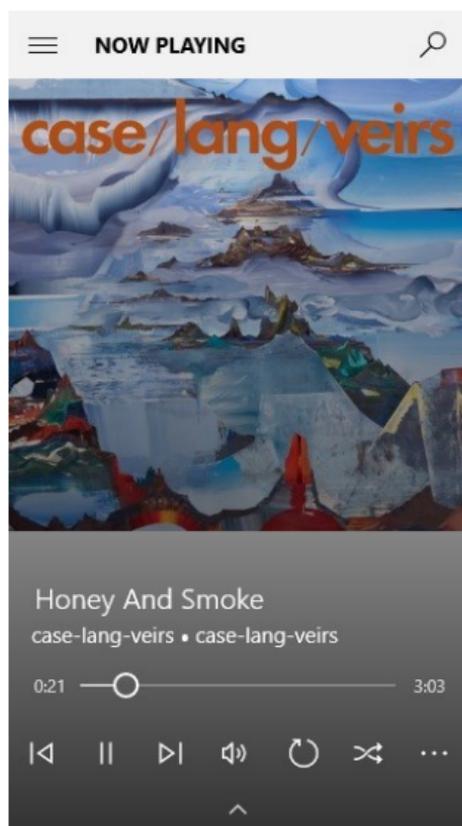
Figure 4-3: As you change the size of the Groove Music app, the user interface adapts to the new dimensions.

Click the small arrow at the bottom of this window to see the track listing for the current album.

Regardless of how large or small you make the app, one interface element remains visible at all time: the button made up of three horizontal lines in the upper left (sometimes referred to as the hamburger button/menu because of its resemblance to a hamburger patty between two slices of a bun). If the app window is large enough, the full navigation menu expands to use the available space. With smaller window sizes, click that button to temporarily maximize the navigation pane and see the available options.
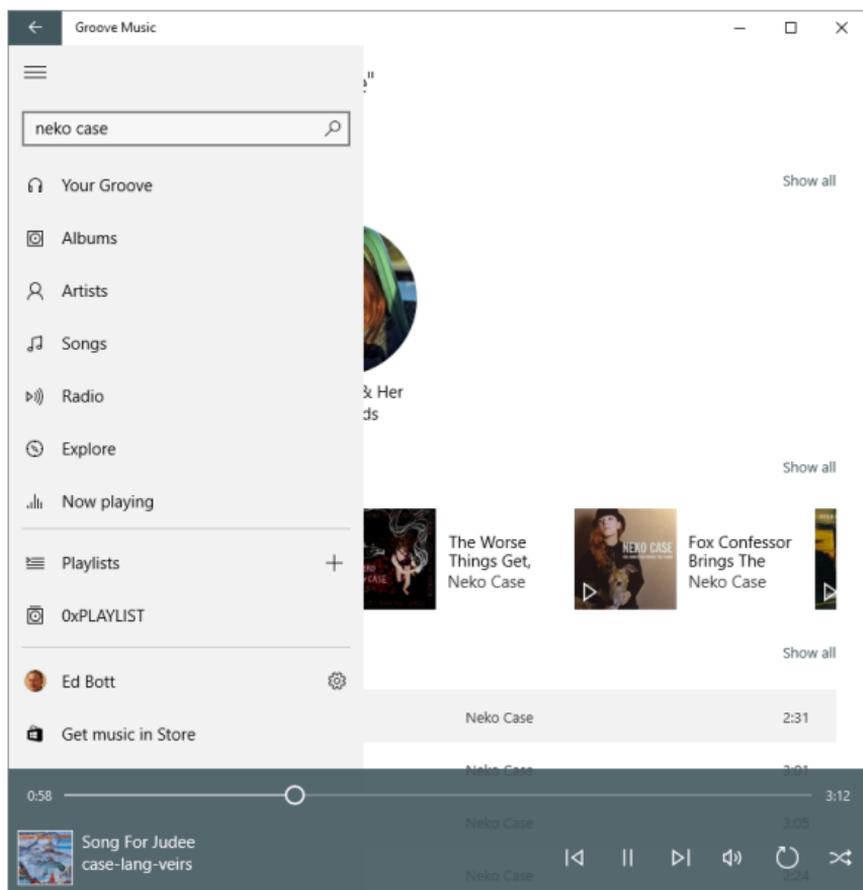
Figure 4-4: Click the so-called hamburger menu button in the upper-left corner to open the full navigation pane, shown here. This interface element is common to most of the apps included with Windows 10.

Another interface element you'll find in a consistent location in all these apps is the gear icon, visible at the bottom of the navigation pane. It opens a Settings page like the one shown in Figure 4-5.
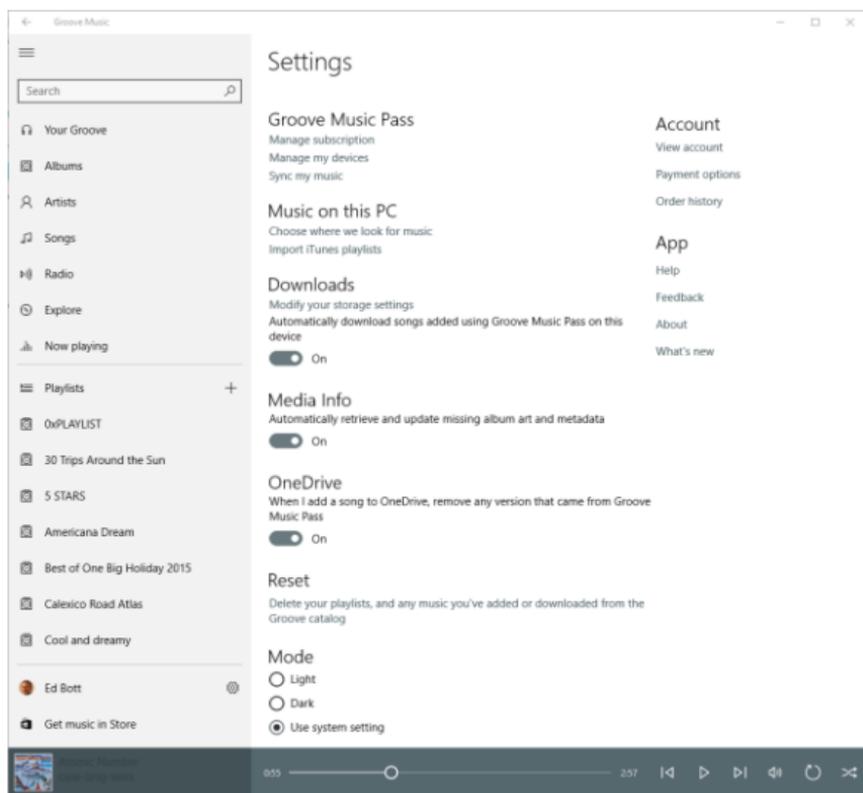
Figure 4-5: Click the gear icon near the bottom of the navigation pane to open Settings for Groove Music. This example includes some options that are only available with a Groove Music Pass subscription.

The single biggest advantage that Groove Music has over alternatives is its integration with OneDrive cloud storage. A free OneDrive account includes 5 GB of cloud storage, and upgrades can add to that assigned amount. For example, a subscription to Office 365 Personal or Home includes 1 TB of OneDrive storage.

When you move your music files to the Music folder in OneDrive, they're available for streaming or download in Groove Music when you're signed in with the same account. A filter button like the one shown in the image that follows allows you to specify which artists, albums, and songs you want to see in Groove Music.
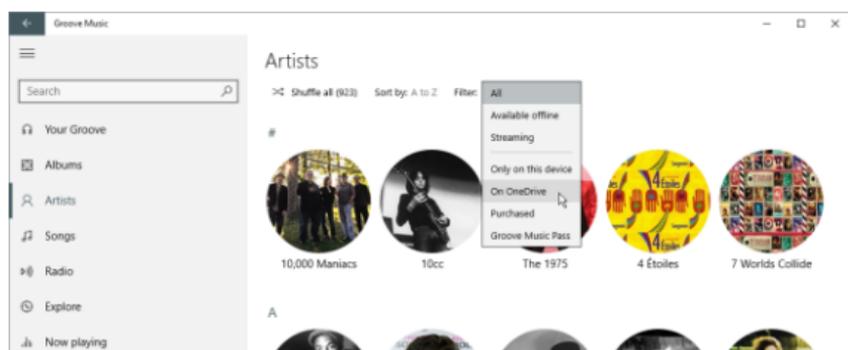
The more time you spend with the Groove Music app, the more surprises you'll find. For example, when you move the mouse pointer over the track number in a listing of songs, it changes to a check box. Click to select that check box and every item on that list gets a matching check box, as shown in Figure 4-6. After making a selection, you can play the groups of tracks, add those tracks to a playlist, or delete them.
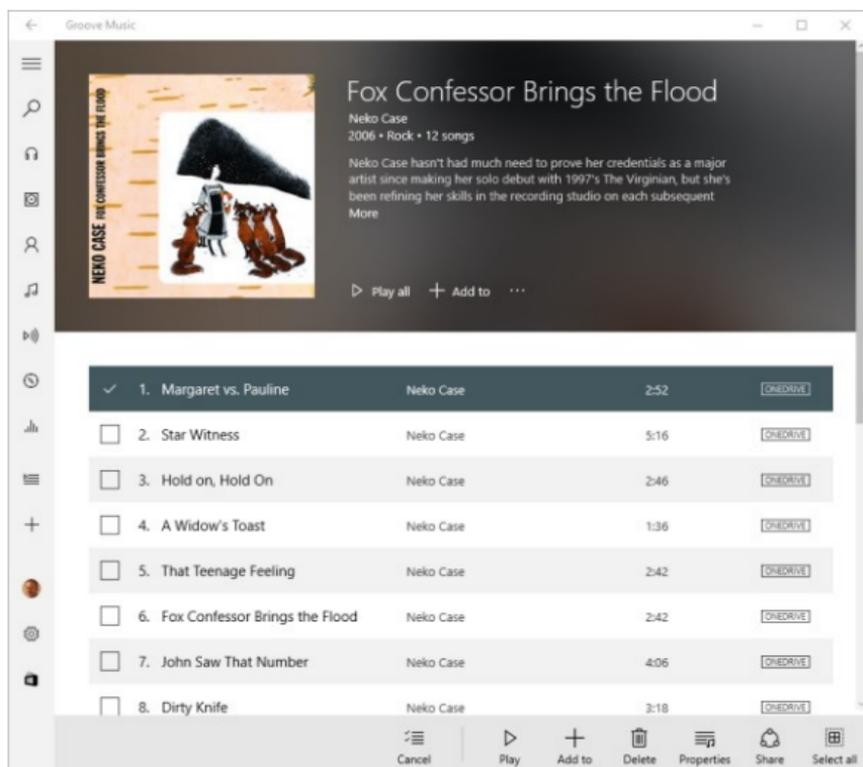
Figure 4-6: Move the mouse pointer over the track number in a listing like this one and click to make check boxes available for an entire album or playlist.

One thing you can't do with Groove Music—at least not yet—is edit the tags associated with a given track or album. If you make a selection and click Properties, you see useful information about that track, as shown in Figure 4-7, but the information in the Properties dialog box is read-only.
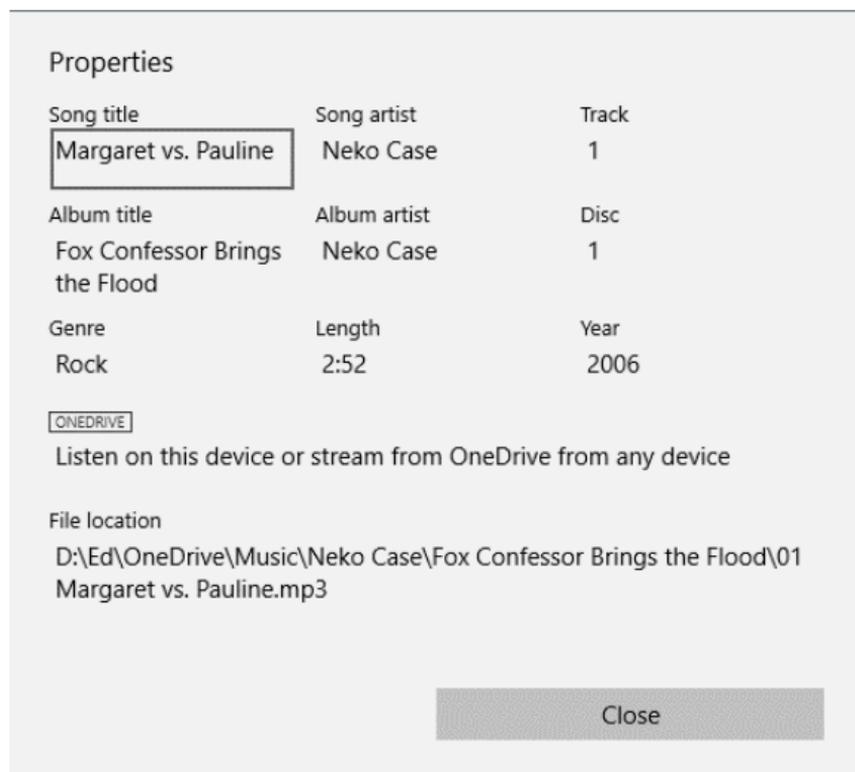
Figure 4-7: After selecting a track you can view its properties here. Note that you can't change any of this information from within Groove Music.

One fun tip that users might not discover on their own: You can pin any album, artist, or playlist to Start, so your favorite music is accessible without having to find it in the app.

Photos

The Photos app might have a prosaic name, but it does some pretty impressive tricks.

Like its counterparts, Photos is a UWP app, which means it shares the same interface conventions as those other apps. You can browse digital photos by folder or organize photos from different locations into albums for sharing. You can also do light editing tasks by using a touchscreen or a mouse.

Probably the single most useful feature in the Photos app is its integration with OneDrive. That connection is most practical when you install the OneDrive app on your smartphone (it's available for iOS and Android, and is included with Windows 10 Mobile). Choose the option to upload photos from your smartphone's camera roll to OneDrive and you'll be able to work with them anywhere.

Figure 4-8 shows the Photos app with the left-side navigation pane open and the Albums option selected.
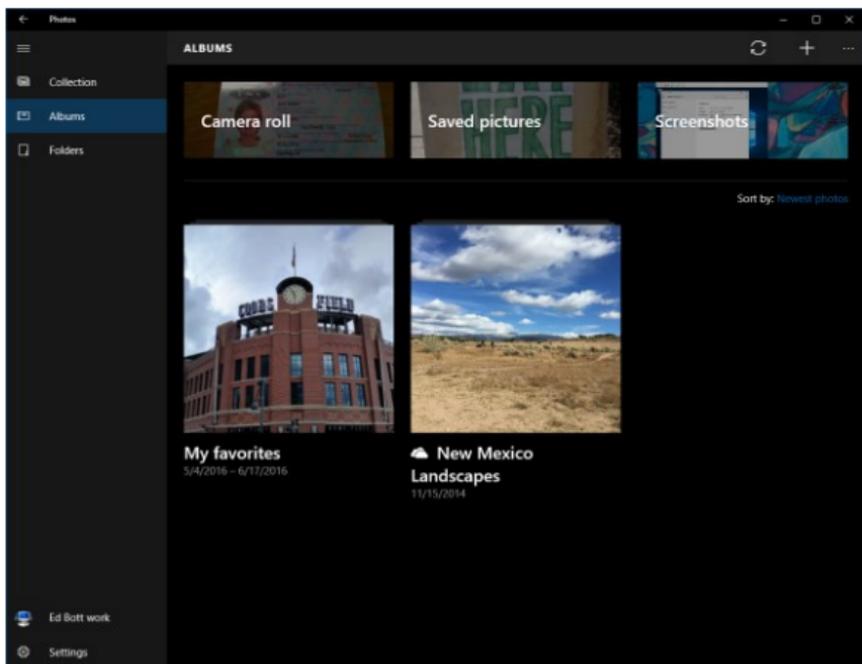
Figure 4-8: The Photos app creates albums automatically for screenshots and pictures you take with your smartphone. You can create custom albums of your own, as well.

Note People like me, who write about computers for a living, take screenshots constantly, but even if you're not a professional writer you can probably find uses for screenshots. With Windows 10, you can capture the current screen just by pressing Windows key+PrtScr. Screenshots you capture this way go into the Screenshots subfolder in your Pictures folder. If you want those to be available on other PCs and the OneDrive app is set up, go to OneDrive settings, click the

> AutoSave tab, and select the Screenshots check
> box.

To create a new album or add photos to an existing album, click Collection in the navigation pane, select the photos you want to add, and then click the plus sign on the menu at the top. That opens a scrolling list like the one shown here, with the option to create a new album or add the photos to an existing one:
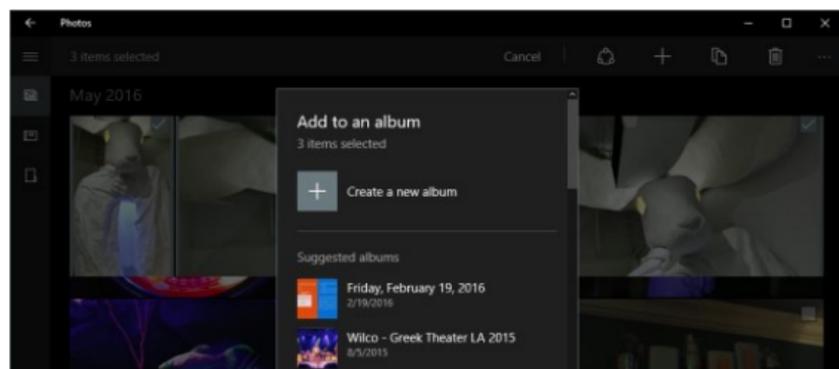

After you create an album, open it in the Photos app to reveal the tools shown in Figure 4-9. Using the Edit button, you can change the title or cover photo. Scroll down to see more options: add or remove photos, share the album with a link on OneDrive, or use the Sway app to turn the album into an interactive story.
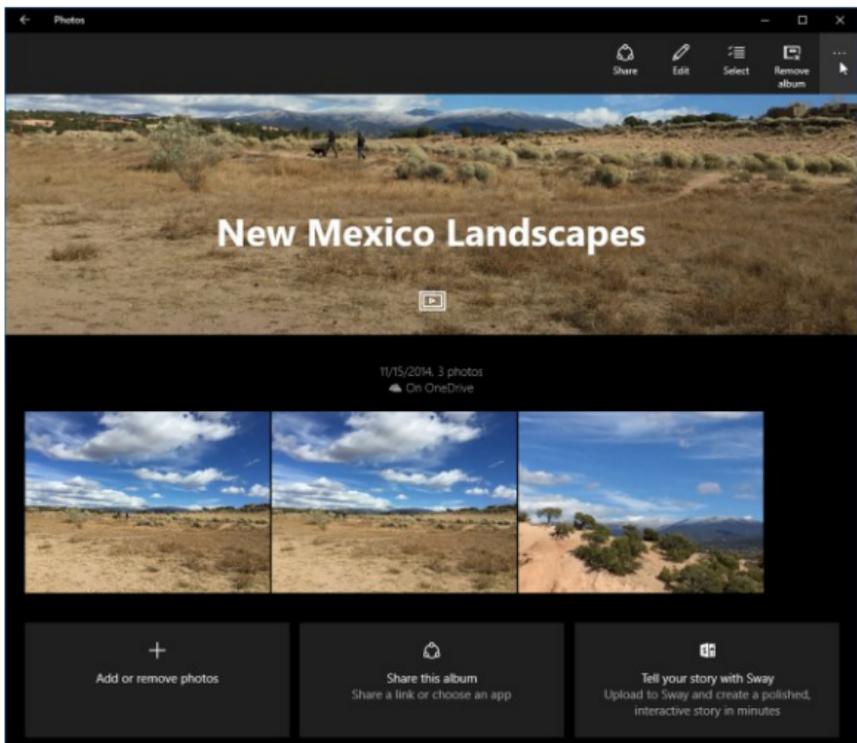
Figure 4-9: You can choose a cover photo, change the title, add or remove photos, and share an album from this screen.

From any collection, folder, or album, you can click or tap to open a photo, and then click or tap the Edit tool to display the collection of editing options shown in Figure 4-10. Pick a category from the column on the left, and then select a tool from that category from the column on the right.
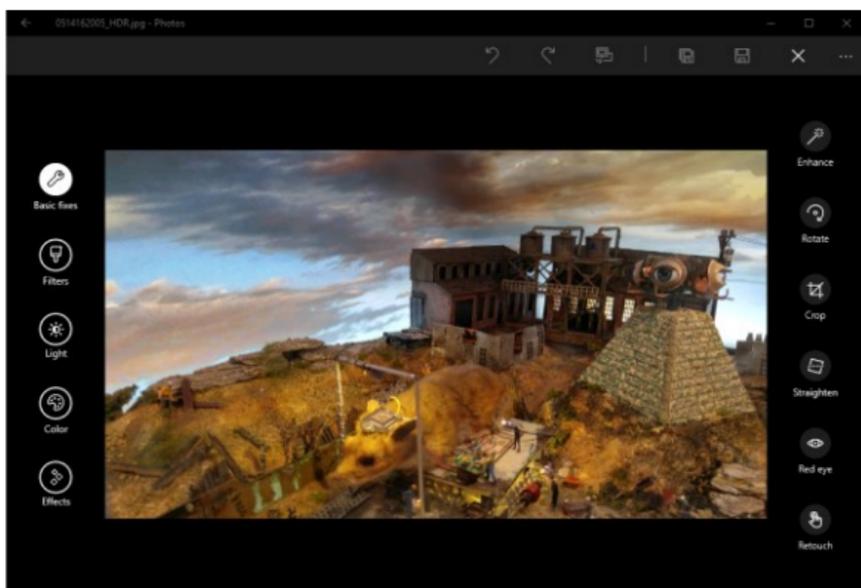
Figure 4-10: When you open a photo for editing, the Basic Fixes category includes easy-to-use tools for cropping, straightening, and retouching. Try the Enhance button (a magic wand icon) to let the Photos app do its best automatically.

For a seemingly simple editing program, Photos can do an impressive range of adjustments. One interface convention that definitely deserves a demo is the concept of circular dials rather than sliders for adjusting attributes such as brightness, contrast, and shadows.

Figure 4-11 shows one such control in action. The Light category is selected on the left, and clicking the Brightness control from the top of the column on the right opens the circular wheel, Drag clockwise to increase brightness, counterclockwise to decrease brightness.
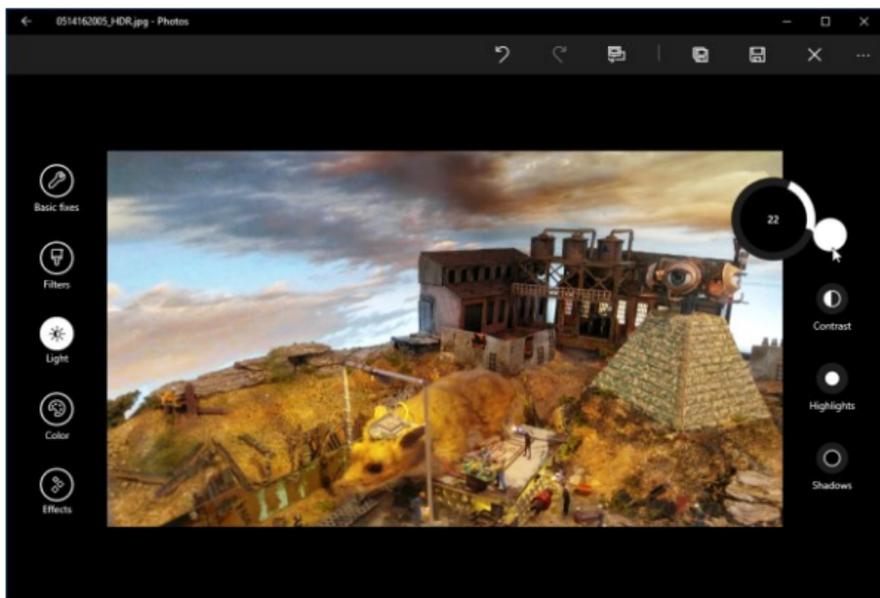
Figure 4-11: These circular controls—for turning brightness up or down in this example—are unique to the Photos app.

It's worth clicking the gear icon and taking a trip to the Settings page to set some extremely important options.

First, the Photos app automatically enhances all photos in your library. These enhancements don't affect the saved photo but are only visible in the Photos app. That can result in confusion if you share a photo and the recipient sees the unenhanced version.

Second, the Photos app by default combines multiple versions of a single image. So if you shoot a photo in both RAW and JPEG formats, the Photos app will combine them for viewing.

Photo enthusiasts might prefer to turn this option off.

Finally, you can choose whether you want to see all offline photos from OneDrive (potentially a very large number) or only those you've synced to a local folder.

Movies, TV, and Videos

The Movies and TV app handles moving pictures of all types. The app's name, of course, focuses on the content you can rent or buy from the Store, but it's also perfectly capable of playing back your personal videos.

Just as with the Groove Music app, Movies & TV supports a broad range of unprotected formats, including mp4, .m4v, .mov, .avi, and .wmv. The list includes all popular formats produced by smartphone cameras. Note that DRM-protected video files from sources other than the Store won't play in this app.

The navigation pane, shown in Figure 4-12 with the Movies category selected, displays poster-style images similar to those you would see on a DVD case. Click to open an item in this list to reveal Play and Download options.
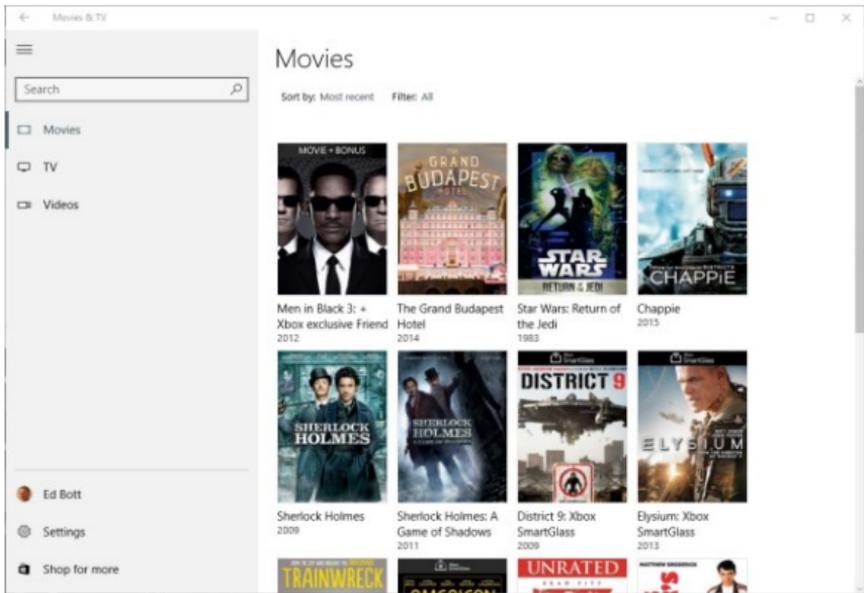
Figure 4-12: The Movies and TV categories emphasize content you own or have rented from the Store. In the Videos category, you can include personal videos from local or network folders.

When you press Play, your movie, TV show, or video appears in a window, with logical playback controls along the bottom, as shown in Figure 4-13. (The controls on either side of the Play/Pause button allow you to skip back 10 seconds or forward 30 seconds. Use the double-headed diagonal arrow to zoom the playback window to full screen and hide the playback controls until you move the mouse or tap the screen again.

Figure 4-13: The playback controls along the bottom of the Movies & TV app should be easy enough to figure out. Click the ellipsis (three dots) button on the far right to see additional commands.

As with the other apps I cover in this chapter, clicking the gear icon at the bottom of the navigation pane opens a well-organized Settings page, as shown in Figure 4-14.
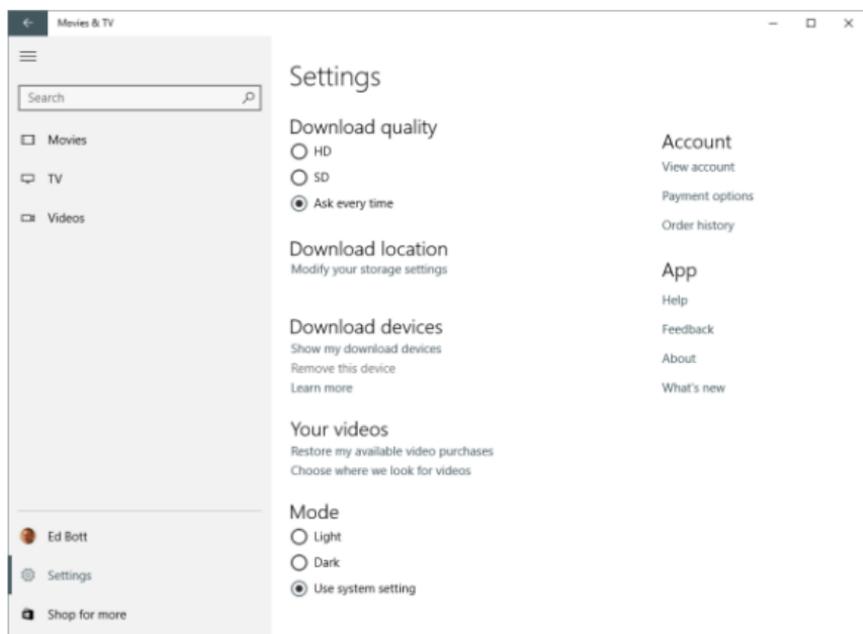
Figure 4-14: Video files and downloaded movies and TV shows can take up a lot of storage space. Use the options here to manage storage wisely.

The first option worth noting here is the group of Download Quality settings. On a device with a small screen and limited storage, Standard Definition (SD) might be a smarter choice than High Definition (HD). You should also look carefully at the Choose Where We Look For Videos option under the Your Videos heading. The Videos folder in your personal profile is included here by default, but if you store videos (which can be large files) on a separate drive or in a network folder, be sure to include those locations.

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Microsoft

Connecting to the Internet and cloud services

Even IT pros with advanced networking certifications occasionally have trouble making sense of how computer networks work in the real world. For mere mortals without that technical background, setting up a network and troubleshooting problems with an Internet connection can sometimes seem more like sorcery than science.

In fairness, modern networking *is* magical. The very idea that we can get news and sports scores from anywhere, as they happen, book a two-week vacation without the help of a travel agent, and have a high-definition video chat with a loved one halfway around the world is truly remarkable.

The good news for your users who aren't experts is that the building blocks of networking are fairly easy to understand. Windows 10 does an excellent job of configuring network connections out of the box, and it offers straightforward tools for viewing the status of a connection and fixing problems.

So let's begin with those building blocks.

Networking basics

For devices to communicate with one another over a network, you need a combination of hardware and software.

Your Windows 10 device has at least one network adapter, capable of making a wired or wireless connection to the Internet and to other devices on a local network, including PCs, printers, and even smart TVs. The software that controls each adapter is capable of chopping outgoing transmissions into packets and

reassembling received packets into the original data. Each network adapter has at least one *Internet Protocol (IP) address*, which ensures that packets of information are routed properly as they hop from one server to the next on their way to their destination.

To view the status of your network connection in Windows 10, your users can check in two different locations. The first is the notification area on the right side of the taskbar, where a network icon indicates whether you have a wired or wireless connection. Click that icon to see more details about your connection as well as a list of available Wi-Fi access points. Figure 5-1 shows a portable PC that has both types of connections available.
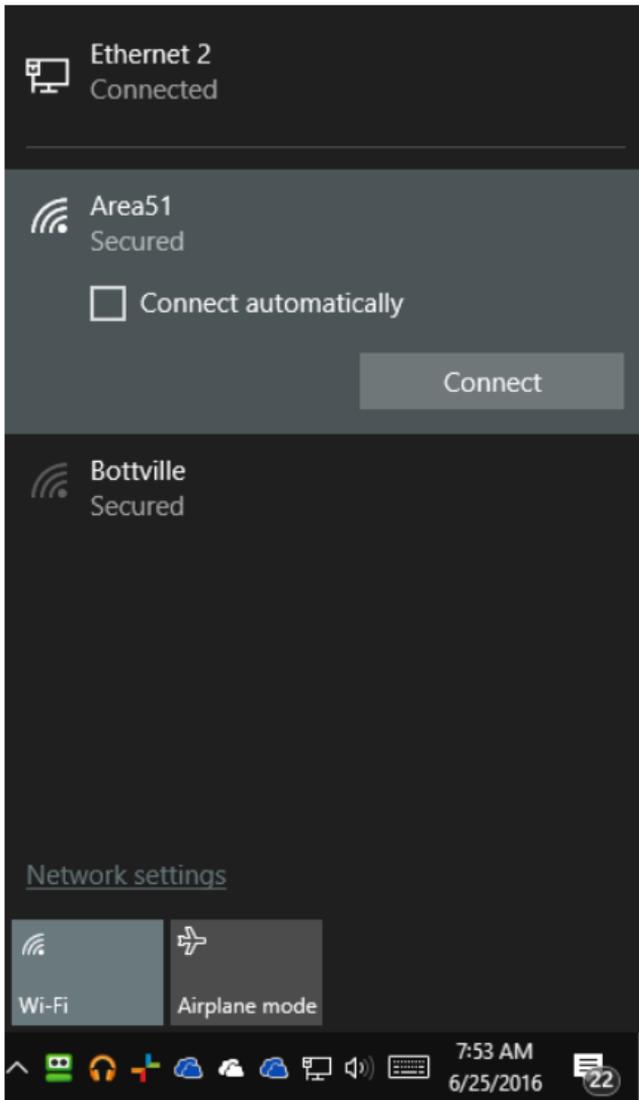
Figure 5-1: Descriptive icons differentiate between wired and wireless connections. The icon for available wireless access points serves double duty, as it also indicates the signal strength.

On this PC, the wired network (Ethernet 2) is connected to the Internet and sits at the top of

the list, above two wireless connections. The icon to the left of an available wireless network gives you an idea of its signal strength—the more bright lines you see in the icon, the stronger the signal.

On a Windows 10 PC running the Anniversary Update, version 1607, you can get a slightly different view of your network status. Go to Settings > Network > Status. If your Internet connection is working properly, you'll see the message and options shown in Figure 5-2.
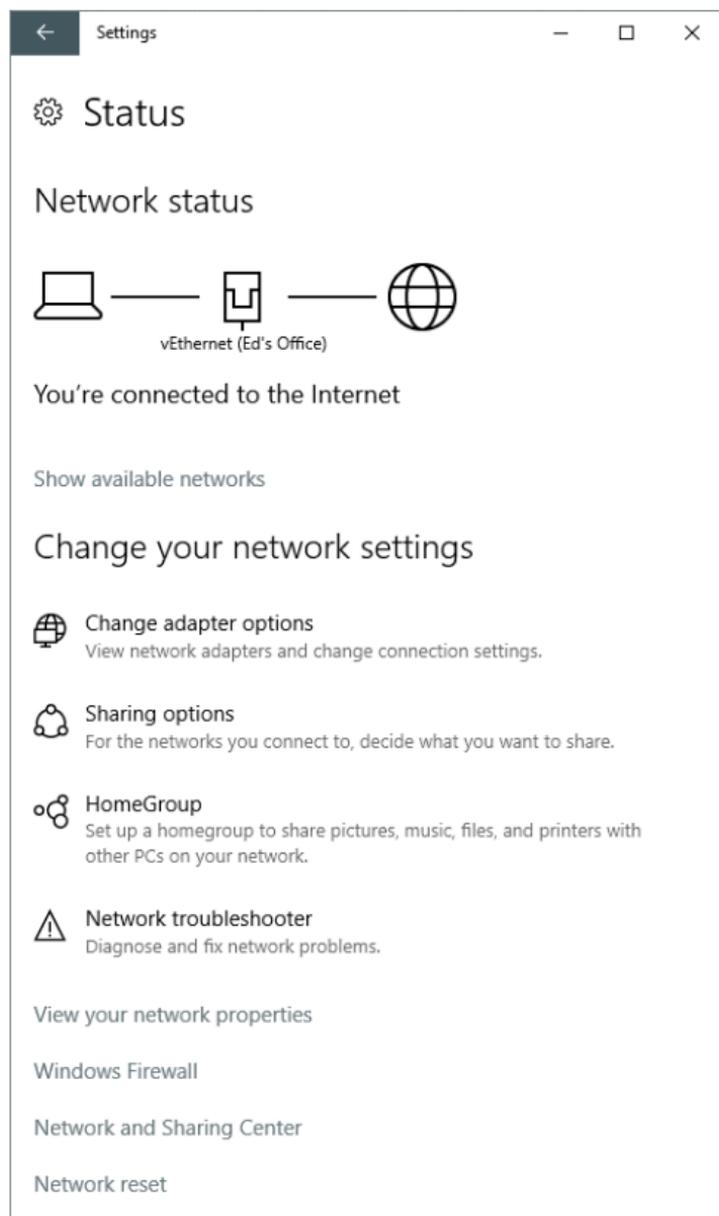
Figure 5-2: This Network Status page, which is new in Windows 10 version 1607, shows you at a glance whether your Internet connection is working properly.

If there's a problem with a network connection, you can often see the difficulty at a glance by looking at the icon in the notification area. A yellow exclamation point over the icon usually indicates a problem with Internet connectivity, whereas a red "X" over the icon means there's no network connection.

When Windows detects that the network connection isn't working properly, the Network Status page changes slightly, adding a prominent Troubleshoot button under a "Not connected" message, as shown here:
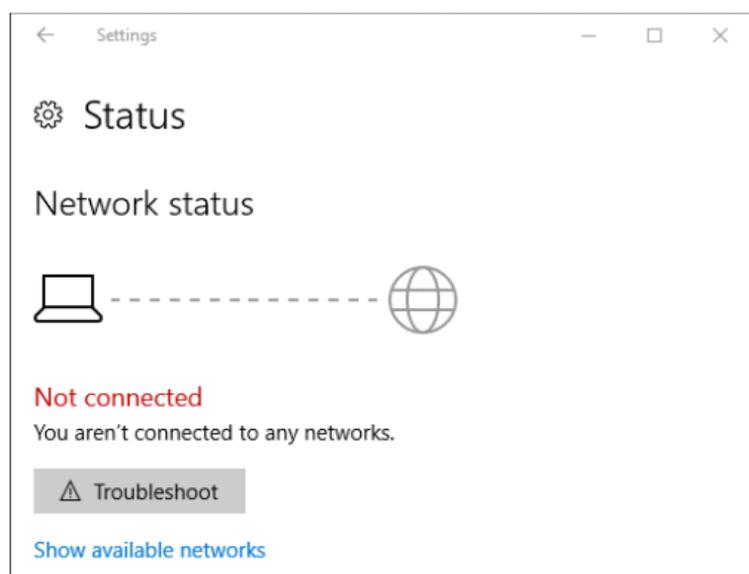
Most of the options on the Network Status page under the Change Your Network Settings heading require some technical knowledge to understand properly. But even nontechnical users should know about the View Your Network Properties link, which shows details about each network adapter, including technical details about its configuration that might be useful when calling a support tech or help desk.

Note It's practically a tech support cliché, but for most networking problems, the first piece of advice to offer users is "Have you tried turning it off and then back on again?" That applies not just to the computer but also to the router or gateway device that connects to the Internet service provider. Many times, a restart of one or both of those devices is all it takes to clear up a transient problem.

Working with Wi-Fi

Thanks to the ubiquitous Wi-Fi standard, notebooks and tablets can connect to the Internet so that you can get things done at home, on the road, or even in the air.

When Windows 10 detects that a wireless connection is available, it displays a dimmed wireless icon in the notification area, with a

gleaming highlight in the upper-left corner. Clicking that icon opens the list of available networks, and when you click any one of those networks you can try to connect.

Note that I said "try to connect." Security is a big deal on wireless networks, and how you connect—or even whether you are allowed to do so—depends on the security configuration of the network. You're most likely to encounter three options:

- **Open network**   These types of networks are often found in coffee shops and airports. They use no encryption on local network traffic and thus require no password or security key. An attacker could lurk in the vicinity of an open access point and intercept traffic from anyone attached to that access point. You should be extremely careful with open networks and never share any confidential information except over a secure (HTTPS) connection.

- **Secured network (shared passkey)**   Home networks and secure public networks typically use WPA2 encryption. That requires you to enter a shared key that encrypts traffic between your PC and the wireless network. Although this configuration is much more secure than an open network, you

should still exercise caution when using networks where you don't know and trust the owner of the network.

- **Enterprise network (802.1x)** Large organizations can secure wireless networks using WPA2-Enterprise encryption, which requires a separate server that handles authentication. Instead of entering a shared passkey, you gain access to the network using your own credentials—typically your corporate email address and password. This is the most secure wireless configuration but usually requires an IT department to set up and run.

Figure 5-3 shows the sign-in process for a WPA2-secured network using a shared key.
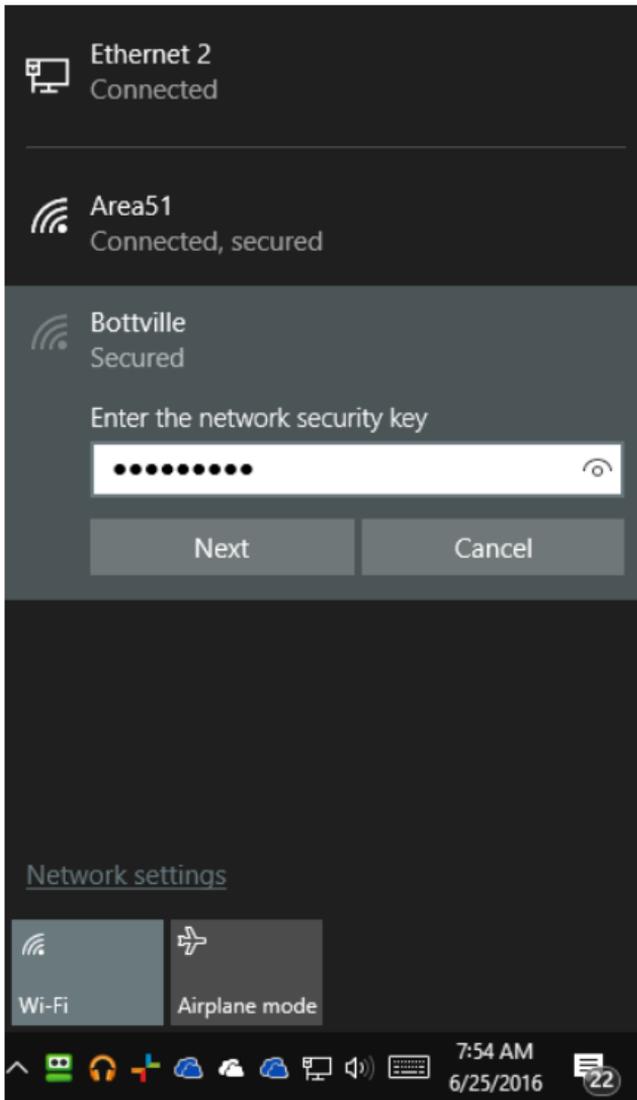
Figure 5-3: Most home networks use a shared key for security. Anyone who has the key can enter it here and connect to the network.

Figure 5-3 also offers an opportunity to demonstrate another useful Windows 10 feature. See the small button that looks like an eye at the

right side of the password box? You'll find a similar button in many places where you're asked to type a password in Windows 10. Click that eye and hold down the mouse button to make the password you've just typed visible. Release the mouse button to hide the password again. This is an extremely useful way to confirm that you typed correctly, especially when you're typing a long, complex passphrase or security key.

When you sign in to a secure network, you can click the Connect Automatically box to have Windows 10 store the security key for reuse. Later, when you're in the vicinity of that access point, you don't need to take any special steps to reconnect. If you sign in to Windows with a Microsoft account, those network credentials are synchronized across other devices where you use the same Microsoft account, making it possible to automatically connect to a wireless network even on a brand-new device.

Over time, especially for anyone who travels frequently, you can build up a long list of saved networks, many of them associated with destinations you'll never visit again. If you'd like to review and clean out this list, you'll find it in Settings under the Network & Internet category. In the Anniversary Update, version 1607, choose

Wi-Fi > Manage Known Networks. With Windows 10 version 1511, go to Wi-Fi > Manage Wi-Fi Settings, and scroll down to the Manage Known Networks section. As Figure 5-4 shows, each entry has two buttons associated with it.
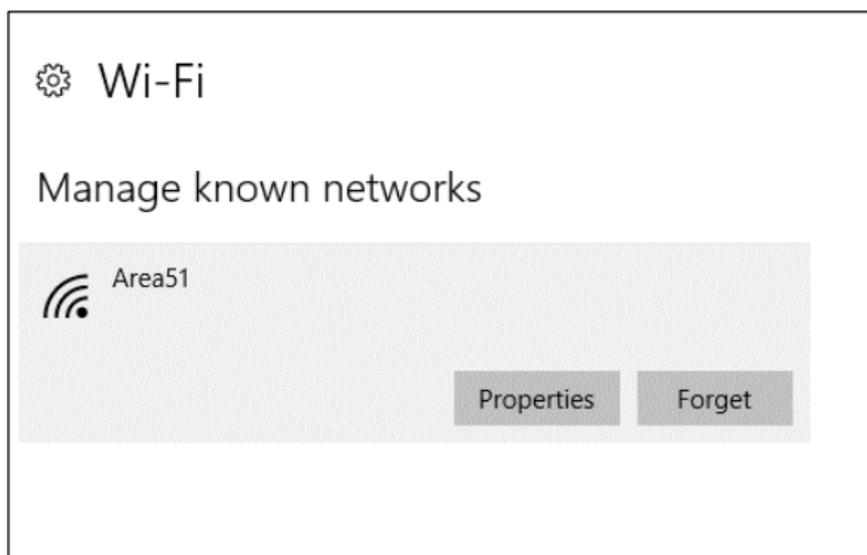
Figure 5-4: Every entry in the list of known networks has these two buttons. Click Properties to see and set additional options for that saved connection. Click Forget to remove all settings for that network from your PC.

Click the Properties button to see additional options, including a switch that tells Windows that you want to keep the saved security key but you don't want to automatically connect to that network. You can also define a network as *metered*. If you pay for bandwidth when using a particular connection, you might want to set that

option; Windows 10 treats metered networks differently from regular networks, avoiding actions like downloading large updates.

Windows 10 devices equipped with wireless radios (Wi-Fi, cellular, and Bluetooth) support a feature called Airplane Mode. On the list of available networks, you'll find a button at the bottom where you can tap to turn Airplane Mode on or off. You don't need to be on an airplane to use this feature, though. If you're using your Windows 10 PC in an area where no wireless signal is available, turning on Airplane Mode is an excellent power-saving measure.

To control the Wi-Fi and Bluetooth radios separately, go to Settings > Network & Internet > Airplane Mode. There, you'll find separate on-off switches for each radio in addition to the master Airplane Mode switch.

← Settings   — □ ×

⚙ Airplane mode

Airplane mode

Turn this on to stop all wireless communication, such as Wi-Fi,
cellular, and Bluetooth

⬤▬ Off

Wireless devices

Wi-Fi 2

▬⬤ On

Bluetooth

▬⬤ On
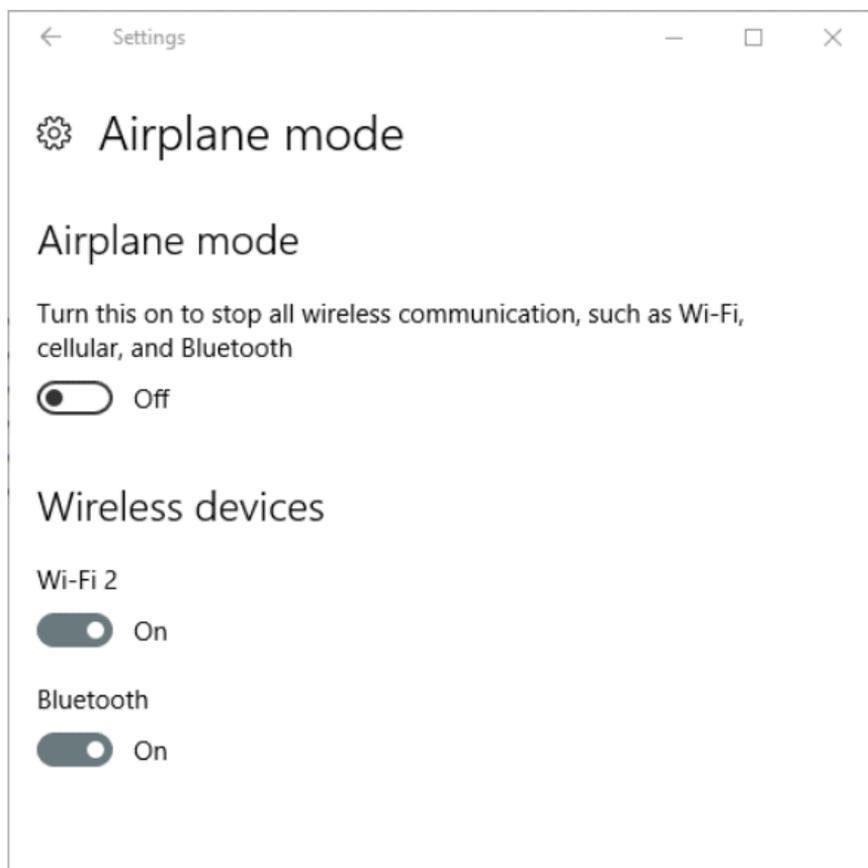
What do you do if you have a wired network
connection for a Windows 10 device but no
wireless access point is available for your Wi-Fi
equipped laptop? Beginning with Window 10
version 1607, you can go to Settings > Network
& Internet > Mobile Hotspot and configure your
working Internet connection for sharing with
other devices. Naturally, this option is only
available if the device you want to use as a
mobile hotspot also has a Wi-Fi network adapter.

As Figure 5-5 shows, this feature is turned off by default. Slide the Share My Internet Connection With Other Devices switch to On to begin. Click Edit to change the randomly assigned network name and password.
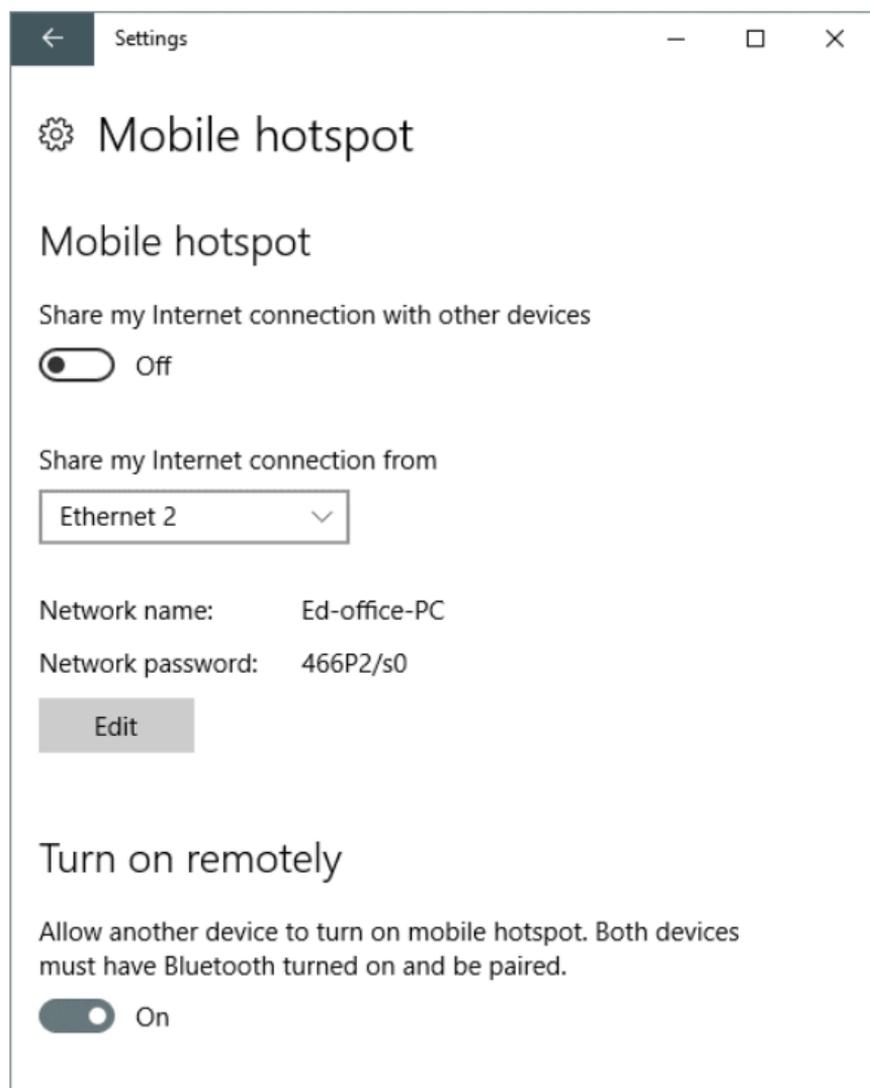
Figure 5-5: Use this option, which is new in the Anniversary Update, to share a wired network connection with other Wi-Fi equipped devices.

OneDrive

Just as with every previous edition of Windows, you can manage files stored on local drives and on any network to which you're connected. Windows 10 also builds in support for Microsoft's cloud-based storage services, OneDrive and OneDrive for Business.

What's the difference between those two products?

- **OneDrive** is a free service intended for consumers. New accounts receive 5 GB of cloud storage for free and can pay for additional storage. A paid subscription to Office 365 Home or Personal upgrades OneDrive storage to 1 TB per user.

- **OneDrive for Business** provides 1 TB of cloud-based file storage for anyone who subscribes to a Business or Enterprise edition of Office 365.

Windows 10 includes a unified synchronization client that works with both services. After you link the OneDrive sync client to your personal and business accounts, you can add, edit, or

delete files and folders in your OneDrive or OneDrive for Business account on any connected device, and your changes are reflected instantly (or nearly so) on any other PC where you sync those files and folders.

To set up OneDrive for the first time on a PC running Windows 10, type the email address associated with your Microsoft account in the dialog box shown in Figure 5-6 and then click Sign In.
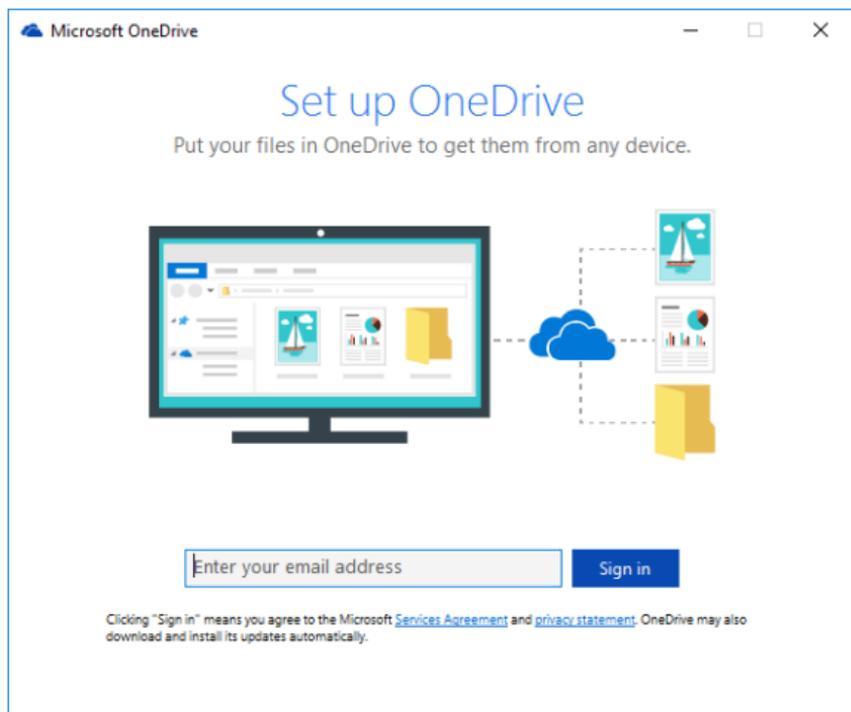
Figure 5-6: Every OneDrive account is associated with a Microsoft account. On Windows 10, this account doesn't need to be the same as the one with which you sign in, although that certainly helps.

After you enter your password, the setup wizard shows you a dialog box like the one shown in Figure 5-7, which displays the default folder for the local copies of your synced files. You can click Next to accept that setting or click Change Location to choose a different folder.
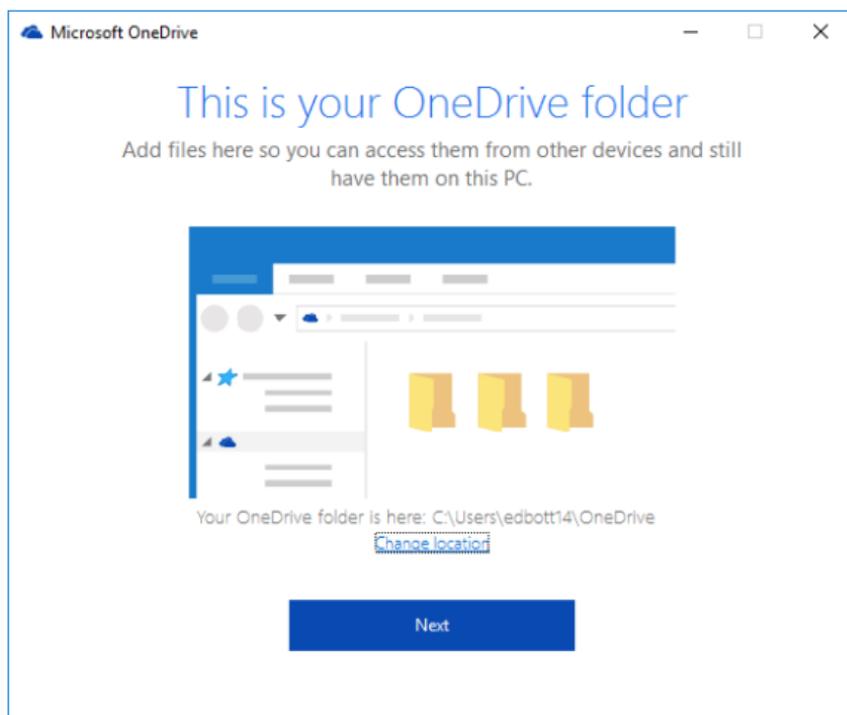

Figure 5-7: By default, OneDrive synchronizes files between your Windows 10 PC and the cloud, keeping the local copies in a folder within your user profile. This step of the initial setup is your only chance to change that location.

By default, this initial setup wizard creates a folder called OneDrive in your user profile and then syncs your cloud files to this folder. For

most PCs that have just a single drive for storage, this is the ideal location. However, if you want those files stored elsewhere—if you have a desktop PC with a relatively small SSD as the system drive and a much larger data drive, for example—now is the time to click Change Location and specify that alternative folder.

After you click Next, you're given the option to choose which files are synced to your local folder. The default setting is Sync All Files And Folders In My OneDrive. That's fine if you store a relatively small collection of documents, photos, and music files in the cloud. But if your cloud storage is overstuffed and your free space for local storage is small, that option won't work.

The OneDrive setup wizard does the math and tells you whether your selection will fit on the device you're setting up. Figure 5-8 shows a particularly dramatic example, with roughly 700 GB of files in the cloud but only about 64 GB of free space on the local drive.
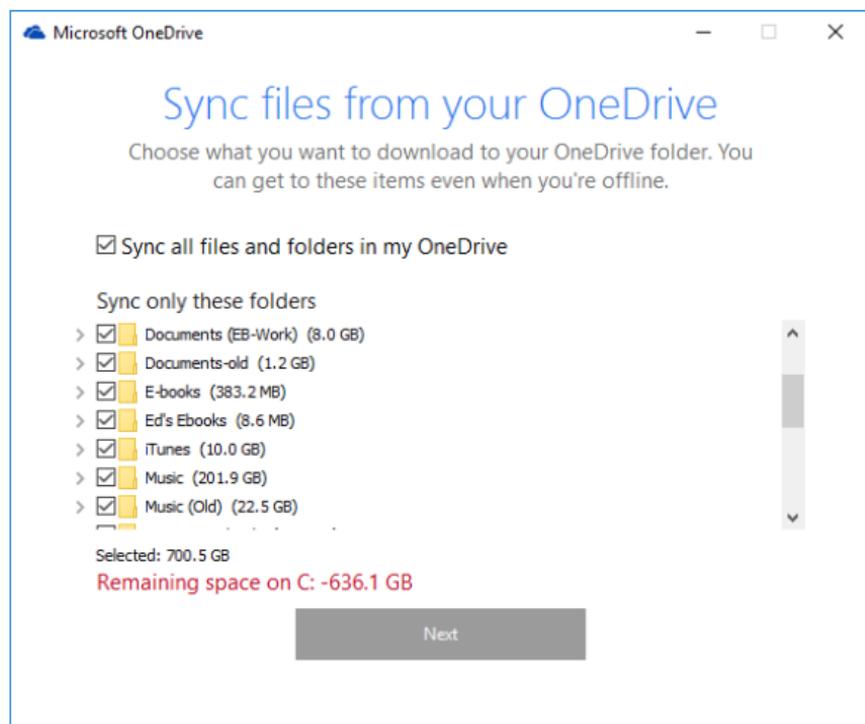
Figure 5-8: On this Windows 10 PC, the default option to sync all files and folders won't work. The negative number after the label "Remaining space on C:" means not enough local storage space is available.

When the OneDrive setup wizard detects that you don't enough space to sync all files and folders, as is the case in Figure 5-8, the Next button is dimmed and you can't click it. The only way to proceed is to clear the Sync All Files And Folders In My OneDrive box and then select individual folders that will fit. When the total amount of space used by the selected files and folders is smaller than the remaining space, you can click Next and complete the setup.

You can change these settings any time by right-clicking the OneDrive icon in File Explorer's navigation pane and then clicking Choose OneDrive Folders To Sync.

After setting up a personal OneDrive folder, the sync process begins automatically. To monitor its progress, click the cloud icon in the notification area. That displays a running total, like the one shown here. (If you allow the mouse pointer to hover over the OneDrive icon and don't click, you can see an alternative version of this progress message that includes the current download speed.)
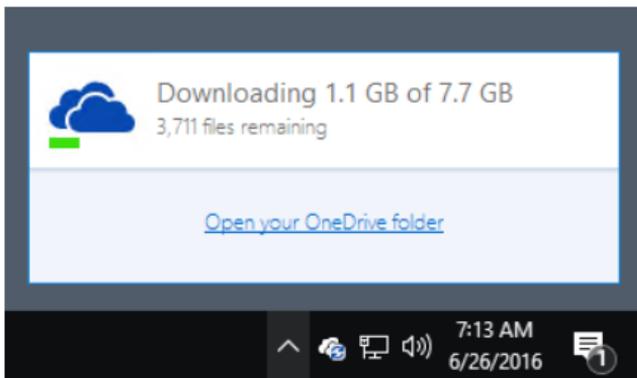
If you have a OneDrive for Business account, you use the same client to sync its files to a separate local folder. Right-click the OneDrive icon in the notification area, choose Settings, click the Account tab, and then click Add A Business Account, as shown in Figure 5-9.
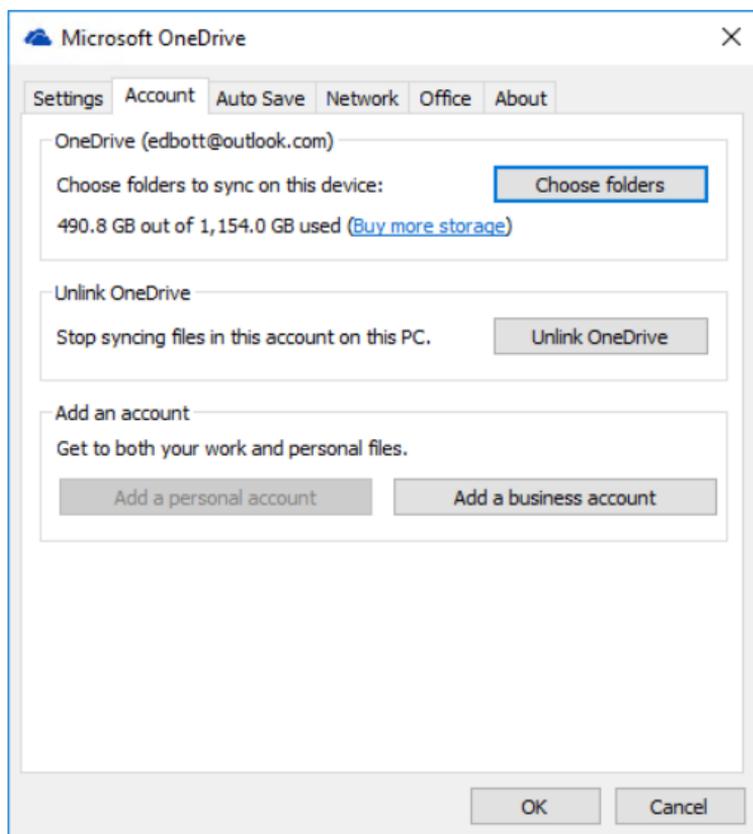
Figure 5-9: To sync all or part of a OneDrive for Business account to local folders, click Add A Business Account, sign in with your Office 365 credentials, and follow the setup steps.

The steps associated with setting up synchronization for a OneDrive for Business account are nearly identical to those for a personal OneDrive account, with the same option to select all or some folders to sync.

When you selectively sync folders from OneDrive to a local device, only synced files are available

from File Explorer. Files and folders you choose not to sync remain in the cloud, and you can access them any time by visiting OneDrive.com in a web browser, by clicking File > Open in a Microsoft Office app, or by installing the OneDrive app from the Store.

You can use other options in OneDrive Settings to automatically save new files to the Documents and Pictures folders in OneDrive rather than on your local PC and to restrict the amount of network bandwidth that OneDrive can use when it syncs.

The OneDrive sync software is included in Windows 10 and it cannot be uninstalled. An organization can use Group Policy to disable OneDrive from synchronizing with the cloud or connecting to other apps. This setting is available in Group Policy Editor under Computer Configuration > Administrative Templates > Windows Components > OneDrive. If you're running Windows 10 Pro or Enterprise, you can use the Local Group Policy Editor to change the same setting, as shown in Figure 5-10.
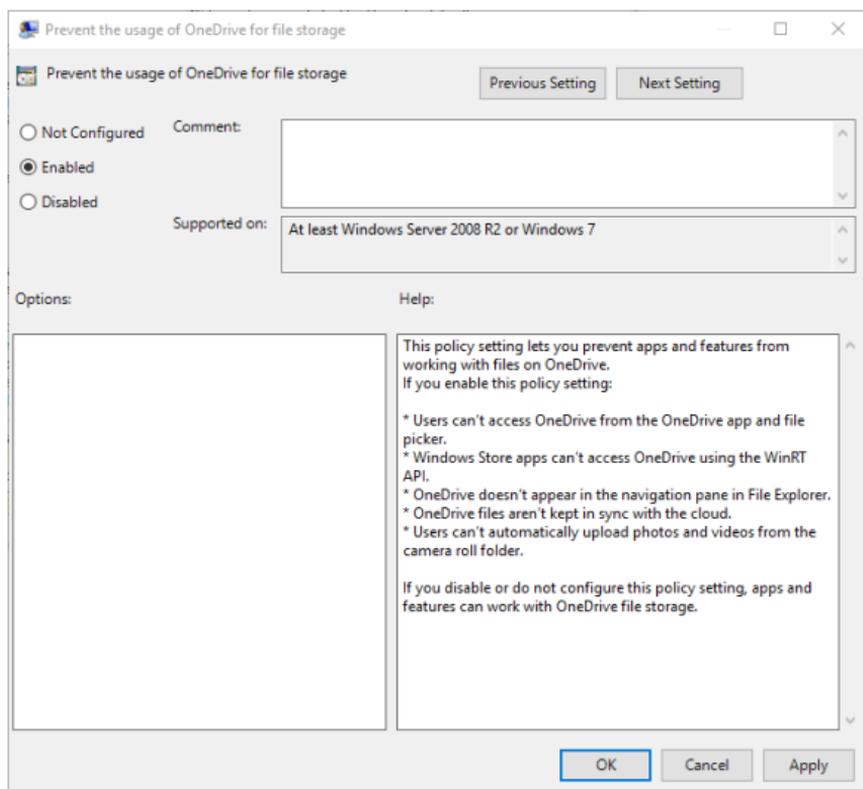
Figure 5-10: On a PC running Windows 10 Pro or Enterprise, you can use the Local Group Policy Editor to disable OneDrive file storage for all users of that computer.

Taking charge of hardware

The most startling characteristic of the Windows ecosystem is its sheer diversity. Regardless of their shape, size, or color, most PCs are made up of the same basic building blocks. But there are literally millions of possible variations of CPUs and chipsets and network adapters and display controllers and USB connectors and ... well, the list goes on endlessly.

And that's not even counting external devices like printers and scanners and pointing devices.

If you install Windows 10 on a PC that was designed and built in the past five or six years, it usually just works. When you attach an external device to a USB port or use a DisplayPort cable to connect a PC to an external monitor, that will just work, too. And if it doesn't work immediately, there's a very good chance you'll get the necessary software and drivers the next time you connect to Windows Update.

In this chapter, I focus on how to help users become comfortable with some of the most common types of hardware. Let's begin with the one that's arguably used more than any other.

Adjusting your display

You and your users spend hours every day looking at text and images on your display. Adjusting that display properly can help avoid

eyestrain and headaches, not to mention saving battery power on a portable device.

In Windows 10, you can check the current settings for your display by going to Settings > System > Display. (Even faster: Point to any empty space on the desktop, right-click, and then click Display Settings from the shortcut menu.)

For laptops and desktop PCs with a single screen, the Display Settings page looks something like the one in Figure 6-1. In fact, you can tell from two settings on this page that it belongs to a laptop PC. See if you can spot the telltale signs.
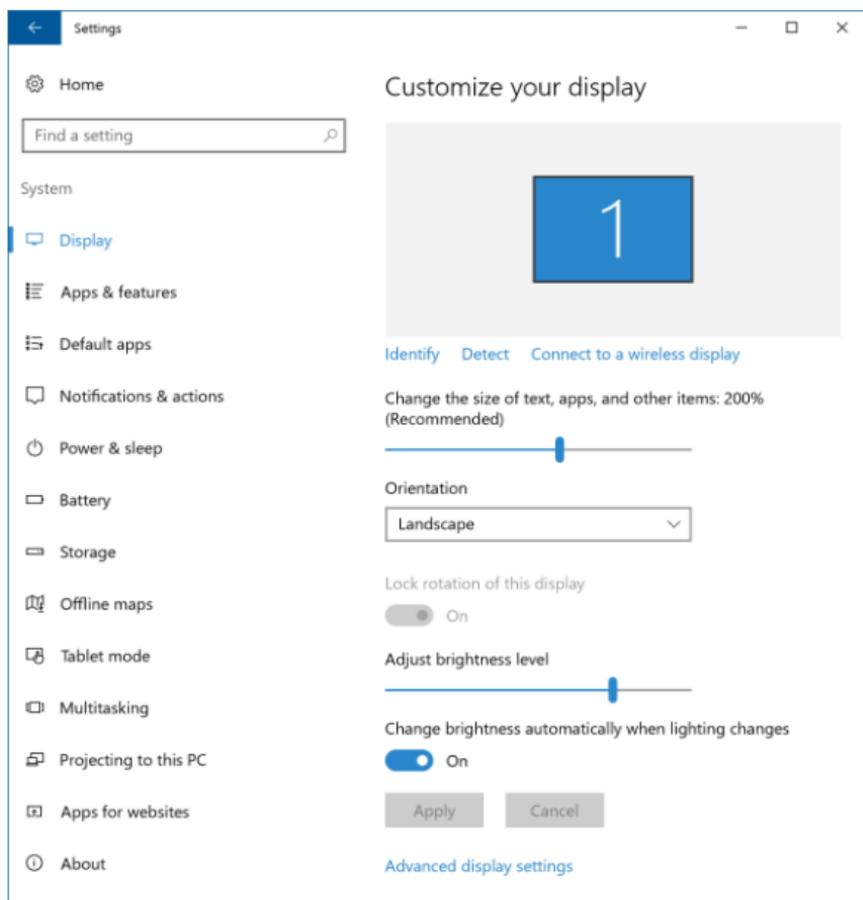
Figure 6-1: The rotation and brightness settings are found only on laptop and tablet displays. Note that Scaling is set to 200% on this device, which has an extremely high resolution for its size.

In Figure 6-1, Lock Rotation Of This Display is set to On. That switch is also dimmed and can't be changed. That's because these settings are found on a Microsoft Surface Pro 4, a hybrid device that has a detachable keyboard. In this example, because the keyboard is attached, Windows 10

treats it like a laptop and removes the ability to rotate the display. If you detach the keyboard and use the device as a tablet, that switch is available again.

Brightness is the other setting on that page that's common to laptops, which typically have a sensor that can make the laptop display brighter or dimmer to compensate for ambient light.

The brighter the display, the more battery it uses. To control brightness manually, turn off the Change Brightness Automatically When Lighting Changes setting and then move the slider to your preferred level. (Even faster: Skip this Settings page and use the Brightness button in Action Center, which cycles through various preset brightness levels with each tap.)

One setting you won't see on that page is display resolution. Windows 10 sets that value automatically, using the native resolution of the attached display. To see the current resolution and adjust it, click Advanced Display Settings. That opens a page like the one shown in Figure 6-2.

Settings

⚙ Advanced display settings

Customize your display

1

Identify   Detect   Connect to a wireless display

Resolution

2736 × 1824 (Recommended)   ⌄

Apply   Cancel

Color settings

Color management

Color calibration
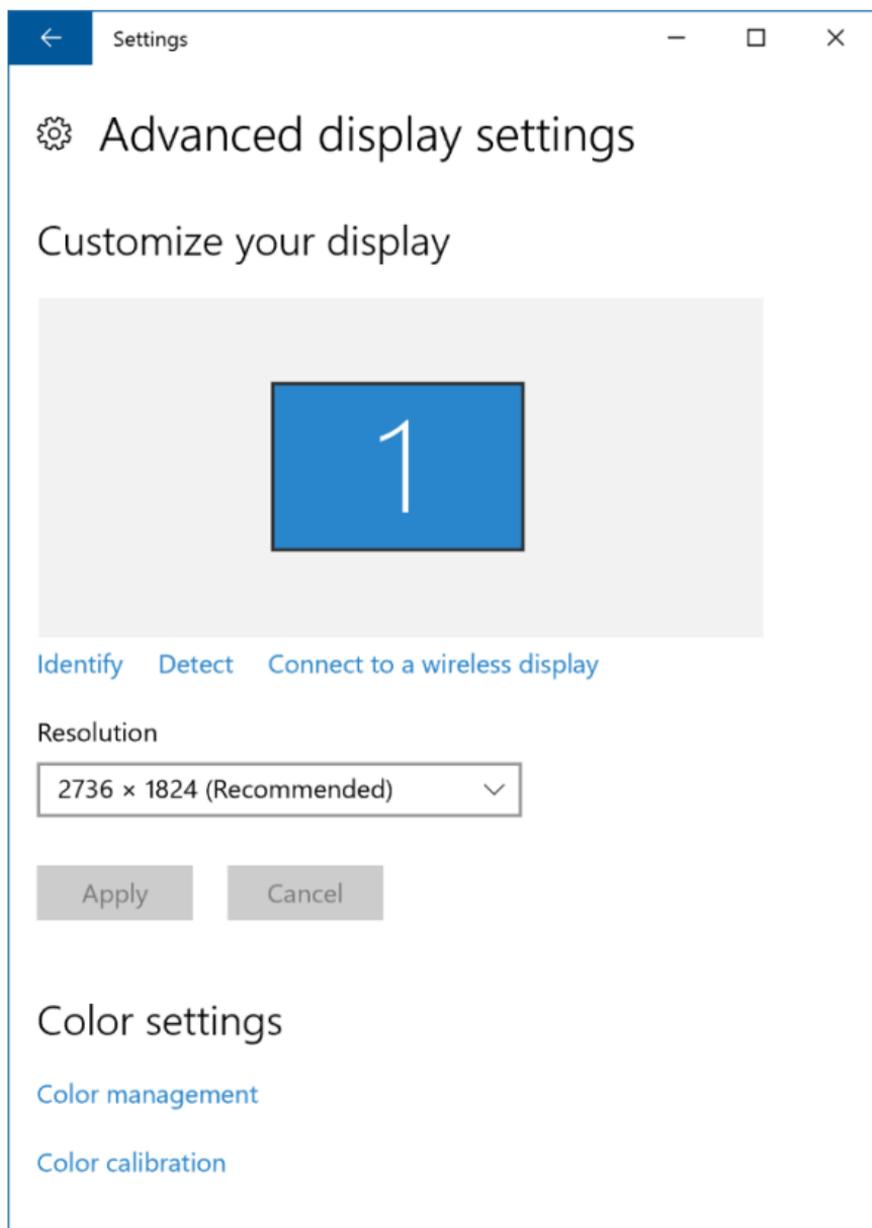
Figure 6-2: The Recommended resolution is usually the native resolution of your display, Changing the resolution usually makes for a fuzzier display and possible eyestrain.

Modern portable devices, including the latest members of the Microsoft Surface family, often have relatively small displays with very high resolutions. At those resolutions on a large display, such as one that measures 24 inches or more diagonally, program windows look perfectly normal. But if you shrink that display to a mere 12 or 13 inches diagonally without changing anything else, windows and dialog boxes become impossible to read.

That's where the Scaling control on the main Display Settings page comes in. In Figure 6-1, you can see it's set to the recommended value of 200%. That change adapts the appearance of apps and interface elements so that they're a comfortable size.

If you connect a large external monitor to that same PC and then sign in, Windows automatically detects the larger display size and sets the scaling to 100% so that it looks normal.

Users don't need to accept the recommended scaling. If your vision is as sharp as that of a red-tailed hawk, you can turn scaling down to pack more information on the page. Conversely, you can turn scaling up, even on a large monitor, to

make type easier to read without changing the native resolution. Just keep in mind that some apps might look a little strange with that sort of intermediate scaling.

One of my favorite recommendations for people who want to enhance productivity is to add a second monitor. With two (or more!) displays, you can arrange app windows side by side. Download statistics using a web browser, use those numbers to create a chart in Excel, and paste that chart into a Word document, all without having to continually switch contexts.

When Windows detects multiple displays, it shows a thumbnail of each display in the Settings page. Figure 6-3 shows my desktop, with a very wide 34-inch display on the left and a narrower display of the same height on the right.

⚙ Display

Customize your display
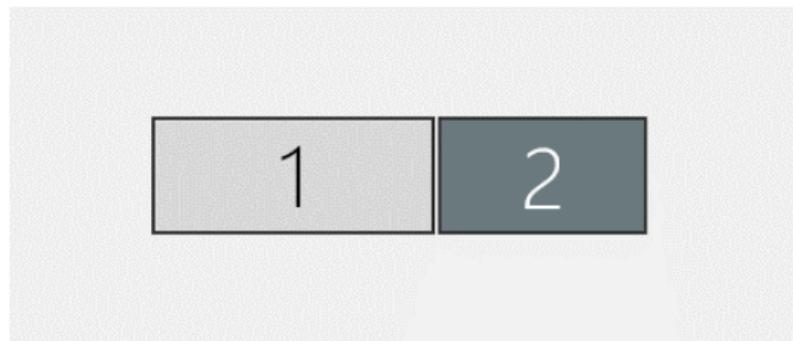
Identify   Detect   Connect to a wireless display

Change the size of text, apps, and other items: 100% (Recommended)

Orientation

Landscape   ∨

Multiple displays

Extend these displays   ∨

☐ Make this my main display

Apply   Cancel

Advanced display settings

Figure 6-3: Go ahead and drag the thumbnail images of the displays in this dialog box so that they match

your physical configuration. Not sure which monitor is which? Click Identify.

Here are a few helpful hints to pass along to anyone with multiple monitors:

- Not sure which display number in Settings goes with your monitors? Click Identify to briefly show the display number on each monitor.

- Those thumbnails move. If display 2 is actually on the left side of display 1, use the mouse to drag it to the correct position.

- You can move thumbnails up and down, too. If your monitors aren't perfectly matched, you might find that the mouse pointer jumps up or down as it moves between displays. To fix that, move the corresponding thumbnail in Display Settings up or down slightly until the pointer is in alignment on both monitors.

And finally, the keyboard shortcut you need to memorize if you occasionally connect a second, external display to your laptop is Windows key+P. That opens the Project flyout on the right side of the screen, as shown in the screenshot

that follows, giving you four options for how to arrange objects on the screen.
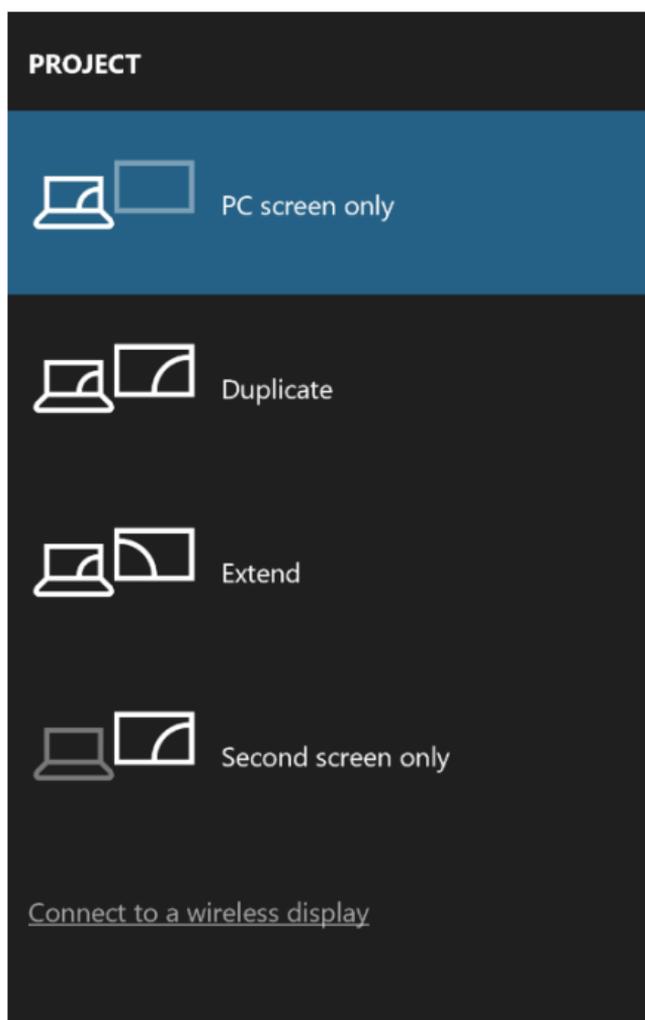
If your goal is to have a bigger workspace, choose Extend. Use Duplicate if you're delivering a presentation on an external display. Second Screen Only is the correct choice when you're using a laptop PC with a large external monitor

and you don't need the laptop's small built-in display.

With Windows 10, you also can connect to a wireless display using technology called Miracast or screen mirroring. New in the Anniversary Update, version 1607, is the capability to wirelessly project content from one Windows 10 PC to another. (You can also project from a phone running Windows 10 Mobile.)

This feature isn't turned on by default. To configure your PC so that other PCs can project to it over a wireless network, go to Settings > System > Projecting To This PC. Figure 6-4 shows the full array of available settings on a PC with a wireless adapter.

← Settings   — □ ×

⚙ Projecting to this PC

Projecting to this PC

Project your Windows phone or PC to this screen, and use its keyboard, mouse, and other devices, too.

Windows PCs and phones can project to this PC when you say it's OK

Available everywhere on secure networks ⌄

Ask to project to this PC

Every time a connection is requested ⌄

Require PIN for pairing

◉ Off

This PC can be discovered for projection only when it is plugged in

◉ On

PC name   XPS87-15

Rename your PC

Figure 6-4: On a Windows 10 PC that is configured with a wireless network adapter, you can choose to allow other Windows 10 devices to project content to the current screen.

Like any other networking feature, the settings here are designed to give you control over security. You wouldn't, after all, want a complete stranger to be able to push content to your display, would you? You can require a secure network, show a consent prompt before allowing a connection, add a PIN, and (as a power-saving measure) restrict projection to when the PC is plugged in.

With that setup out of the way, you can project to that PC from another Windows 10 device by using the Connect button in Action Center or by pressing Windows key+P and then clicking Connect To A Wireless Display. Figure 6-5 shows a connection in progress.
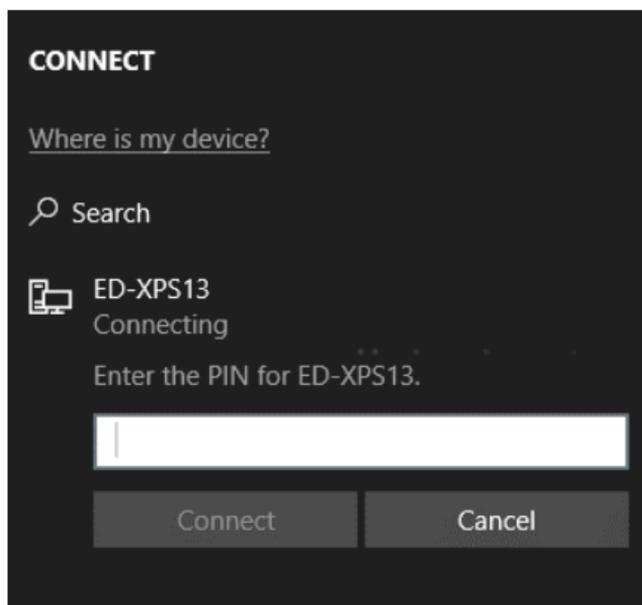
Figure 6-5: If the device to which you're trying to project is configured so that it requires a PIN, you can type it here.

This same basic feature set makes it possible for you to project your screen to wireless displays that aren't connected to a PC. This feature, called Miracast or screen mirroring, can be set up in a living room or a conference room by using a small receiver that plugs into the HDMI port on a display or a large screen TV. Microsoft's Surface Display Adapter is one such device, as is Amazon's Fire TV Stick. Figure 6-6 shows a Windows 10 PC connected to a big-screen TV using the latter device.
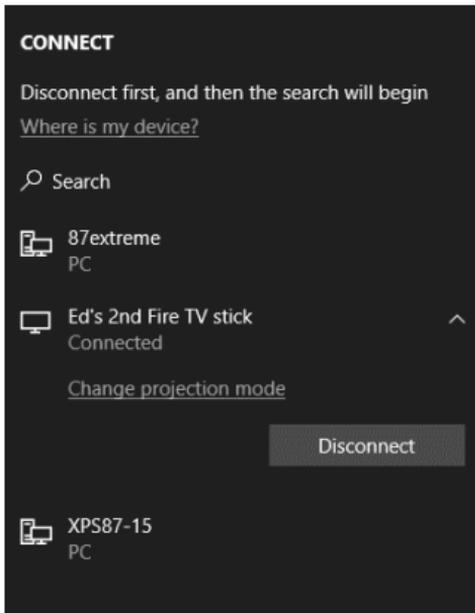
Figure 6-6: You can project the contents of one Windows 10 display to a larger screen with a Miracast or display mirroring device plugged into the TV's HDMI port.

Volume control and other audio settings

Sound is, of course, a crucial part of modern computing. Movies, music, news broadcasts, and snippets of video demand audio playback hardware. Online communication via Microsoft Skype and other services also works best when you can hear the person on the other end of the connection.

Modern PCs typically include at least one audio playback device. On desktop PCs, video cards often include their own sound controller, and you can use headphones (wired or wireless) to add yet another playback option. Most of the time, audio works as expected, but it's worth helping users understand how to configure different audio devices for different occasions.

Windows 10 includes a useful feature with which you can set one audio output—say, the speakers connected to your desktop PC—as the default device for playing music and system sounds, while assigning a different device, such as a set of headphones, as the default communications device.

To check these settings, and adjust them if needed, right-click the speaker icon in the notification area and then choose Playback Devices. That opens the Sound Control Panel, shown in Figure 6-7.
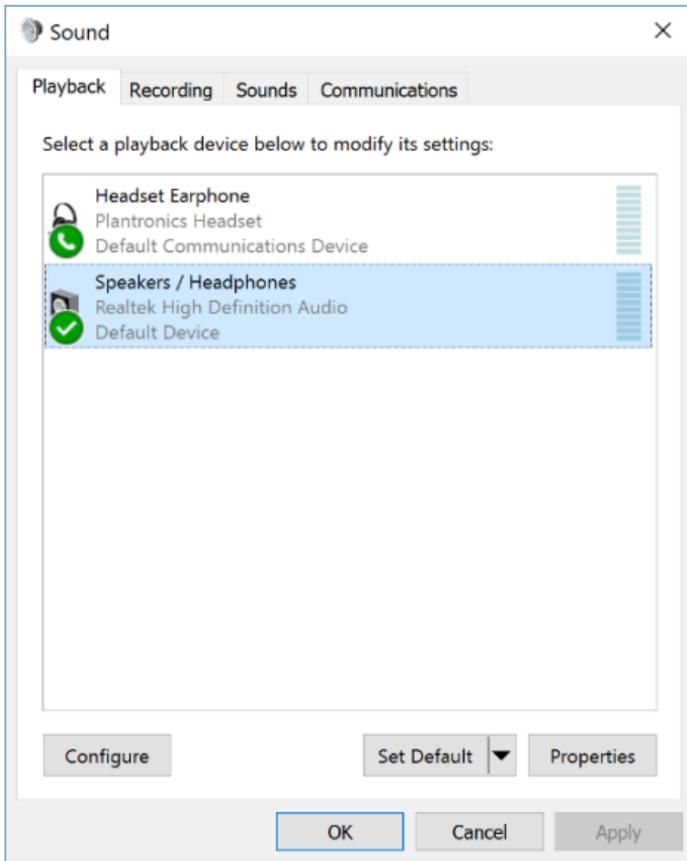
Figure 6-7: This Windows 10 PC has two audio devices attached to it. Using the arrow to the right of the Set Default button, you can set one as the Default Communications Device, leaving the other for music and system sounds.

As long as you have that dialog box open, it's useful to test your current audio configuration, especially if you have a multichannel speaker setup. After choosing the default sound device, click Configure, select your speaker setup, and then click Test, as shown in the next graphic.

That plays a series of test sounds through all the speakers connected to your device.
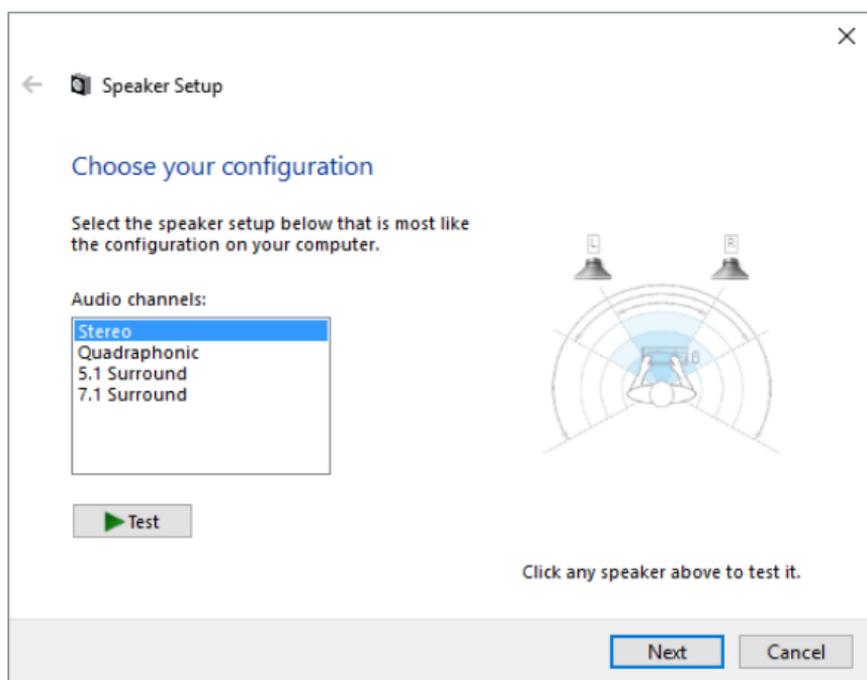
The other hidden audio feature that more Windows users should know about is the Volume Mixer, which you can use to rock out with your favorite music app without also blasting every system sound at full volume.

To open Volume Mixer, right-click the speaker icon in the notification area and then choose Open Volume Mixer. That opens a set of controls like the ones shown in Figure 6-8.
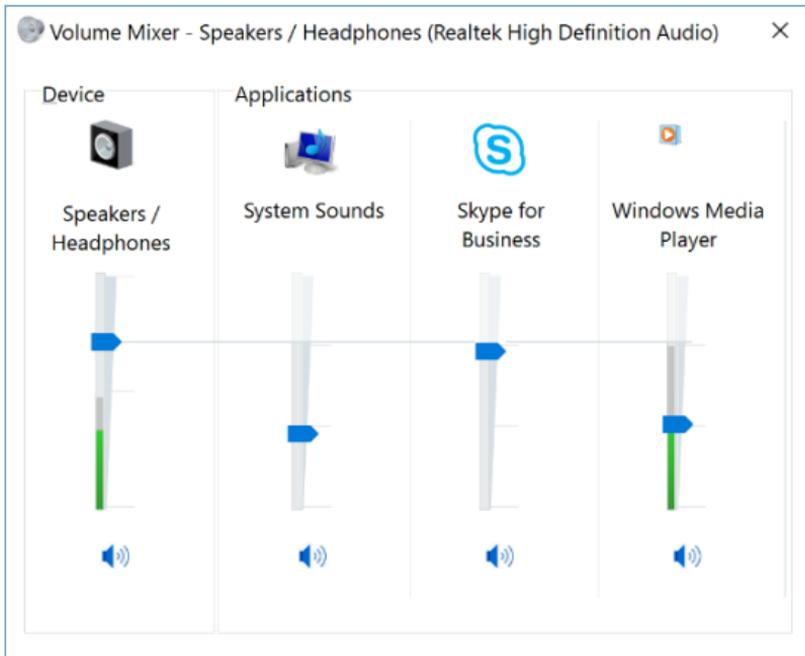
Figure 6-8: In the Volume Mixer, the slider on the left is the master volume control, with individual controls for apps on the right.

Volume Mixer is a legacy control, so the controls for individual apps apply only to desktop programs. For UWP apps acquired through the Windows Store, look for separate volume controls as part of the app itself. Groove Music, for example, includes its own volume slider, separate from the system volume control.

Managing storage

Most users with a nontechnical background will never need to worry about formatting or

partitioning a disk, so there's no need to introduce the Disk Management console or explain the mysteries of using the DiskPart command.

But those users should be able to manage how storage is used on their device, and Windows 10 includes some new tools that can help do exactly that.

Open Settings > Storage to see a list of available drives, as shown in Figure 6-9. This example includes a 128 GB system drive (C) and a separate 256 GB data drive (E). A legend underneath the label for each drive displays the total capacity of the drive and how much space is in use.
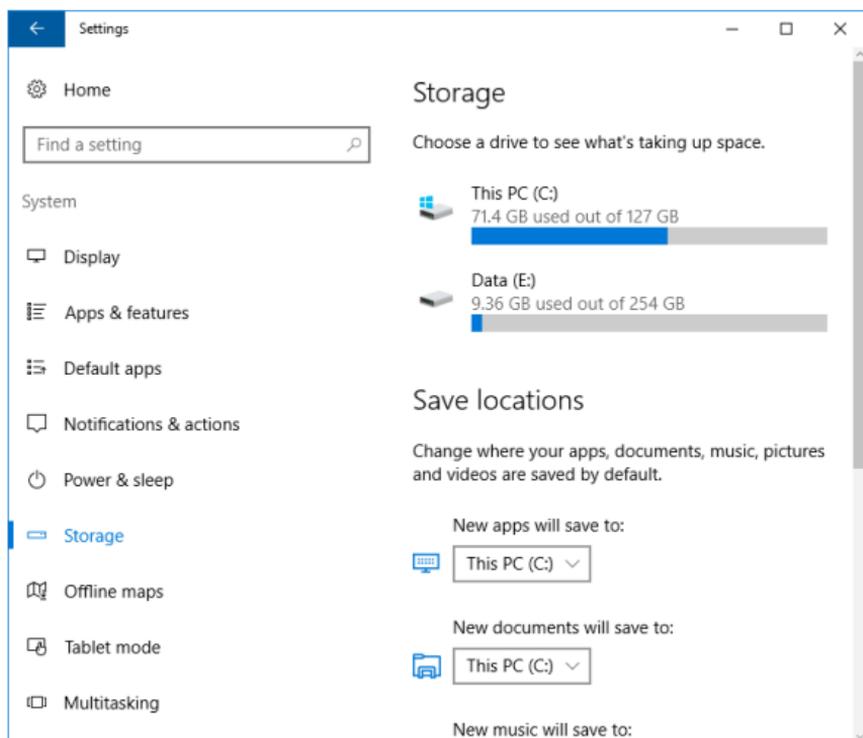
Figure 6-9: The Storage page in Settings provides a quick snapshot of how much space is in use and how much is available for each drive.

As you can see in Figure 6-9, 71.4 GB of 127 GB of total storage is available on the system drive. How is that space being used? Click the entry for a drive to open a detailed, color-coded breakdown like the one shown in Figure 6-10.
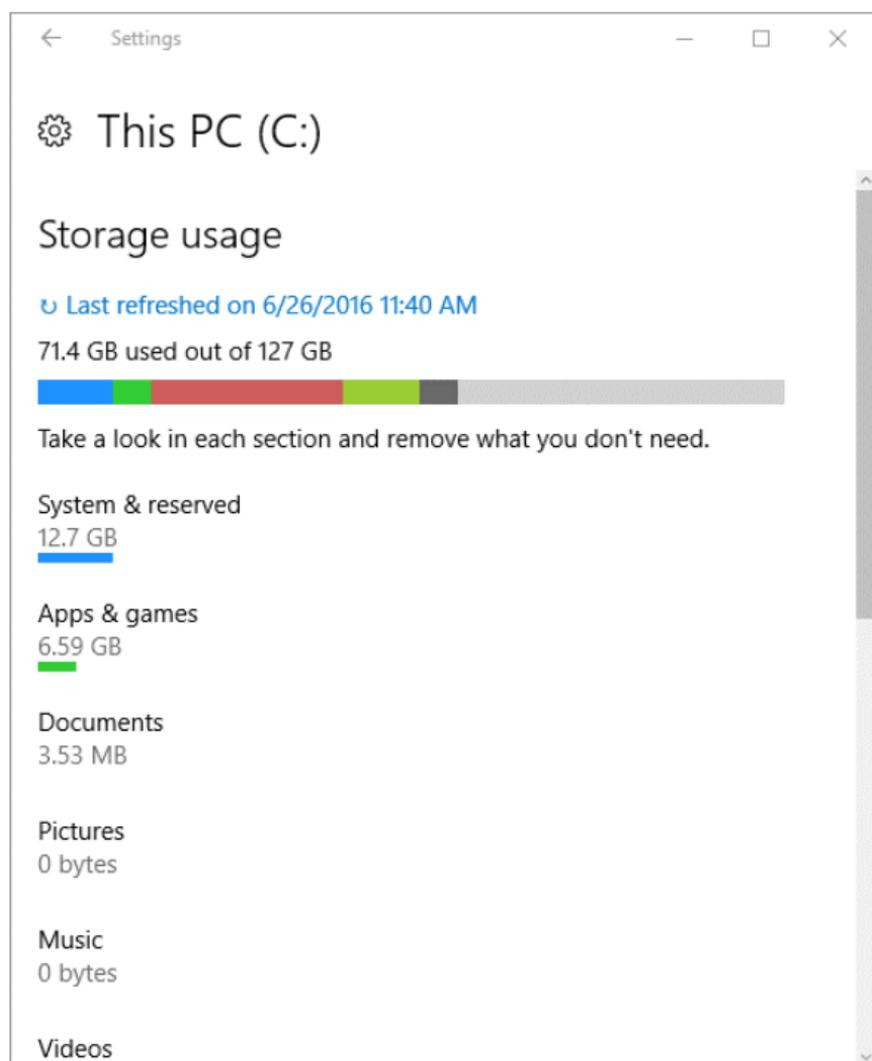
Figure 6-10: Click any drive on the Storage page in Settings to see more details of how that drive's space is being used, broken down by file type.

On a system like this one, with multiple drives, it's possible to move the contents of a standard data folder to a different drive to use space more efficiently. You can choose to save new files in

any of these well-known folders—Documents, Music, Photos, and so on—to a different drive. After you select a new location, you must click Apply to make the change, as shown in the following screenshot:
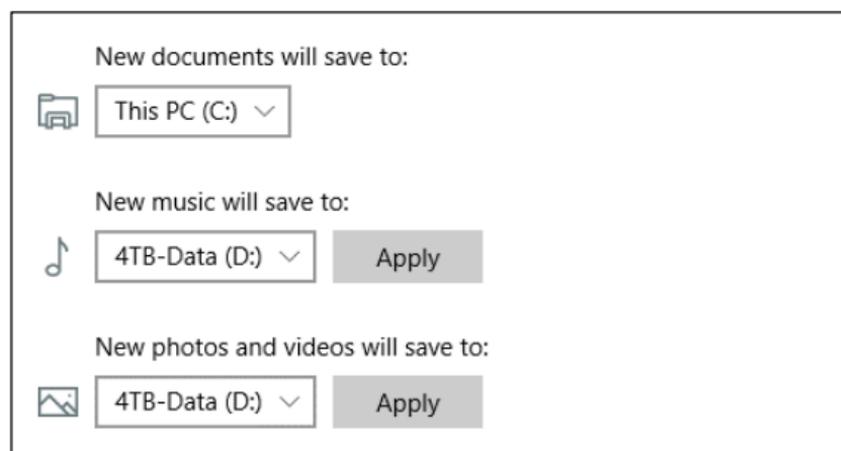
Digging through the categories in that list of how your storage is being used can be an instructive exercise. For Documents, Music, Videos, and other content-based categories, clicking a category name opens a list of folders that shows how much space is being used by that file type in each location. Clicking any folder link from that list opens that location in File Explorer, giving you the opportunity to delete or move space-gobbling files and folders that are no longer needed.

For some categories, however, the options are far more interesting. On my test PC, for example, clicking the Temporary Files category shows that it contains 12 GB of files that are, presumably, expendable. And instead of showing bare file listings, that page offers useful actions, as shown in Figure 6-11.
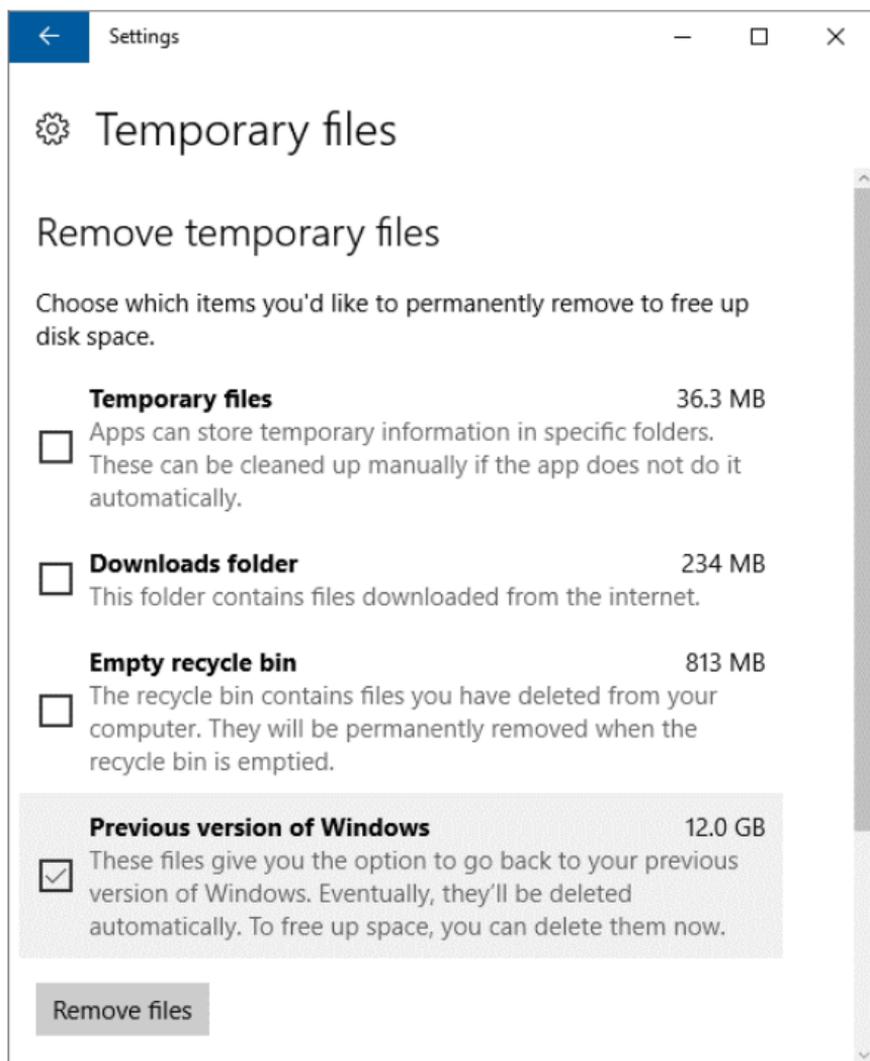
Figure 6-11: When you open the Storage page in Settings and dig into a category like Temporary Files, the result includes options that make it easy to recover used space.

Likewise, the Apps & Games category offers information that you can use to decide whether the storage space an app is taking is justified. In

Figure 6-12, I've used the controls at the top of this list to sort by space used. That action automatically shows me which apps are hogging the most space, and I can click any app to uninstall it (and remove its associated data) immediately.
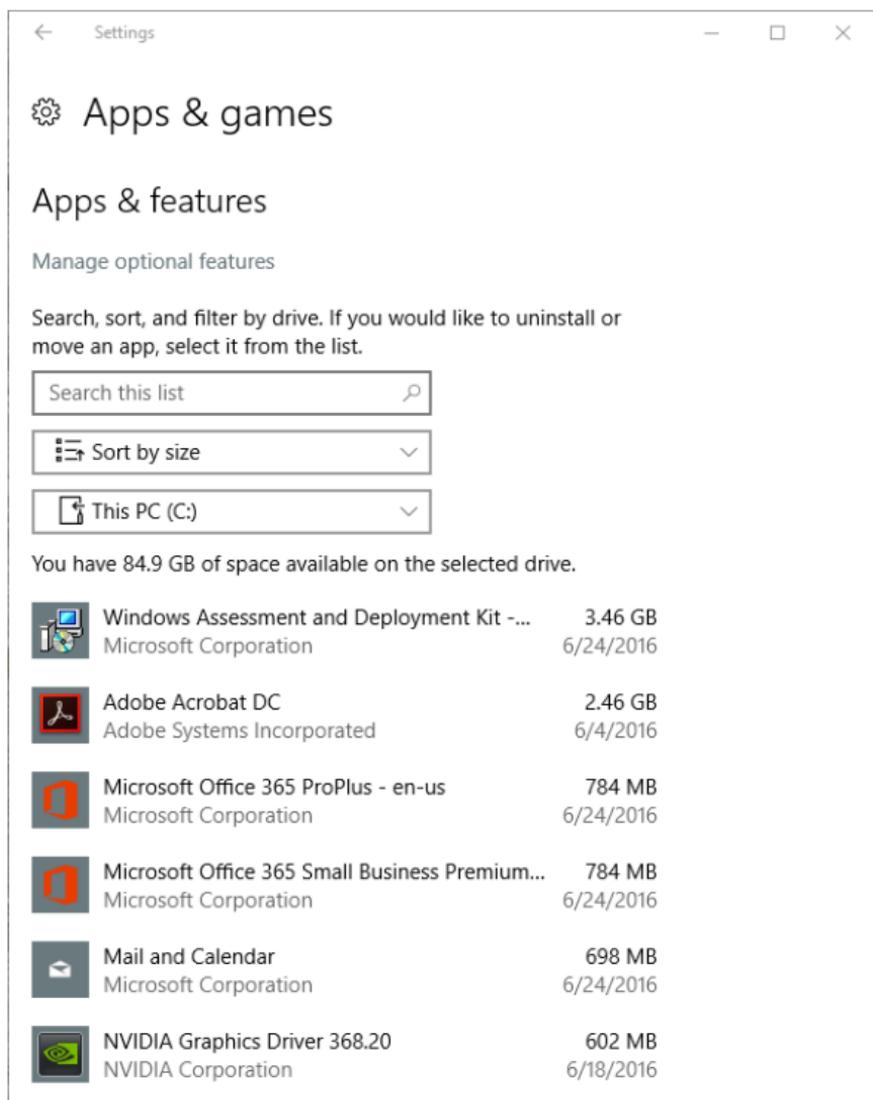
Figure 6-12: If you're curious about how much space an app and its data are using, wonder no longer. The Apps & Features section on the Storage page in Settings offers full details.

Setting up printers

For decades, futurists have been predicting a paperless society. And in the past few years, we've taken a few tentative steps in that direction, with concert tickets, boarding passes, newspapers, and even books (like this one) moving to pure digital formats and saving whole forests in the process.

Alas, there are still times when nothing but ink on paper will do, which is why printers aren't going away any time soon.

The nuts and bolts of connecting a printer to a Windows PC haven't changed much in the past decade. Most modern printers connect to a PC through a USB connection, and Windows is capable of setting up almost all of those printers automatically. For a plain-vanilla laser printer, the Plug and Play process works well, as in the example in Figure 6-13. When Windows 10 detected that a new printer had been plugged into a USB port, it automatically installed the correct drivers.
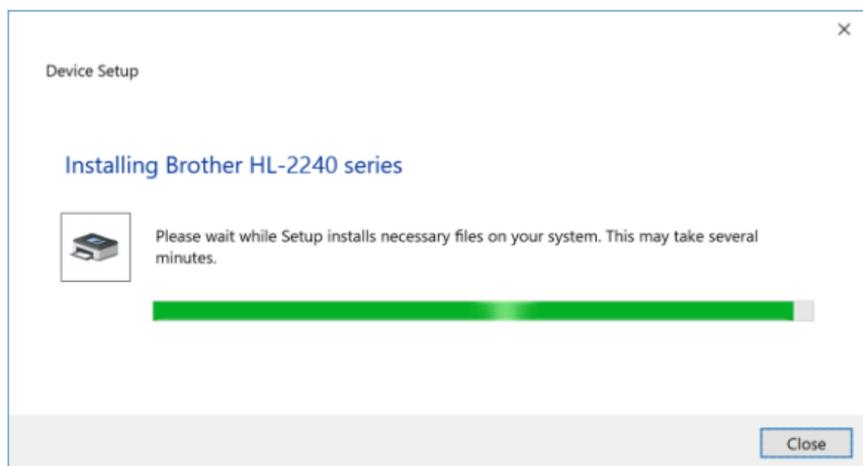
Figure 6-13: For most printers, Plug and Play automatically finds and installs the class drivers that make basic functions possible.

For basic printing functions, the class drivers included with Windows 10 are usually sufficient. More complex devices—such as all-in-one hardware that combines scanning, printing, and faxing functions—often requires more elaborate software. For those devices, it is wise to read the documentation first. Typically, the recommended installation process involves setting up software from a download site before plugging in the hardware itself.

After you successfully install a printer, you can find its controls in Settings, under the Printers & Scanners section, as shown in Figure 6-14.
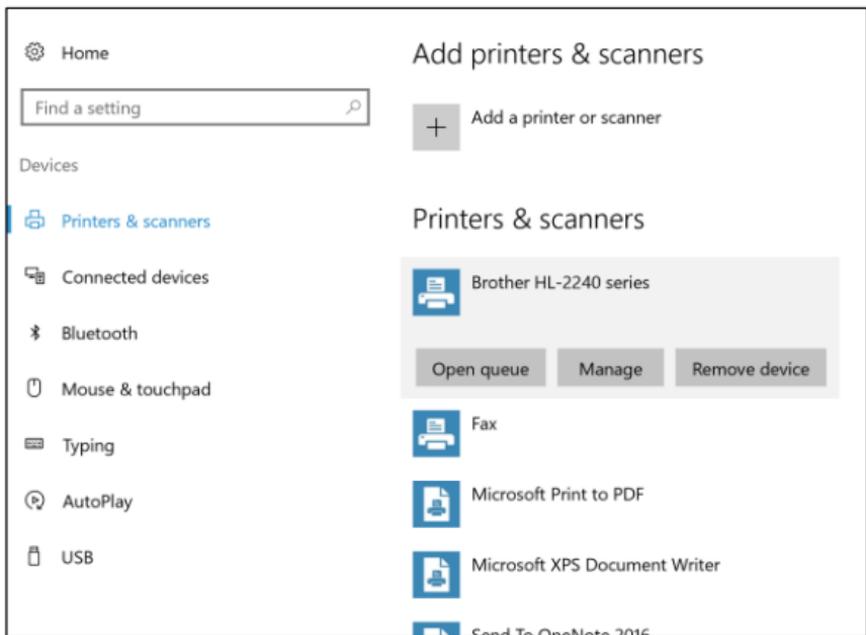
Figure 6-14: After you successfully set up a printer, it appears in this listing under Settings, where you can manage or remove it.

One benefit of UWP apps in Windows 10 is a standard Printer dialog box like the one shown in Figure 6-15.
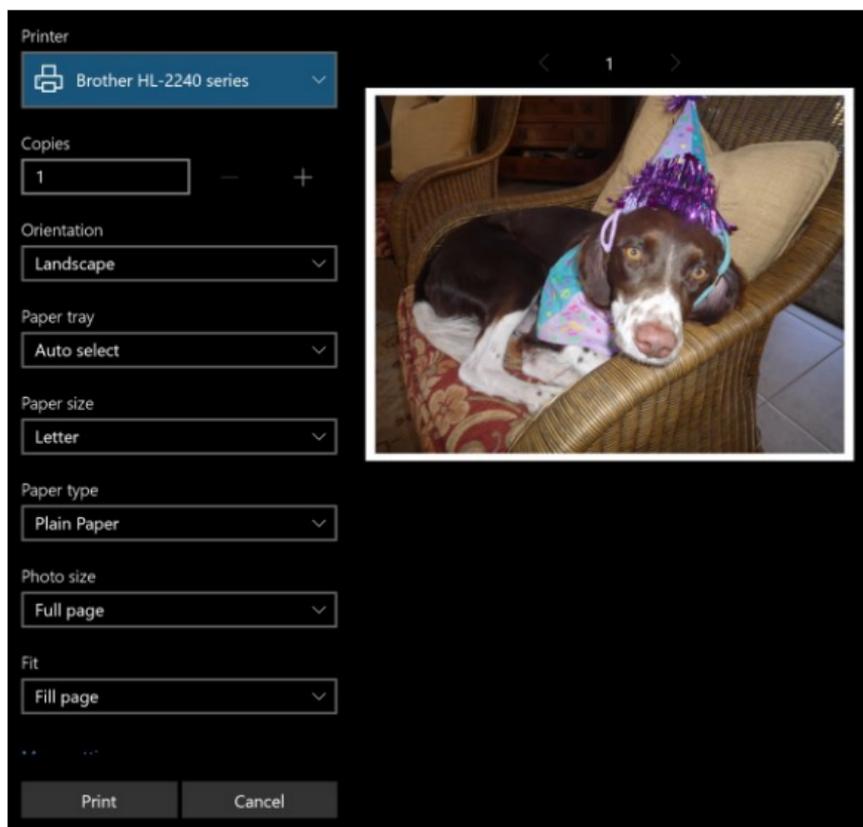
Figure 6-15: All Universal Windows Platform apps include a standard Printer control, shown here, where you can change settings for orientation, paper size, and other settings.

As with other parts of Windows 10, many of these printing functions are in the process of moving from the old Control Panel style to the modern Settings design. In the Windows 10 Anniversary Update, version 1607, a significant number of these settings have already moved,

including the option to open the print queue for a specific printer, as shown in Figure 6-16.

⚙ Brother HL-2240 series

Manage your device

Printer status: Idle

[Open print queue]

Print a test page

Run the troubleshooter

Printer properties

Printing preferences

Hardware properties
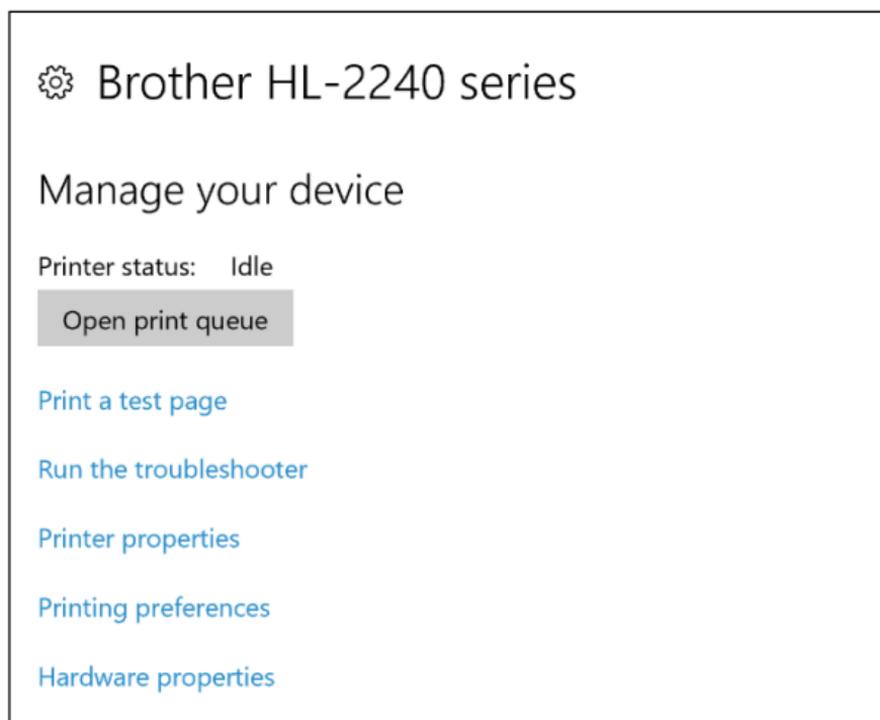
Figure 6-16: Options for working with printers are slowly moving to the modern Settings app, but many, including the five links at the bottom of this dialog box, are still in the old Control Panel style.

This section assumes, of course, that you're connecting a printer to a Windows 10 PC using a direct USB connection. For wireless and network printers, which can't be detected automatically, you can click the Add A Printer Or Scanner button and run an extra step, as shown in Figure 6-17.
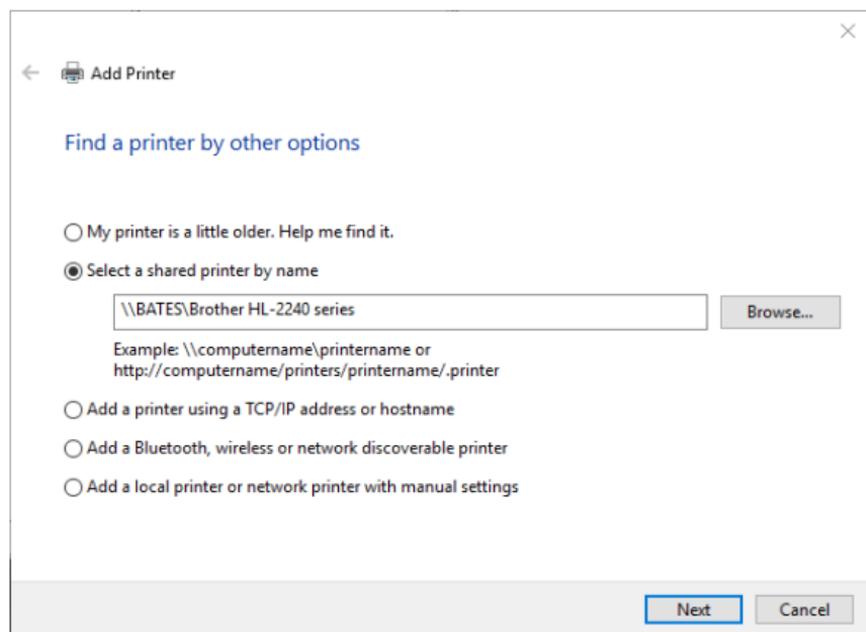
Figure 6-17: To add a network or wireless printer, use this straightforward dialog box.

Updating device drivers

Throughout this chapter, I've mostly avoided mentioning drivers—the software that helps hardware work with Windows. That was a deliberate decision on my part. In general, most users shouldn't need to think about drivers. But there are times when you can't avoid the subject.

If a device isn't working properly, the first thing to look for is an updated hardware driver. That usually entails a visit to the manufacturer's

website to see if the device has a more recent driver than the current one.

The fastest way to check the current driver version is to open Device Manager. (The easy way: Right-click Start and then click Device Manager.) Find the device in question and double-click to open its Properties dialog box. Finally, click the Driver tab to reveal details like those shown in Figure 6-18.
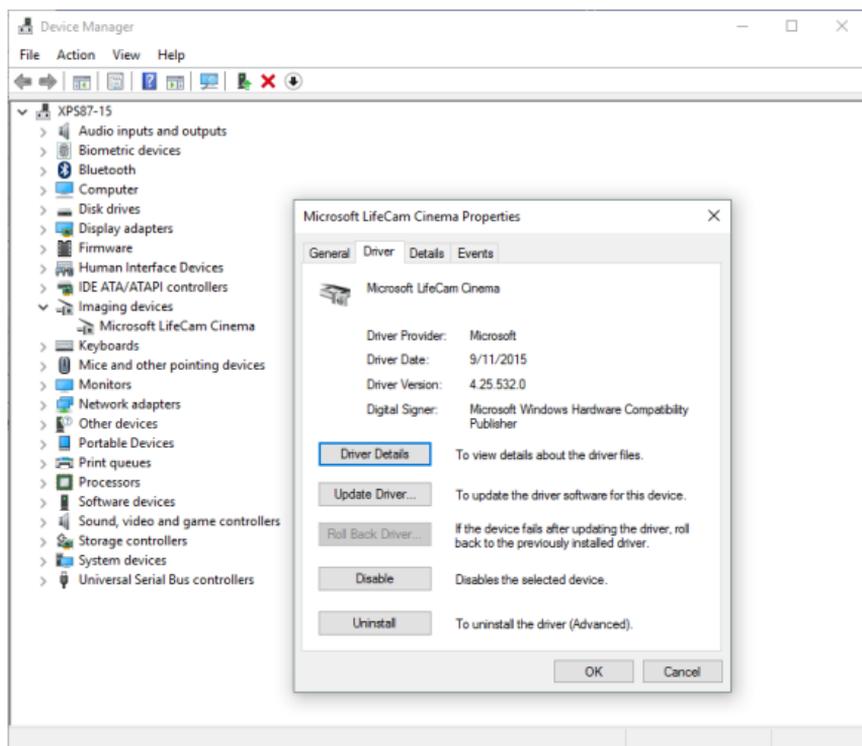

Figure 6-18: Double-click any entry in Device Manager to see its properties. The Driver tab shows details about

the current driver, including the most important detail of all, the version number.

In most cases, updating a device driver is relatively simple: Download an executable file that replaces the currently installed version. In some cases, though, you need to forcibly remove the current version first. To do that, click Uninstall from the Driver tab, and then select Delete The Driver Software For This Device, as shown in Figure 6-19.
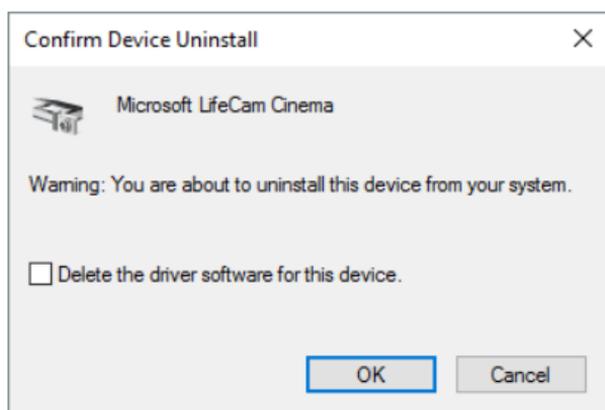
Figure 6-19: Select the check box at the bottom of this dialog box if you want to remove an older driver version before installing a new one.

Staying productive on mobile devices

Modern Windows devices increasingly blur the lines between traditional categories. That's especially true with the introduction of hybrid designs such as Microsoft's Surface Pro and Surface Book devices. With a keyboard attached, they act just like laptop PCs. Remove the keyboard and these devices works like a tablet.

Even in traditional form factors such as the clamshell-style laptop, Windows 10 offers some interesting improvements over its predecessors, especially when it comes to power management.

This chapter covers the best way to introduce some of those new features to people who might be unfamiliar with hardware that falls outside the bounds of a conventional PC. That list of features includes the Windows Ink platform, which is available on pen-equipped devices such as those in the Surface family. Likewise, for anyone who owns a hybrid device, understanding how tablet mode works is an essential survival skill.

But we begin on traditional ground, with the eternal quest for longer battery life.

Managing power options

By definition, mobile devices need to be able to operate untethered from power cords. PC designers have worked diligently in recent years to add intelligence to laptops and tablets so that they can spring into action when you need them and then slide back into power-saving mode when you're finished.

On a laptop PC, a hybrid device, or a tablet, the easiest way to see at a glance how much battery remains is to tap the Battery notification in the taskbar. That action opens a flyout like the one shown in Figure 7-1.
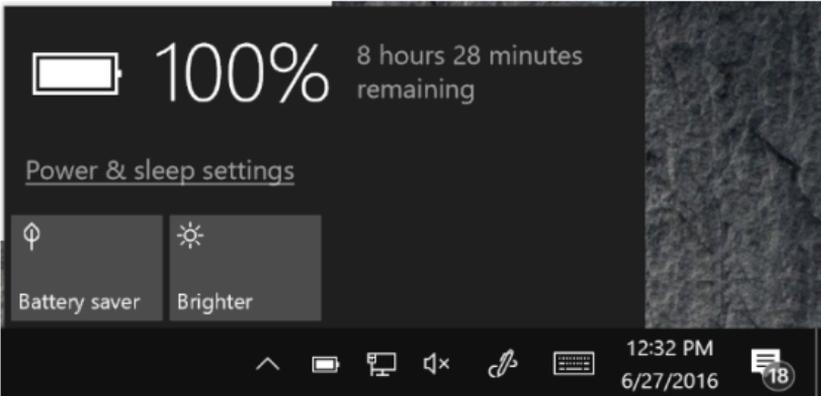
Figure 7-1: That estimate of remaining battery life is exactly that—an estimate, based on your recent actions. The two buttons at the bottom of this flyout offer more certain ways to increase battery life.

In that flyout, the percentage of remaining battery life is invariably accurate. The estimate of remaining battery life that appears alongside it is exactly that—an estimate. You can watch that prediction rise and fall as you alternate between energy-intensive activities and actions that are relatively passive.

If you know you're only away from a power outlet for an hour or two, you can confidently push your PC to perform tasks that will drain the battery more rapidly than usual. For those times when you need to nurse the power for as long as possible, the two buttons at the bottom of that flyout are indispensable.

The first is the Battery Saver button. When you tap to turn on that feature, Windows 10 adapts its behavior in the following ways:

- The Mail, People, and Calendar apps do not sync.

- Apps that normally run in the background are blocked.

- Windows Update continues to scan on its normal schedule, but non-critical Windows Update downloads are blocked.

- Display brightness is reduced by 30 percent.

- Transmission of most telemetry information is blocked.

By default, Windows 10 turns Battery Saver mode on automatically when your battery capacity drops to 20 percent. To change this threshold, go to Settings > System > Battery. That detailed display, similar to the one shown in Figure 7-2, shows the remaining battery life and offers the opportunity to tailor those settings to your preferences.
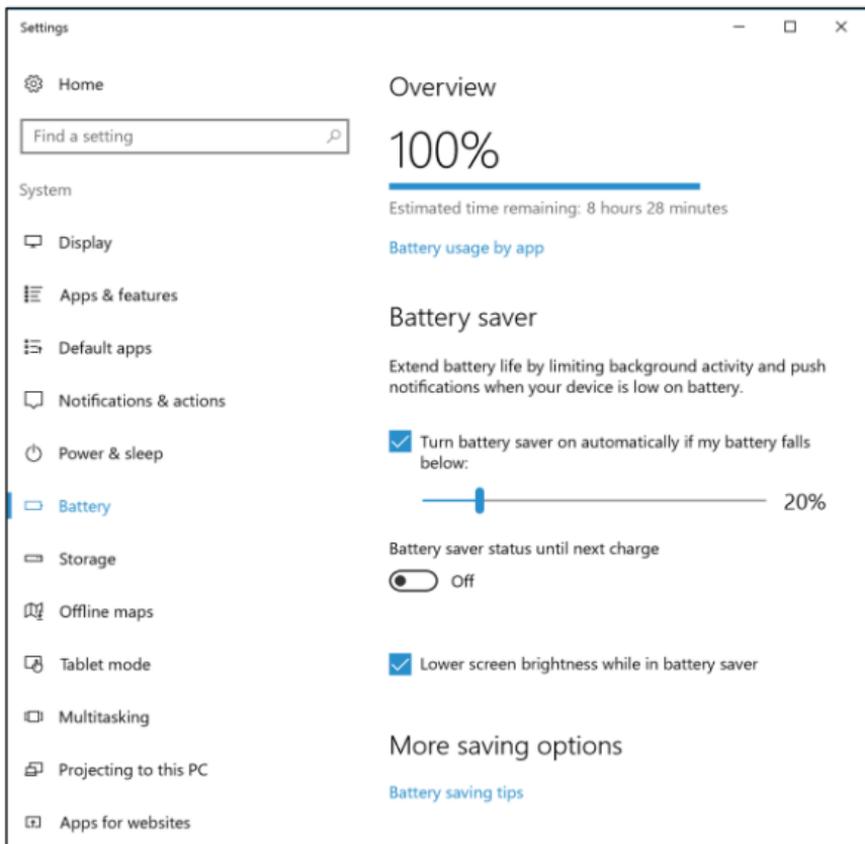
Figure 7-2: By default, Windows 10 turns on Battery Saver automatically when your remaining battery life drops to 20 percent. You can change that value (and tweak brightness settings, as well) on this page in Settings.

You might visit the Battery page in Settings and miss the subtle Battery Usage By App link just beneath the display of how much battery life remains. But that link is well worth clicking. It displays a detailed report of battery usage for each app on your portable device. Figure 7-3 shows a typical report.
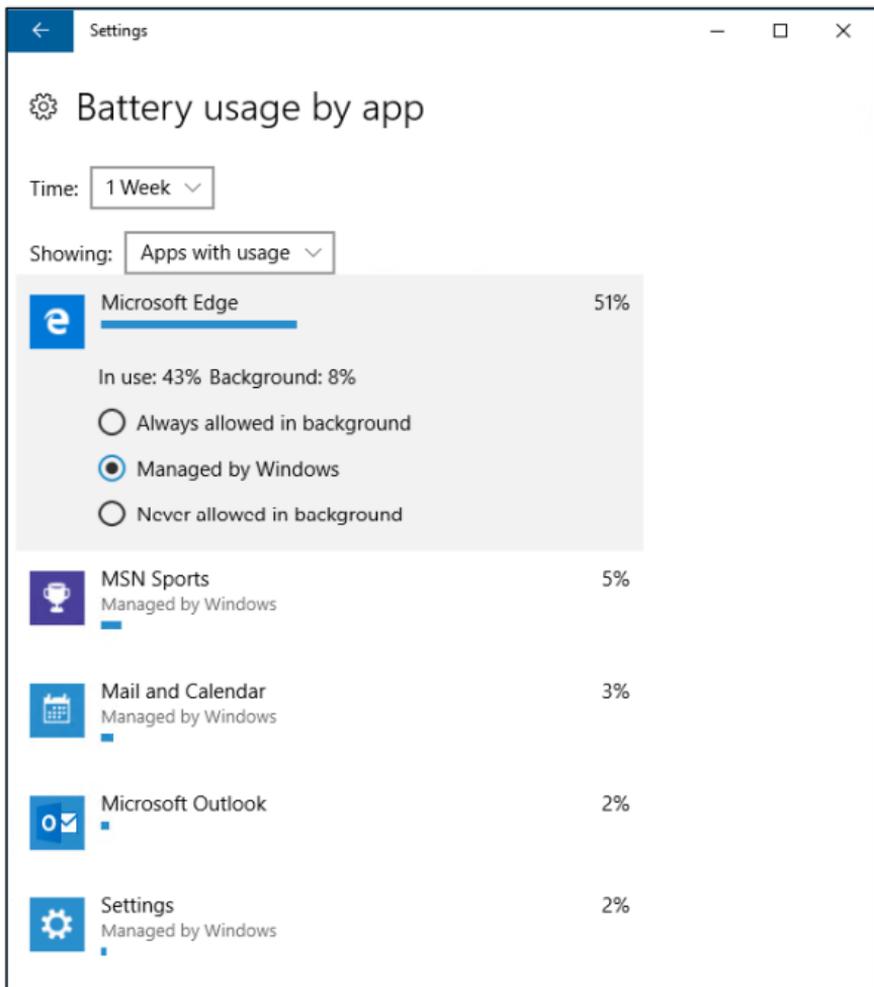
Figure 7-3: Which apps are using a disproportionate share of your battery? Visit this page in Settings to see full details for any app.

Don't underestimate the power of this diagnostic tool. If you or one of your users discover that battery life has suddenly and unexpectedly dropped, click Time to filter the list of apps accordingly: You can show performance for the past 6 hours, the past 24 hours, or a full week. If you find an app that's misbehaving and using more than its fair share of battery life, you can uninstall it (a drastic step) or change its settings so that it can't operate in the background.

You'll find additional options for controlling battery usage under Settings > System > Power & Sleep. The exact settings available for a device vary, depending on how the device is designed. Figure 7-4 shows settings from a Microsoft Surface Pro 4.
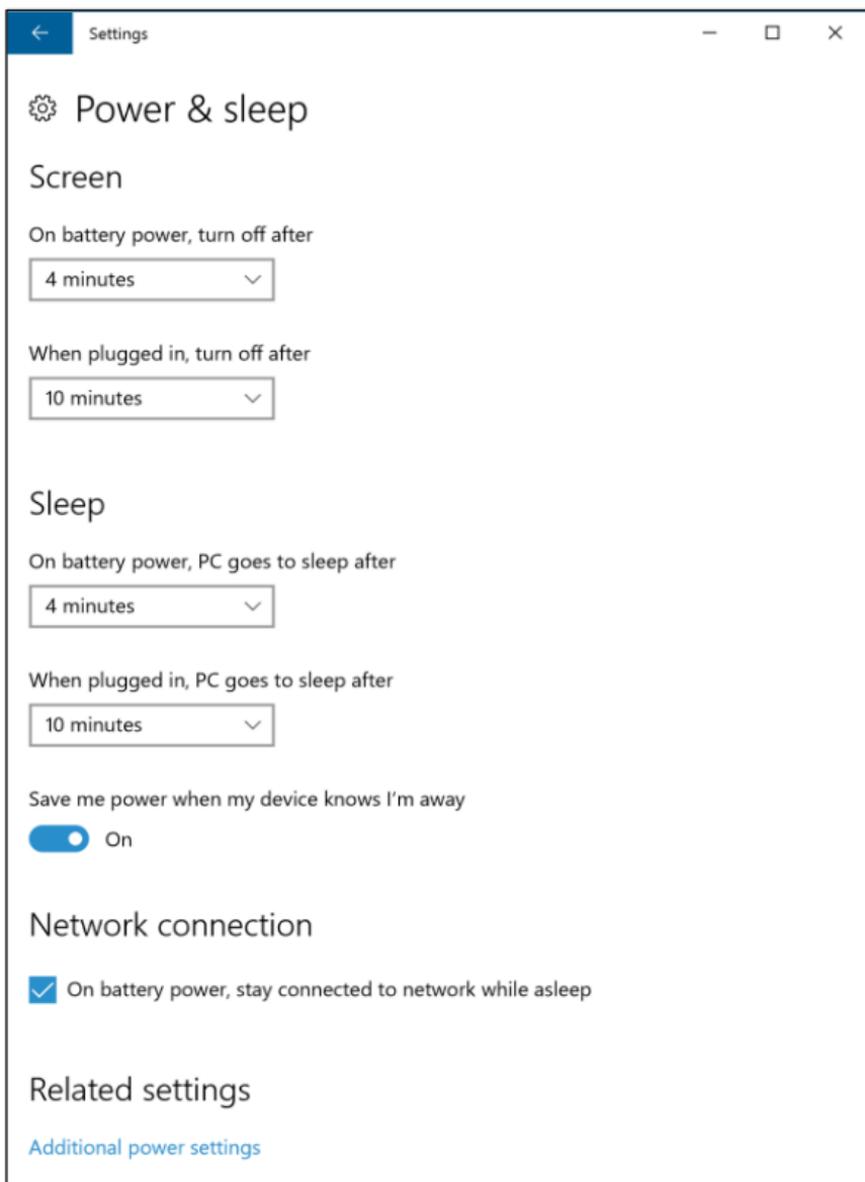
Figure 7-4: Under normal circumstances, the display is one of the most power-hungry parts of a modern device running Windows 10. Set that display to go off and configure sleep options on this Settings page.

The Additional Power Settings tab at the bottom of that Settings page opens the old-fashioned Control Panel tab for Power Options. Two options here can be especially helpful when you have extreme power savings on your to-do list:

- Click Change Plan Settings and then click Change Advanced Power Settings to fine-tune what your device does after a period of inactivity. Under the Sleep heading, shown in the screenshot that follows, you can configure the device to hibernate (and stop using all battery power) in a shorter period than normal.
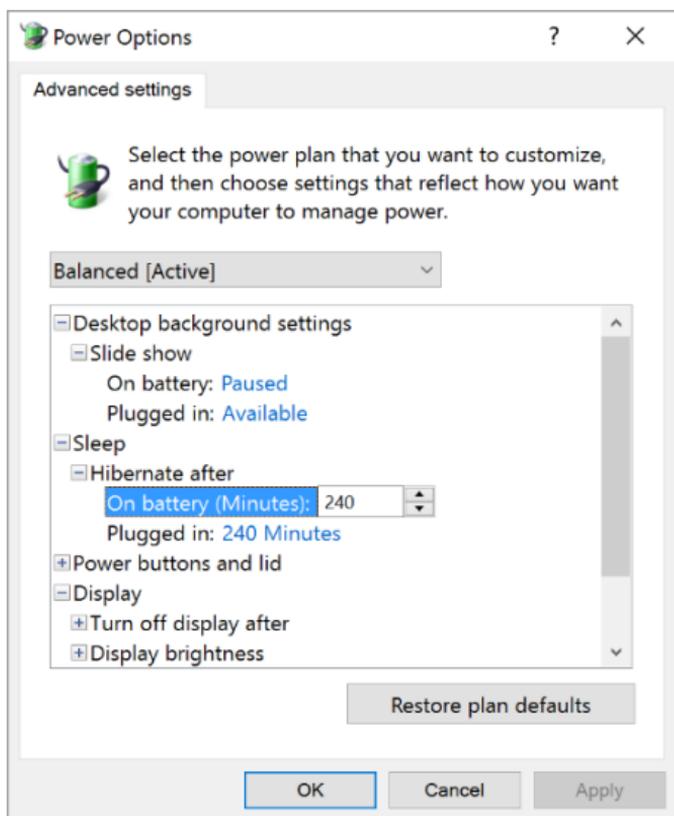
- You can configure what the power buttons do. When your goal is maximum power savings, consider configuring the power button to hibernate the PC instead of simply putting it to sleep.

Pen support

People have been using digital pens to write and draw on Windows PCs since the beginning of the 21st century. But the introduction of the Windows Ink platform, effective with the

Windows 10 Anniversary Update, changes the capabilities of pen computing dramatically.

If you own a mobile device that runs Windows 10 and supports a digital pen, it's likely that the pen is Bluetooth-powered and first must be paired with its companion PC. After that operation is complete, you can customize the functions of the pen itself by going to Settings > Devices > Pen & Windows Ink. Figure 7-5 shows some of these options, on a Surface Pro 4.
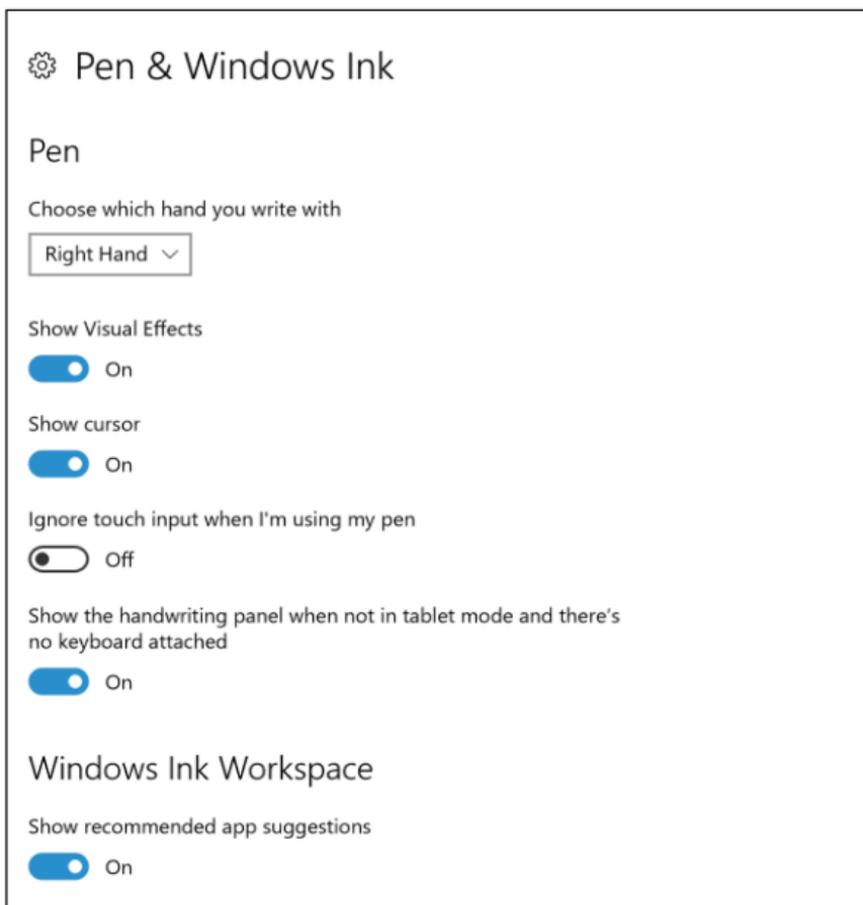
Figure 7-5: After pairing a digital pen to a Windows 10 PC, you can adjust a variety of settings.

Pens included with the Surface family of PCs have a button on the top that you can configure to start programs or perform specific actions when you click once or twice or click and hold, as shown in Figure 7-6.

Pen shortcuts

If your pen has a shortcut button, choose what to do when you press it. You might need to pair your pen via Bluetooth first.
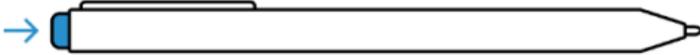
Click once

| OneNote universal | ∨ |

Double-click

| Send screenshot to OneNote universal ∨ |

Press and hold (only supported on some pens)

| Cortana | ∨ |

Figure 7-6: On modern devices equipped with digital pens, you can use these options to define what happens with different actions for the button on the top of the pen.

The defining feature of the Windows Ink platform is that it works with multiple applications. Several of those applications are included with Windows 10, including a new Sticky Notes application and a Sketch app that supports freehand drawing. Third-party apps can add themselves to this list. To see the entire list, click the pen icon in the notifications area. That action opens the Windows Ink Workspace shown in Figure 7-7.
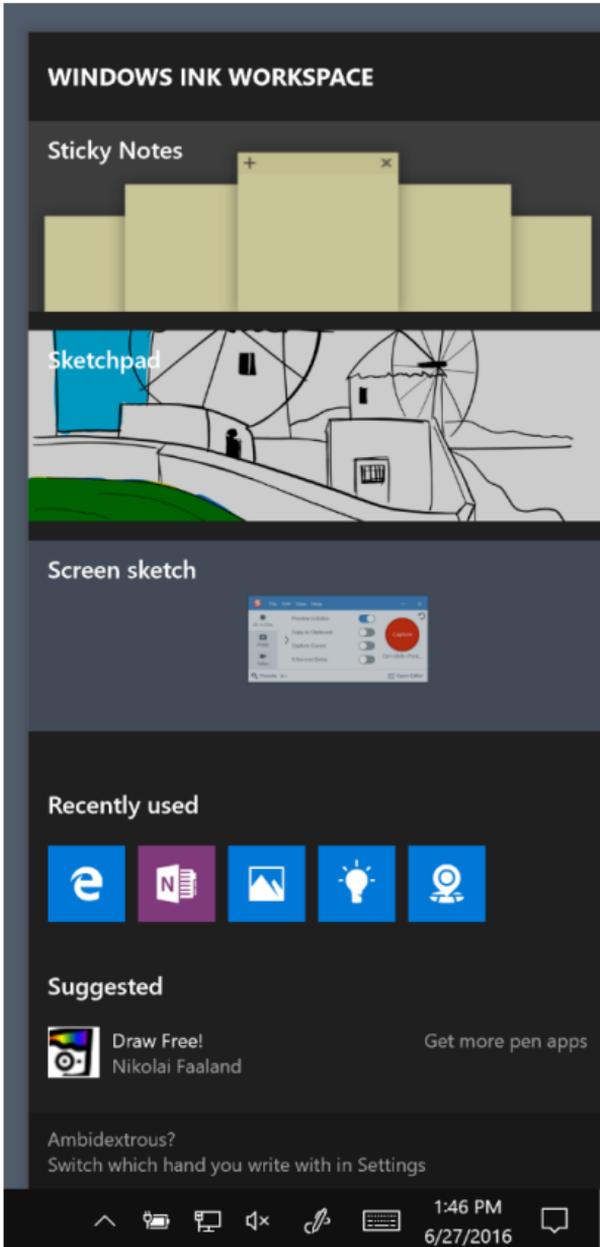
Figure 7-7: The Windows Ink Workspace, a new feature in the Anniversary Update, displays a menu of apps that are compatible with the Windows Ink platform.

One of the most impressive demonstrations of ink technology you can give is to write a few words in the Microsoft OneNote app and then search for words. This works because OneNote offers powerful handwriting recognition that works in the background. Every word you write in OneNote is stored as ink and recognized as handwriting. As a result, you can search for words and find them without having to explicitly convert your handwriting into searchable text.

Figure 7-8 shows a list of European cities I wrote in my less-than-perfect handwriting, using OneNote with a pen and a Surface Pro 4. When I typed a search term in OneNote's search box, it had no trouble finding my handwritten word that matched the search term.
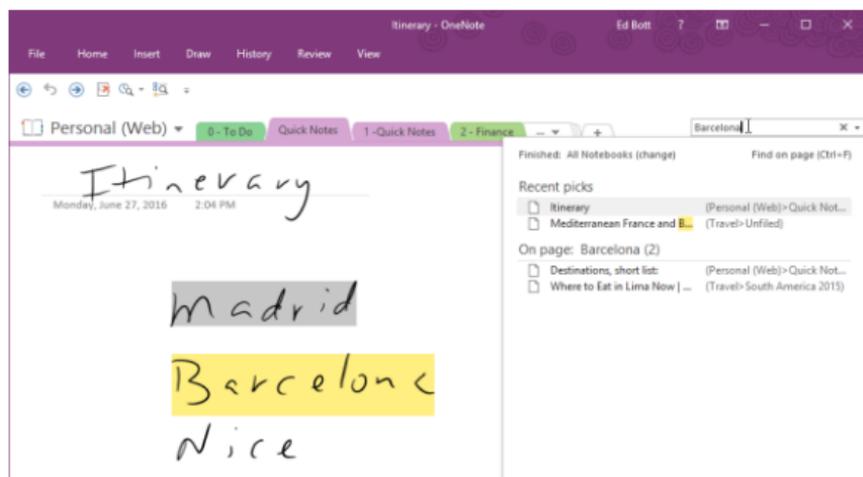

Figure 7-8: When you use a pen to write text in a OneNote page, your words are automatically converted

to text in the background. That means searches like this one can succeed with no extra work on your part.

Using tablet mode

On tablets and hybrid devices that can play the part of tablets, the fundamental means of interaction are different from a conventional PC. Using Windows 10, you can switch the input mode to account for the lack of a keyboard and pointing device. This touch-friendly configuration is called tablet mode.

On a hybrid device, detaching the keyboard prompts Windows 10 to ask if you want to switch into tablet mode, as shown in Figure 7-9.
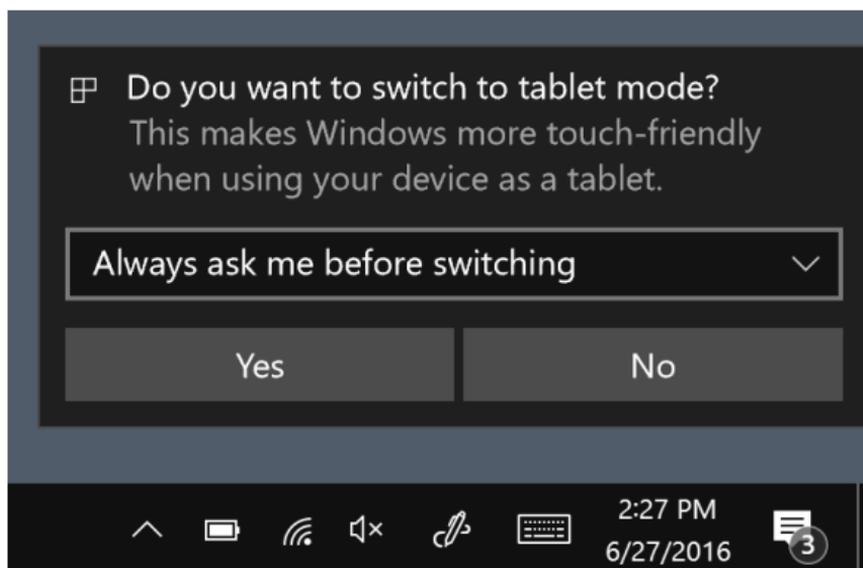
Figure 7-9: After you detach the keyboard from a hybrid device, Windows 10 asks, politely, if you want to

switch to tablet mode. If you find these prompts unnecessary, click the down arrow to instruct Windows that you want it to remember your choice.

If you ever used Windows 8, tablet mode will feel extremely familiar. All programs run in full screen—with no windows allowed. You can use your finger to grab the top of any program and snap it to the left or right side of the display. If you open a link to a webpage, as I've done in Figure 7-10, the page opens in a window alongside the current one.
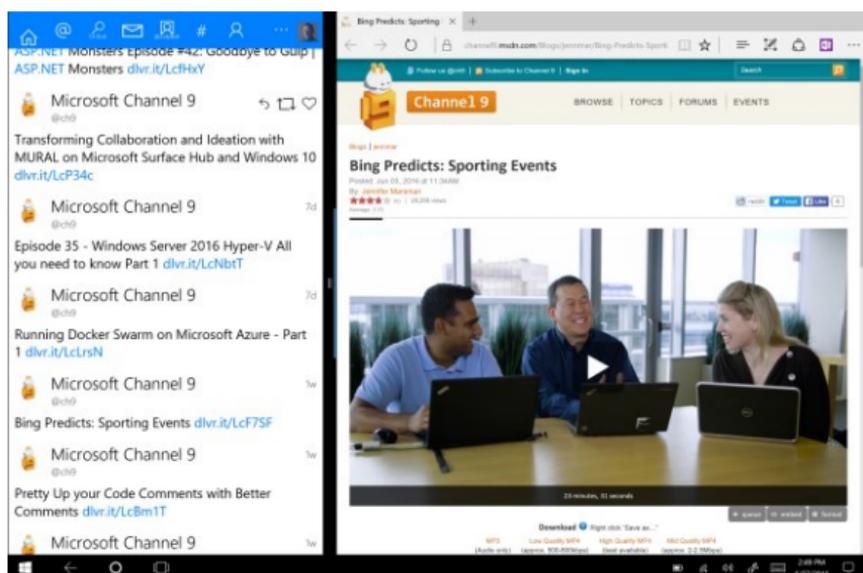
Figure 7-10: In tablet mode, every app uses the full screen. You can snap two windows side by side, but if you want to work with any app in a resizable window, you must close tablet mode

That thick bar between side-by-side windows moves, albeit only slightly. Normally, windows in

tablet mode snap side by side in equal sizes. Depending on the app, you can adjust its width so that it's larger or smaller than the window alongside it.

Windows 10 Mobile

Windows 10 doesn't just run on PCs. It also runs on phones that are compatible with Windows 10 Mobile.

What's remarkable about Windows 10 on mobile devices is how very similar it is to its desktop cousins. That's no accident. The operating system is quite literally the same, at least at the system level, and apps written for Windows 10 on the desktop can be designated for phones, as well.

For a graphic example of the similarities between the different editions of Windows 10, look no further than the Windows 10 Mobile version of Action Center, which appears when you swipe downward from the top of the phone display. The action buttons on that pane, shown in Figure 7-11, are remarkably similar in layout and design to those in the Windows 10 Action Center.
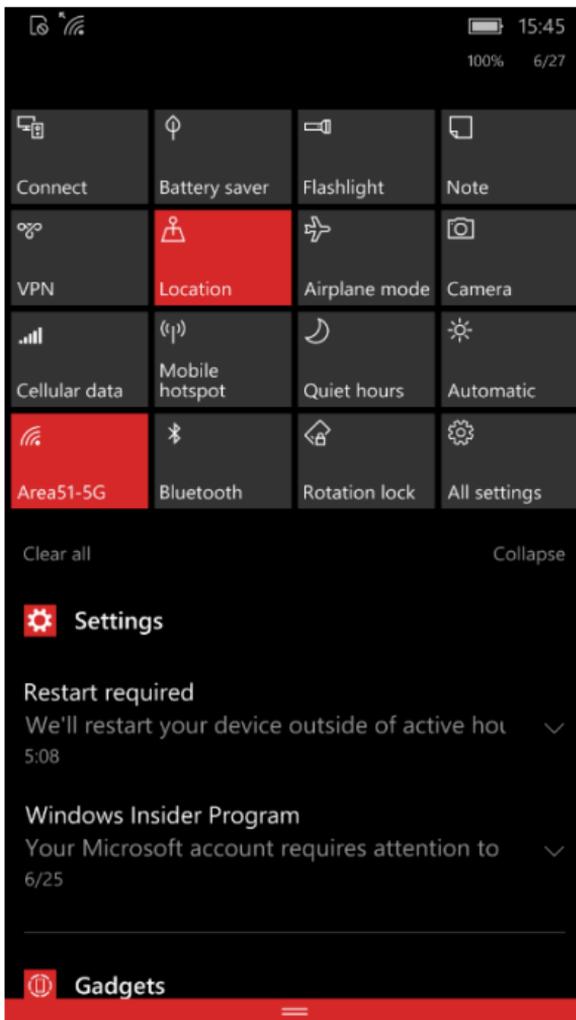
Figure 7-11: Windows 10 Mobile is visually similar to its desktop cousin. That's no surprise, because the two operating systems are based on the same core code.

Windows on mobile devices was also the origin of Cortana. If you've used the desktop version of Cortana, the mobile version should be familiar. Figure 7-12 shows Cortana responding to a

spoken request for the latest scores for a baseball team.

Figure 7-12: The microphone button at the right side of the Cortana search box is identical to its counterpart on the Windows 10 desktop, and any settings you record in Cortana's notebook are synced across devices, as well.

In Chapter 6, I mentioned the option of projecting to a PC. That option works with Windows 10 Mobile, as well. In fact, one of the most logical scenarios for that feature is to project a PowerPoint presentation from a phone to a large display on a Windows 10 PC. Figure 7-13 shows what that option looks like.
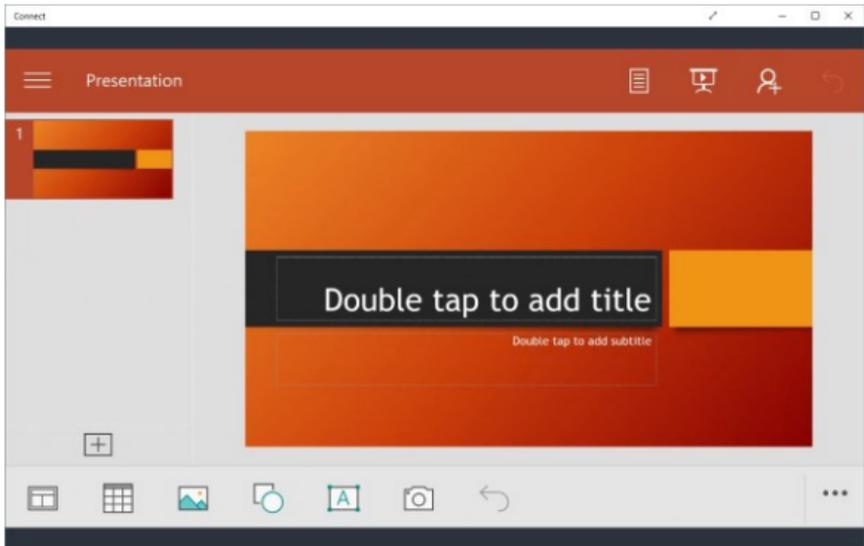
Figure 7-13: The Project To My PC option works with Windows 10 Mobile, as well. In this example, a phone running Windows 10 Mobile is projecting a PowerPoint presentation to a large display on a Windows 10 PC.

Troubleshooting and recovery

Murphy could write an entire book of laws that apply to all the things that go wrong with PCs. Hardware fails, software does unexpected things, and users have a way of clicking where they shouldn't—sometimes with unfortunate results.

Many issues require professional help. But it's possible to train people to identify and fix simple problems even if they lack advanced technical skills. In fact, Windows includes an assortment of automated troubleshooting tools capable of identifying and fixing common problems with no user intervention required.

For the kinds of problems that make even experts throw up their hands in despair, Windows 10 offers a reset option that is both powerful and easy enough for a non-expert to use.

But let's begin with the basics.

Troubleshooting 101

Computers are complicated devices, made up of many individual hardware components and countless bits of software. When things go wrong, it's our natural tendency as humans to spring into action, to fix the problem. Click a button, throw a switch, install a new piece of software that's touted as the perfect fix for computer ills.

That's why, when I'm working with Windows users who don't have a technical background, I tell them my first rule of troubleshooting: "Don't just do something..."

Sometimes the fix is as simple as restarting the PC. If that doesn't work, follow this checklist:

1. **Ask yourself what's changed recently** Did you install a new software program or upgrade an older one? Did you visit a website that seemed suspicious or flaky?

2. **Try replicating the problem on a different device** If you're having trouble with a website or an online service, see if you can reproduce the symptoms by using a different PC on the same network. If so, the problem might not be on your end at all.

3. **Create a separate test account for troubleshooting** I like to have a second, "clean" account handy at all times to help determine whether a problem is unique to a specific account. Go to Settings > Accounts > Family & Other People and click Add Someone Else to this PC. Sign out of the account where you're experiencing problems and sign in on the new local account to see if the problem persists.

4. **Don't believe everything you read** Online forums can be tremendously helpful, if only to confirm that you're not the only one suffering a particular problem. But be skeptical of authoritative-sounding answers from unknown sources. In my years of working with PCs, I've lost count of the number of times someone posted a "surefire fix" that turned out to be no such thing.

You can cure some problems with apps by simply uninstalling the app, restarting, and then reinstalling it. To see a full list of installed desktop programs and Store apps, go to Settings > System > Apps & Features. Scroll through the alphabetical list or use the boxes at the top to search for a specific app. Click that app, as shown in Figure 8-1, to reveal an Uninstall button for it.
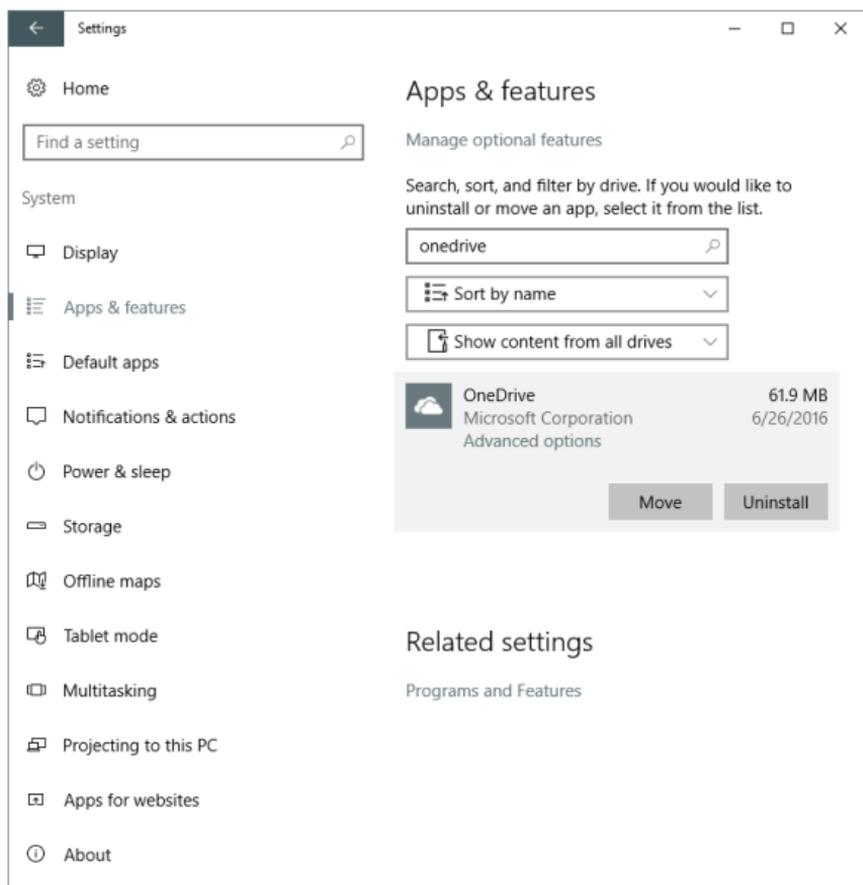
Figure 8-1: Normally, the Apps & Features page shows a complete list of every installed desktop program and Store app. Use the search box to narrow the list, and click Advanced Options to find the hidden Reset button.

The options you see here can vary slightly depending on the type of app you choose to view. Desktop apps include a Modify button alongside Uninstall, although it's dimmed and unavailable for programs that don't offer the capability to repair an installation or change options. Store apps have a Move button that's

available only if the PC in question has a second drive capable of storing apps. There are some built-in apps (Groove Music, Mail & Calendar, and Photos among them) that you cannot uninstall.

For Store apps only, try the Reset option before resorting to the more drastic uninstall/reinstall two-step. Click Advanced Options to reveal the Reset button and a few other details about that app, as shown in Figure 8-2.

⚙ OneDrive

Storage usage and app reset

App:	23.1 MB
Data:	38.6 MB
Total usage:	61.8 MB

If this app isn't working right, reset it.

Reset

App add-ons & downloadable content

Search this list   🔍

⋮≡ Sort by name   ∨

🔗 Show content from all drives   ∨

There are no add-ons currently installed for this app.
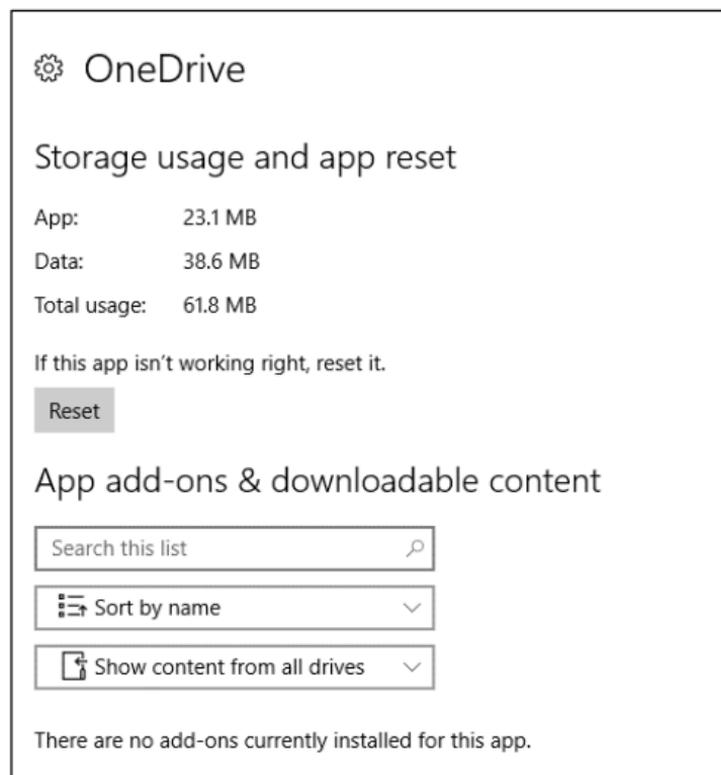
Figure 8-2: When you're experiencing problems with a Store app, click the Reset button here before trying the

more drastic step of uninstalling and reinstalling the app.

For problems with a PC that was recently upgraded to Windows 10, consider the possibility that the device might need updated drivers or even a BIOS or firmware update. Search the PC manufacturer's website using the model number of the device for any Windows 10-specific downloads.

Not sure which model you have or which BIOS version is installed? Run the System Information tool (Msinfo32.exe) and check the top of the System Summary tab, as illustrated in Figure 8-3, for this important information.
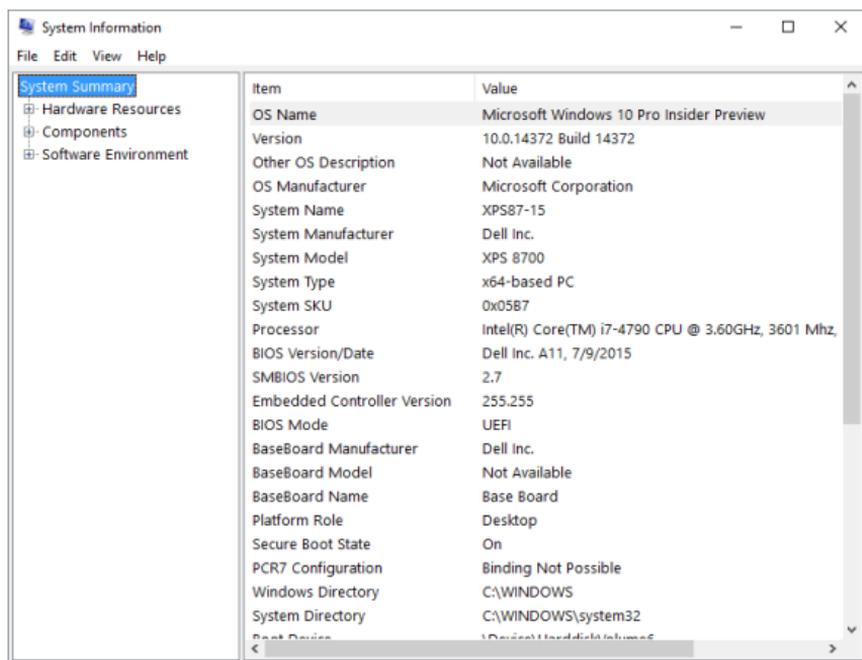
Figure 8-3: The System Information app displays useful details about the current hardware and software configuration, including basic information like the manufacturer, model, and BIOS version.

As I mentioned earlier in this chapter, sometimes the most important troubleshooting question to ask is whether anything has changed recently. New software? A driver update? One way to quickly see those events is to open Reliability Monitor (start typing **reli** in the search box and then click View Reliability History from the search results list).

The list of events is organized by day, with Critical events at the top and Informational events below that, as shown in Figure 8-4. If you're helping someone troubleshoot a problem and they tell you that they first noted the symptoms last Thursday, inspect the list of events for that day and the days around it; even seemingly routine events might be related to the current issue.
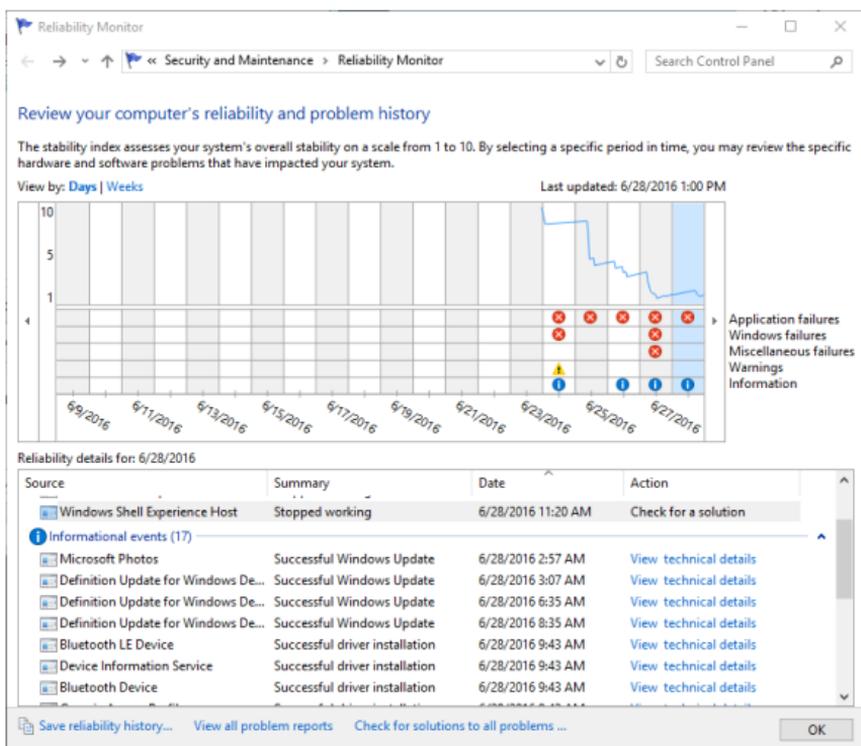
Figure 8-4: Reliability Monitor shows Critical events and Informational events on a day-by-day basis. This is useful for determining what changed around the time a problem began occurring.

And, of course, you should check Action Center occasionally to see if anything demands your attention. These messages, like those shown in Figure 8-5, can alert you to updates and actions that Windows Defender takes when it detects malware.

ACTION CENTER   Clear all

    Windows Defender

Found some malware
Windows Defender is removing it.
2:39p

📄 **Store**

OneDrive
Just got installed, check it out.
Sunday

⚙ **Settings**

We're getting your PC up to date.
Select this message to learn more.
Monday

Display driver failed to start
Display driver failed to start; using Microsoft Ba ∨
Monday

Display driver stopped responding and has
recovered   ∨
Display driver NVIDIA Windows Kernel Mode D
Monday

See more (12)

Figure 8-5: Updates and reports of Windows Defender
activity show up in Action Center and are worth
reviewing occasionally.

Other troubleshooting tools

Many people don't realize that Windows includes a wide-ranging collection of automated troubleshooters that can walk you through the tedious steps that you'd need to perform if you called a support tech. Running one of these troubleshooters should be a first step before going too much further.

To see a categorized list of these built-in tools, open Control Panel, type **trouble** in the search box, and then click Troubleshooting (Control Panel) from the results list. That opens a page like the one in Figure 8-6.
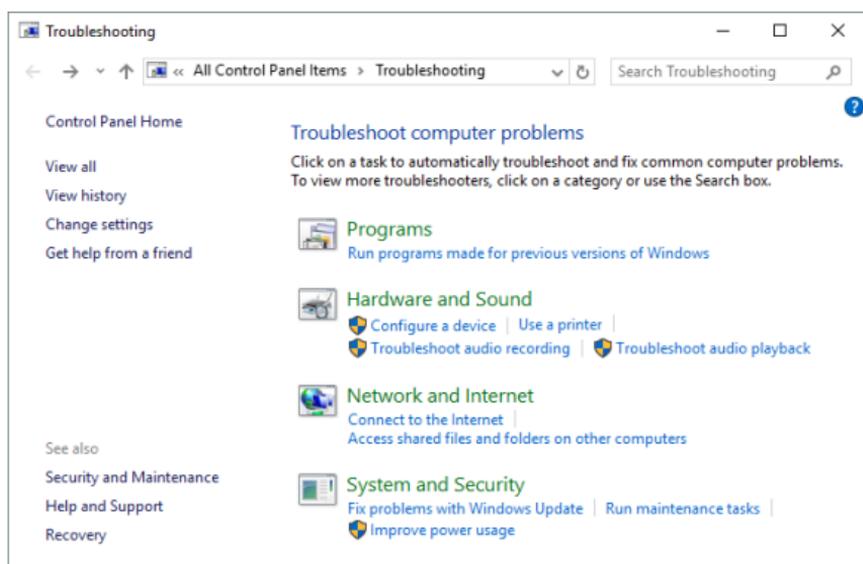
Figure 8-6: You can browse this list of built-in troubleshooters by category, but it's often more efficient to type a keyword in the search box.

Figure 8-7 shows the Configure A Device troubleshooter in action. In this example, it found a potential problem with a device driver and offered to reinstall it.
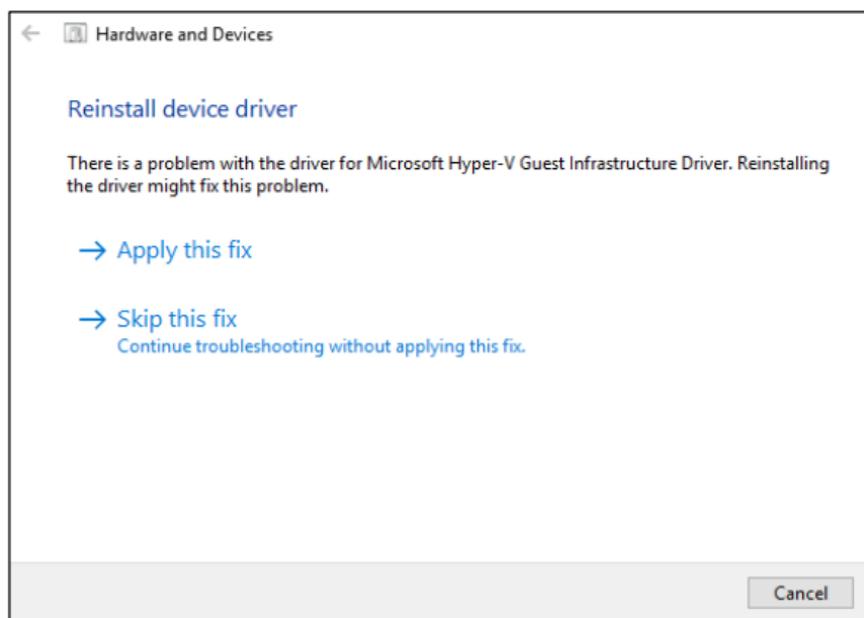
Figure 8-7: The built-in troubleshooters are cautious by default, asking for permission before performing actions that might affect your system's stability.

And after I clicked Apply This Fix, the troubleshooter found a second problem. For some reason, this system had been configured not to check for automatic updates to device drivers. Here, too, it offered the choice of

whether to make a change or ignore the problem, as shown here:
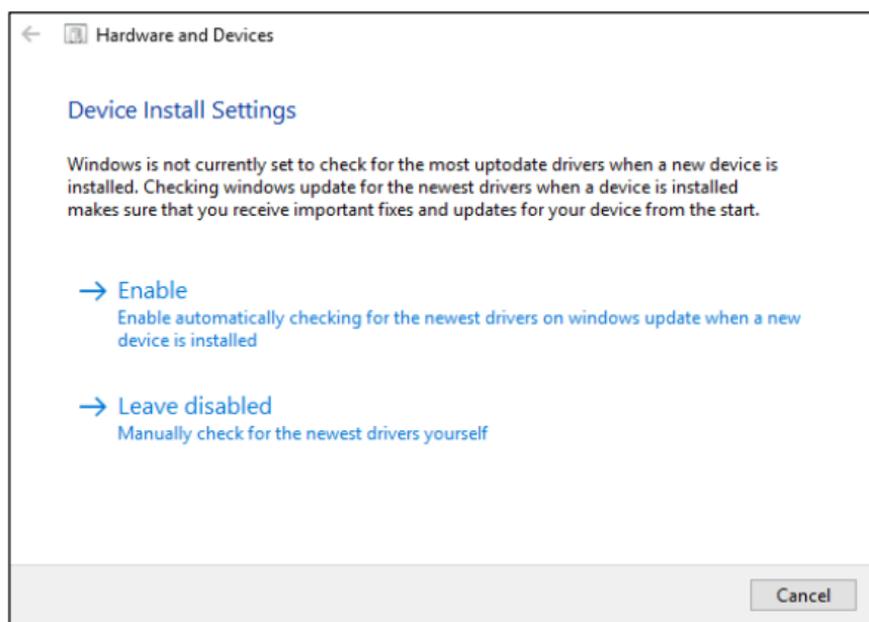
Even if you're a certified support expert, it pays to run those troubleshooters just to identify problems like this one. The final step offers a clear summary of problems detected and fixed, with an option to view detailed information that can be useful for a support professional.

Troubleshooters aren't just in Windows itself. You can find additional troubleshooters online. This one, for example, is designed to fix problems with the Store: http://bit.ly/store-troubleshooter. Likewise, some support articles include Fix-It buttons that can make

configuration changes automatically to repair a specific, known problem.

Before running any such tool, of course, you should make sure it comes from an actual Microsoft site and not from an untrusted third party.

Getting help from an expert

If you're like me, you are called on regularly to help friends and family members fix PC-related problems. Those calls don't always need to involve an onsite visit, thanks to two tools included with Windows 10.

The first tool, called Steps Recorder, solves a problem common among friends and family who don't have a technical background: They don't know how to accurately describe what they're seeing on the screen, leading to alternately frustrating and hilarious conversations.

Using Steps Recorder, they can show you, with pictures and comments, exactly what's happening on their screen. By emailing that detailed report to you (or to another support professional), they decrease the chances of

miscommunication and dramatically increase the chances of a successful resolution.

To start this tool, type **psr** (that command name is short for the old name of this program, Problem Steps Recorder) in the search box, and then click the Steps Recorder shortcut from the top of the search list. In the Steps Recorder window, click Start Record, as shown here:
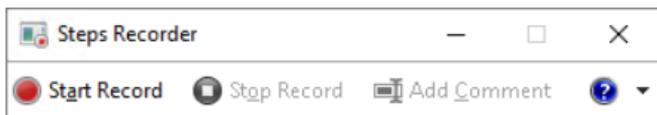
With the recorder running, the person creating the recording should click through the steps to demonstrate the problem. The Steps Recorder captures a screenshot of each action, building a slideshow with captions that describe what the user did in each step. At any time, the person creating the recording can click Add Comment, which lets them select a portion of the screen and add their own comment to it.

After successfully showing the problem, the person creating the recording can click Stop Record. That displays the saved steps in a slideshow that looks like the one in Figure 8-8. She can then click Save and email the resulting file (in ZIP format) to you for closer examination.
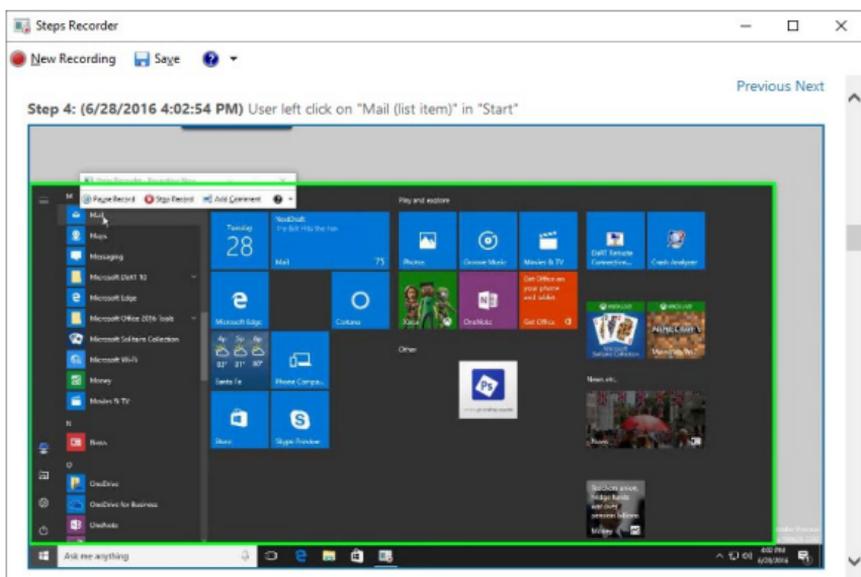
Figure 8-8: The Steps Recorder saves a slideshow consisting of annotated screenshots captured as you demonstrate a problem.

Sometimes, the fastest way to resolve a problem is to sit down in front of the PC (with its owner's permission, of course) and make the necessary configuration changes yourself. That's certainly easier (and safer) than trying to walk a nontechnical user through the process of editing the registry, for example.

If you're too far away to physically sit in front of the PC, try the Quick Assist app instead. This is a new addition in the Windows 10 Anniversary Update, designed to make quick, secure connections so that you can inspect and change settings on a PC that might be thousands of miles away.

Use search to find and start the Quick Assist app, which starts by asking you whether you're the one requesting assistance or providing it, as shown here:
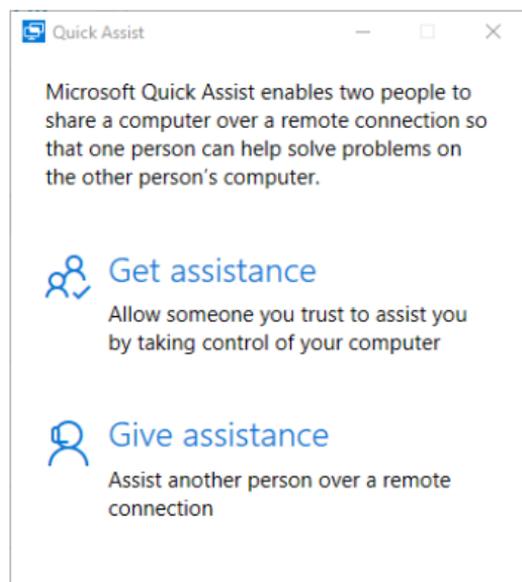
When you choose Give Assistance, the app generates a six-digit security code, good for 10 minutes, as shown in Figure 8-9. Send that code to the person you're trying to help (reading it over the phone is fast and surprisingly secure), so that they can input the code and initiate the secure session.
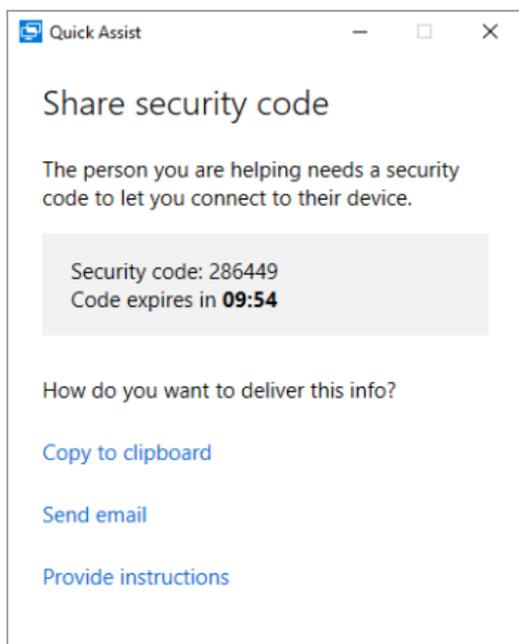
Figure 8-9: When using Quick Assist, you and the person you're helping share this time-limited security code to create a remote session.

When you're playing the role of helper, the other person's screen appears in a Quick Assist window on your screen, as in Figure 8-10. You can interact with the screen directly by using your keyboard and mouse, as if they were attached to the remote PC. Use the buttons on the toolbar at the top to create annotations, expand the screen to full size, open Task Manager, and more.
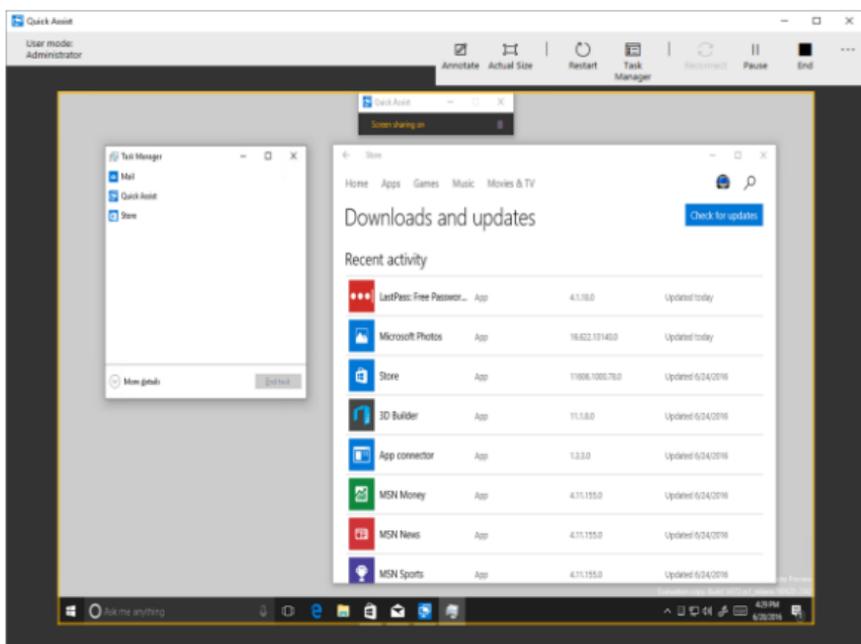
Figure 8-10: As the one offering help, you see this Quick Assist screen and can interact directly with the other person's PC.

When all else fails, reset!

Not that long ago, the only way to solve a genuinely intractable PC problem was a clean install. That required installation media, product keys, a drive full of custom device drivers, and a lot of time. Not to mention the technical knowledge required to get everything working properly and to restore a backup of user data files

With Windows 10, that process is considerably simpler. Go to Settings > Update & Security >

About the author

Ed Bott is an award-winning technology journalist and author who has been writing about Microsoft technologies for more than two decades. He is the author of more than 25 books on Microsoft Windows and Office, including *Windows 10 Inside Out* (Microsoft Press, 2015) and writes regularly about technology for The Ed Bott Report at ZDNet.

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