Windows 11 Inside Out

Ed Bott
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Dedication

To Judy, who has been by my side every step of the way
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And we’ve saved a special tip of the hat to our longtime colleagues Charlotte and Rick Kughen. This book would never have gotten into your hands without their production magic.

About the author

Ed Bott is an award-winning author and technology journalist who has been researching and writing about Microsoft Windows and PC technology, in print and on the Internet, for more than two decades. Much of that work has appeared in The Ed Bott Report on ZDNet (zdnet.com/blog/bott), where his signature hands-on advice columns and buying recommendations have been a fixture through at least a half-dozen Windows versions. Ed has written more than 30 books, all on Windows and Microsoft Office, which have been translated into dozens of languages and read worldwide.

You can catch up with Ed’s latest opinions and get hands-on advice in his newsletter, Ed Bott’s READ ME; for details, visit edbott.com/newsletter. You can also connect with him on Twitter (@edbott) and on the open source Mastodon network (mastodon.social/@edbott). Ed and his wife, Judy, live in Atlanta, Georgia. They are currently between dogs.
Introduction

I’ve spent most of my professional career chronicling the ups and downs of Microsoft Windows and, more importantly, helping human beings make sense of its fabulous features, weird idiosyncrasies, and occasional frustrations.

By my unofficial count, this is the sixteenth release in the *Inside Out* series since we kicked off the franchise in 2001 with a volume covering what was at the time the newest member of the Microsoft operating system family, Windows XP.

The world has gone through a few changes in the 20-plus years that have passed since the publication of *Windows XP Inside Out*. Back then, detailed technical information was hard to come by. Now, reliable information is a scarce commodity, especially when it comes to an ever-evolving product like Windows.

For those early *Windows Inside Out* editions, we had the reassurance of knowing that each new release from Microsoft would have a lifespan of at least three years. That’s no longer the case, with Windows 11 getting new feature updates yearly and Microsoft now reworking even core features as part of its monthly updates.

In combination, those two factors have dramatically influenced how this book is organized. Where we once might have devoted a page or more to a table listing command-line switches for an essential utility, for example, we now have the luxury of posting a link to the complete (and authoritative) online documentation. That frees us to spend more pages explaining how a feature works and how to integrate it into your personal workflow.

One bedrock fact we’ve discovered over the past two decades is that the core features of Windows change very slowly. The fundamentals of NTFS security and the registry, for example, have remained reassuringly consistent throughout many generations of Windows. But there’s also plenty that’s new in Windows 11, some of it obvious (the new Start menu), some familiar from Windows 10 features (Windows Hello), and some existing almost completely under the covers (hardware-based security).

Our team started this revision in 2021, shortly after Microsoft announced the first Insider Preview release of Windows 11. We consciously chose to keep working for more than a year as Microsoft prepared the first major update to Windows 11, version 22H2. Every page in this book has been tested and fact-checked using that release.

We know there will be further updates, but we’re confident that this book will be relevant for several years to come.

— Ed Bott, January 2023
Who this book is for

This book offers a well-rounded look at the features most people use in Windows. It serves as an excellent starting point for anyone who wants a better understanding of how the central features in Windows 11 work. If you are a Windows expert-in-training, have a day job that involves IT responsibilities, or are the designated computer specialist managing computers and networks in a home or small business, you’ll discover many sections we wrote just for you. And if you consider yourself a Windows enthusiast—well, we hope you’ll find enough fun and interesting tidbits to hold your attention because, after all, we’re unabashed enthusiasts ourselves.

Assumptions about you

This book is not for beginners. It was written for people who have experience with Windows and are comfortable with and even curious about the technical details of what makes Windows work. It touches only briefly on some of the basic material that you’ll find covered in more detail elsewhere.

Whether you’ve been working with Windows for a few years or a quarter-century, we expect that you’re comfortable finding your way around the desktop, launching programs, using copy and paste operations, and finding information in a web browser. We don’t assume that you’re a hardware tinkerer, hacker, hardcore gamer, or developer.

How this book is organized

Part 1, "Windows 11 essentials," offers an overview of what’s new in this version, along with details on installing, configuring, and personalizing a PC running Windows 11. It also covers the Windows 11 app landscape, which has changed dramatically just in the past two years, with one full chapter devoted to the new default web browser, Microsoft Edge. Finally, we explain how to make best use of local and cloud-based storage, with a special emphasis on a core Windows 11 tool, File Explorer.

Part 2, "Managing Windows 11," starts with a detailed guide to keeping your user accounts and devices secure. Additional chapters cover tools and techniques for measuring and improving your computer’s performance, keeping your network connections fast and secure, and configuring hardware. The section closes with advice on how to back up your important files, how to recover quickly from problems, and how to troubleshoot issues when they arise.

Part 3, "For IT professionals and Windows experts," leads off with a chapter that introduces Windows Terminal and PowerShell, tools that take some effort to master but pay huge dividends for automating repetitive administrative tasks. An additional chapter covers Hyper-V, a powerful virtualization platform built into Windows 11 Pro and Enterprise editions. In the final chapters, we cover the unusual Windows subsystems for Linux and Android and offer pointers for administrators working in enterprise environments.
Finally, we provide three appendixes of reference information: a concise look at the differences between Windows 11 editions, a hands-on guide to the Windows Insider Program, and an overview of help and support resources.

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[https://support.microsoft.com](https://support.microsoft.com)
This chapter covers the core features of the Windows 11 user interface—all the things you tap, click, drag, and drop to make Windows do what you want it to do.

If you’re like most of our readers, you’re coming to Windows 11 after spending the past few years learning how to work with Windows 10, and you’ll find plenty of familiar elements here, with some new twists. The two most important pieces of the Windows 11 user experience—for example, the Start menu and taskbar—work roughly the same as their predecessors, but the tools for customizing them are very different indeed, as we document in this chapter.

To make things even more confusing, Microsoft has decided to build Windows 11 in a way that allows it to release new features at any time. Those features might be included with one of the operating system’s annual feature updates—the 22H2 release we used as the basis for this book includes a major update to File Explorer, for example, that adds a multtabbed interface for the first time ever. (We cover that change in Chapter 9, “Using File Explorer.”)

But new features can also arrive along with monthly security and reliability updates or as part of the many apps that are included as part of a default Windows 11 installation. The upshot? You’re almost certainly looking at a later version of Windows 11, with a slightly different set of features than those we document here. It’s possible that some of the screenshots and step-by-step instructions you find in this book may not match exactly the system you’re working with. We hope that our descriptions are clear enough that you’ll be able to take those small changes in stride.

An overview of the Windows 11 user experience

Before we dive into detailed descriptions of individual features, please join us for a brief tour of Windows 11. Our goal is to introduce the different parts of Windows, new and old, so that we can be sure we’re on the same page.
Figure 3-1 shows the two most important building blocks of Windows 11 and offers a hint of its signature visual style.

Figure 3-1  Compared to its predecessor, the Windows 11 Start menu is radically simplified.

When you first start up a PC running Windows 11, you see the familiar Windows desktop and taskbar. Clicking the Start button—the Windows logo at the left of a row of buttons centered along the bottom of the display—opens the Start menu.

Conceptually, the Windows 11 Start menu is similar to its immediate predecessor, but it differs dramatically in some key details. The most obvious difference is its position on the screen—centered at the bottom of the display rather than in the lower-left corner. But that’s just one of many important changes. Here’s a list of what else is changed from the Windows 10 Start experience:

- There are no resizable tiles, live or otherwise. In Windows 11, all app buttons are the same size.
- You can switch between a grid containing pinned apps and a scrolling All Apps list, but you can’t see both at once. In Windows 10, by contrast, the All Apps list is visible alongside the pinned app tiles.
An overview of the Windows 11 user experience

- The Power button, user profile picture, and shortcuts to common data folders are in a row along the bottom of the Start menu rather than in a thin vertical strip on the left side.

- The Windows 11 Start menu is a fixed size. You can’t drag its borders to change its dimensions, and there’s no option to use it in full-screen mode.

- A search box appears at the top of the Start menu, above the grid containing pinned apps. Tapping the Start button and then typing a search term (or clicking in the search box or clicking the search button on the taskbar, just to the right of Start) opens a different view of the Start menu that includes suggested web searches.

MICROSOFT ACCOUNTS AND WINDOWS 11

Although it’s possible to use Windows 11 with a local account, the Windows Setup program requires the use of a Microsoft account for most clean installs. That requirement pays off when you set up a new PC or device using the same Microsoft account you used previously on a different device. If you configured that device to sync your personalized settings, your new device picks up synced settings such as desktop backgrounds and colors, making it feel familiar right away.

If you sign in to a corporate network, your personalized settings roam according to policies defined by your network administrator. (If your organization allows you to, you can attach a Microsoft account to your domain account, and both your personal and work settings roam together as you switch between devices.)

When you allow your Microsoft account to sync settings between devices, you don’t have to go through a tedious process of tweaking the default settings to match those preferences; instead, your visual themes, notification settings, and saved Wi-Fi passwords appear exactly as you expect. If your Microsoft account is connected to OneDrive, your online files and photos are available, too.

Also new in Windows 11 is the Widgets button, which appears by default at the far left of the taskbar. The button itself offers a quick view of the temperature and weather in the current location; clicking that button (or using the keyboard shortcut Windows key+W) opens the Widgets pane, which can be customized to show an expanded weather forecast, news headlines, stock prices, and tasks and calendar events from an associated Microsoft account, as shown in Figure 3-2.
Chapter 3  Using Windows 11

Figure 3-2  The Widgets pane displays news headlines, sports scores, weather, and other tidbits of information. It’s customizable, and its button can be removed from the taskbar if you find it distracting.

We discuss how to customize the Widgets pane (or hide it completely) later in this chapter.

On the far-right side of the taskbar, just to the right of the clock, Windows displays a subtle icon (a number in a circle, whose color matches your Windows accent color) that alerts you to any notifications you have received from apps, services, or Windows itself. Click that icon to display the notifications pane, shown in Figure 3-3. (If you have no unread notifications, click the clock to open this pane.)

You can fine-tune the list of apps that are allowed to interrupt you, but even with all that attention, the notifications pane still contains ample opportunities for distraction, as meeting requests, email messages, and reminders compete for your attention. As a counterbalance, the Windows 11 notifications pane includes not one but two features designed to suppress those interruptions and allow you to work. We cover the Do Not Disturb and Focus features later in this chapter.

As with previous versions, Windows 11 offers multiple ways to switch between tasks. You can click the Task View button on the taskbar or use the keyboard shortcuts Windows key+Tab or Alt+Tab to quickly switch between apps. Windows 11 also offers much richer tools than its predecessor for arranging open windows in predetermined layouts on the screen. Allowing the mouse pointer to hover over the Minimize button, for example, offers a variety of “snap” options that are considerably more versatile than the Windows 10 equivalents.
Using and customizing the Start menu

The interface element popularly known as the Start menu has gone through some drama in recent times, including a brief banishment in the Windows 8 era. In Windows 11, its core remains intact, with a dramatically simplified focus compared to its recent predecessors.

To open the Start menu, click the Windows logo—the leftmost button in the center of the taskbar—or press the Windows key. In Windows 11, Start is divided into a series of horizontal regions. At the top is the search box, where you can enter search terms and see matching results from local content, from cloud accounts, and from the web.

Below that are two large regions, labeled Pinned and Recommended. The first contains icons for apps installed on the current PC; you can add, remove, and rearrange these pinned apps to match your working style. The Recommended block displays shortcuts to files you’ve opened recently, which Windows quite logically thinks you might want to work with again.

At the very bottom of the Start menu is a horizontal region that, by default, contains only two controls. On the left is a picture (and username) that matches the account with which you...
signed in to Windows. Click that picture to display a shortcut menu allowing you to change the settings for your account, lock the PC, sign out of Windows, or switch to another user account.

On the right is a power button, which you can click to change sign-in options or choose one of three additional options: Sleep, Shut Down, or Restart. (If you’ve enabled the Hibernate option, you see it here as well.)

On a default installation, the space between those two items is completely blank. You can choose to fill it with up to nine shortcuts, one that takes you to the Settings app and the remainder from your user profile. To choose which folders appear in this space, go to Settings > Personalization > Start > Folders, and then turn on the switches for the folders you want to see, as shown in Figure 3-4.

![Figure 3-4](image.png)

**Figure 3-4**  Use the switches on this Settings page to tell Windows which folder shortcuts you want to see on the bottom of the Start menu.

**Inside OUT**

*Change your Start picture*

The picture that appears alongside your username in the lower-left corner of the Start menu is the one associated with your user account (the one that also appears on the Welcome screen). If you’re not happy with that picture, click it, and then click Change Account Settings. That takes you to the Settings page for your account, where you can choose a different picture or snap one with a webcam.
Customizing the contents of the Start menu

In sharp contrast to its predecessors, the Windows 11 Start menu is lean, with a minimum of customization options. As we noted earlier, the menu itself is fixed in size and divided into two regions: the top for pinned program icons and below that a place for recommended shortcuts to files and apps.

Inside OUT

*Using Start to search*

You can launch any pinned app or document shortcut on the Start menu by tapping or clicking it. Alternatively, if you’re comfortable typing, you can skip all the scrolling, tap the Windows key, and then begin typing the name of an item you want in the search box, at the top of the Start menu. What you’re looking for soon appears at or near the top of the search results. This approach is especially handy when third-party installers store a collection of related apps in folders on the All Apps menu.

This same technique works if you want to search for content on the web. Windows 11 uses the Bing search engine to deliver search results in the same space where it displays your pinned program icons and shortcuts to recently used files.

You can’t change the search engine associated with this functionality; if you prefer the results you get from another search provider, you should skip Start and go directly to your browser to search for online answers.

The Start menu’s most important function is to organize shortcuts to installed apps. Windows pins a selection of apps to the list by default. You can pin any installed app to that list by right-clicking its executable file or an app shortcut and choosing Pin To Start Menu. To remove a pinned app, right-click and choose Unpin From Start. You can rearrange pinned shortcuts by clicking and dragging them from their current position to the one you prefer.

Initially, the Pinned and Recommended regions are configured to be roughly the same size, with three rows of shortcuts in each. You can change the relative allocation of space by going to Settings > Personalization > Start and choosing More Pins or More Recommendations from the Layout section at the top of the page, as shown in Figure 3-5. (You can also get to this page by opening the Start menu, right-clicking the blank area at the bottom of the menu, and choosing Start Settings.)
You can’t hide the Recommended section, but you can make it shrink to almost nothing. If you prefer to use the Start menu exclusively for app shortcuts, choose the More Pins option and then turn the three switches on that page to the Off position. That configuration hides all shortcuts from the Recommended section and shrinks it to a minimal size.

Both regions include a button at the top right that takes you to an expanded list of items from that category. Clicking the All Apps shortcut reveals an alphabetical list of every installed app, in a format that should be familiar to anyone who’s used any version of Windows in the past two decades. Clicking More (to the right of the Recommended heading) displays an expanded list of recent documents. In either case, you can use a Back button to return to Start.

**Inside OUT**

*Use the powerful “other” Start menu*

Every Windows power user knows the maxim: When in doubt, right-click. Testing that principle on the Start button is especially rewarding, as it reveals the hidden Quick Link menu. (You can also summon this menu using the keyboard shortcut Windows key+X.) Figure 3-6 shows the options available as of Windows 11 version 22H2.
Arranging pinned apps into folders

Pinned apps can be combined into folders, with or without folder names. A folder containing two or more pinned apps takes up the same space as a single app, with miniature versions of the first four app icons displayed in the folder.
To create a folder, drag one app icon and drop it on top of another. To give a folder a descriptive name, click the heading at the top of any open folder and start typing. To drop additional apps into the folder, drag them to the existing folder. When you click or tap a folder, the folder opens to reveal the individual apps contained within. You can click any pinned app in the folder to open that app.

To remove an app from a folder while leaving it pinned to the Start menu, open the folder and then drag the pinned app to the place where you want it to appear.

**Using the Start menu to search**

Search is built into Windows 11 as an integral feature that gets prime real estate. Unlike its predecessor in Windows 10, however, the search box isn’t built into the taskbar. Instead, it exists as an alternative view of the Start menu, which you can trigger by tapping the Windows key or clicking the search button (to the right of Start if you have opted to show it using Settings > Personalization > Taskbar) and then typing your search request. If the Start menu is already open, just click in the search box at the top of the menu to change the view.

For most simple tasks, such as searching for an app or a setting, the fastest route to success is to tap the Windows key and begin typing. The results, as shown in Figure 3-7, are businesslike and efficient, with no personality.

![Figure 3-7](image-url) Type a word or phrase in the search box, and you get a categorized list of results that match the search term, including apps and settings. Use the options at the top to change the search scope.
The list on the left shows search results by category, including results from the web, with a Best Match item at the top if Windows believes it knows exactly what you’re looking for; the larger pane to its right shows details for the currently selected item from the results list. That list also includes local files available to the currently signed-in user as well as files stored in OneDrive or OneDrive for Business. Click the profile icon in the top right to search using a different OneDrive account.

If you click Search without entering a search term, you see a list of recent searches on the left, with a Today view to its right. That view shows a highlight from the Bing search engine if you’ve selected a Microsoft account from the profile menu; choosing an Azure AD account shows search results from your school or workplace, including recently edited files and comments by coworkers to shared work files.

As mentioned earlier, you can narrow the scope of the search by choosing a category from the list above the results pane. The Apps, Documents, and Web categories are visible by default; click More to expand the list of available categories to include Email, Folders, Music, People, Photos, Settings, and Videos. Choosing one of those categories immediately changes the search results list to show only the category you selected.

Choosing a category has a simple but powerful action: It inserts a prefix in the search box, before the search term. If you’re more comfortable with the keyboard, you can accomplish the same result by typing the category prefix manually: folder: or photos:, for example.

Windows highlights the top item on the results list, but you can use the arrow keys to scroll up and down through the list. You can also use the mouse to select the arrow to the right of any entry and make its properties or Jump List options visible on the right side of the results pane.

When you enter a word or phrase in the search box, results from the web can appear directly in the results list in a panel that pops out to the right of the initial display of search results in Start. This feature enables you to get instant answers to questions in a wide array of categories. If your question is clear and unambiguous and you have a working internet connection, your answer appears immediately, as shown in Figure 3-8.
Figure 3-8  When the best match for a search term is on the web, you might see a detailed info box like this one to the right of the results list.

You can use this same technique for the following types of queries:

- **Dates and times**  Use the search box to check the dates of upcoming holidays and events. ("When is Thanksgiving this year?" and "What time does the Super Bowl start?")

- **Biographical details**  If someone is famous enough or holds a public office, you can ask for more information. ("How old is Bill Gates?" or "Who is Governor of New Mexico?")

- **Definitions**  Not sure of the meaning of an unfamiliar word? You can view a definition in the results pane, with an option to hear the word’s pronunciation or jump to an online dictionary. ("What does phlegmatic mean?")

- **Sports scores**  You can see scores and standings for any team or league, even for games that are in progress.

- **Stock prices**  To get the current price and a chart for any stock or index on a major exchange, enter a dollar sign followed by the ticker symbol: $MSFT, $DJIA.

- **Weather**  Type `weather` followed by a city name to see a five-day forecast that can help you decide whether to pack an umbrella or extra sunscreen for an upcoming trip.

The expanded results pane can also display interactive controls. Enter an arithmetic problem, and Windows search shows the result in a calculator where you can continue your number-crunching. If you ask how to convert units of measurement, the resulting display enables you
to choose from an enormous number of conversions, including length, volume, and even fuel efficiency. Figure 3-9 shows a conversion that might not be as practical as gallons to liters but could help settle a bet over your favorite space opera.

![Figure 3-9](image)

**Figure 3-9**  An interactive widget appears in the search results when you ask a question that involves calculation or conversion.

Besides conversions, you can also do basic math by entering an appropriate query in the taskbar search box. Enter any valid mathematical format—addition, subtraction, multiplication, division, exponentiation, and more, with support for using parentheses to group operations—and see the answer directly in the results pane.

The search box is also able to look up current exchange rates and convert any amount in one currency to its equivalent in another. Specify the amount and the target currency—for example, **$195 in GBP**—and then use controls in the widget to change the amount, choose a different currency, or enter a new value in the second box to reverse the conversion.

The results can change with every character as you type, so feel free to use the backspace key and change your input slightly to help Search understand what you’re asking.

**Using and customizing the taskbar**

The taskbar is the valuable strip of real estate along the bottom of the screen. The taskbar made its debut in Windows 95, and in the years since, it has added features and buttons without changing its basic shape.
In Windows 11, Microsoft has rewritten the taskbar code from scratch, stripping away nearly three decades' worth of cruft and starting fresh with a design that is deliberately clean and simple. Its initial arrangement contains a group of buttons in the center, with (from left to right) the Start button, a group of system shortcuts, and then a group of buttons representing apps; the Widgets button is on the far left and a group of notification icons and a clock are on the far right.

The Windows 11 taskbar continues to serve the same core functions as its predecessors—launching apps, switching between apps, and providing notifications—but the changes from its Windows 10 predecessor are profound. (For a partial list, see the sidebar, “What you can’t do with the Windows 11 taskbar.”)

The most obvious change is the starting position. By default, the Windows 11 taskbar is centered on the bottom of the display rather than aligning to the lower-left corner. For most people, the new position quickly becomes second nature, especially on large monitors; but if you’d rather not adapt, it’s easy enough to restore the taskbar to its traditional alignment. Go to Settings > Personalization > Taskbar, expand the Taskbar Behaviors section, and change the Taskbar Alignment menu option from Center to Left. (An even faster way to get to this page is to right-click any empty space on the taskbar and choose Taskbar Settings.)

WHAT YOU CAN’T DO WITH THE WINDOWS 11 TASKBAR

Earlier Windows versions offered a staggering number of options for customizing the taskbar, many of them dating back to the earliest appearance of this feature in Windows 95.

As part of a comprehensive rewrite of this and other core elements of the Windows user experience, Microsoft has removed many of those customization options. If you’ve grown accustomed to extensively tweaking the taskbar in Windows 10 and earlier versions, you’re in for a bit of a shock.

Here’s a partial list of advanced taskbar options that are not available in Windows 11:

- You can no longer move the taskbar from its default position at the bottom of the screen. If you prefer to dock the taskbar at the top (a configuration that’s similar to Apple’s MacOS) or to either side, you need to use a third-party utility.
- Previous Windows versions allowed you to expand the height of the taskbar to accommodate two or more rows of buttons. That option is not available in Windows 11.
- There’s no longer an option to use smaller taskbar buttons.
- A legacy taskbar option, one that dates back to the earliest days of Windows, allowed the addition of optional toolbars that were hosted entirely within the taskbar, in a space just to the left of the notification area. Windows 11 does not support additional toolbars.

- When you have multiple windows open for an app, earlier Windows versions allowed you to configure the taskbar so that each of those windows has its own button. Windows 11 always combines those Windows into a single taskbar button, without labels.

- You can’t drag file or folder icons from File Explorer and drop them onto the taskbar to pin them to a taskbar icon’s Jump List, as you could in Windows 10.

And one more thing: If you’re used to right-clicking an empty space on the taskbar to see additional options, you’ve no doubt grown accustomed to a long menu packed with options: a long list of taskbar items you can show or hide, as well as options for arranging open windows. You might want to sit down before you right-click the Windows 11 taskbar to reveal its shortcut menu, which includes only two options: Taskbar Settings and a shortcut to Task Manager.

If you find the prospect of giving up those classic taskbar features unacceptable, you have an alternative: Install a third-party utility to restore the missing functionality. Start11 (https://www.stardock.com/products/start11/) is a commercial product that brings back the Windows 10–style Start menu. If you’d rather not pay, consider the free, open-source alternative ExplorerPatcher (https://github.com/valinet/ExplorerPatcher).

Every running app with a user interface has a corresponding taskbar button. (Apps that run exclusively in the background don’t offer a taskbar button.) When you close that app, the button vanishes as well, unless you pinned it to the taskbar. A short line appears underneath the icon for a pinned app that is currently running, and the app with the current focus has a longer line and a subtle but noticeable transparent shadow to identify it.

The Windows 11 taskbar offers a limited (but useful) selection of customization options, available through Settings > Personalization > Taskbar (or by right-clicking any empty space on the taskbar and clicking Taskbar Settings). Figure 3-10 shows an expanded view of the first two groups of options available on that page.
Here’s a rundown of the available taskbar customization options:

- **Taskbar Items**  The four items in this group allow you to show or hide items that appear on the taskbar independently of app buttons: Search, Task View, Widgets, and Chat. If you don’t use one or more of these features, it might make sense to suppress their appearance on the taskbar. In the interest of saving space, you might even choose to hide the button for a feature you use occasionally and just rely on its keyboard shortcut instead. For example, you can hide the Widgets button and press Windows key+W when you feel the need to check news headlines or see the local weather forecast.

- **System Tray Icons**  On systems that are equipped with the requisite hardware (a pen and/or touchscreen), you can configure Windows so that the Pen Menu, Touch Keyboard, and Virtual Touchpad icons are always visible. We cover these features in more detail later in this chapter.

- **Other System Tray Icons**  Third-party apps (including some from Microsoft) can add their own icons to the system tray, which is the region just to the left of the clock in the taskbar. By default, most of these icons are hidden and available only in an overflow area visible when you click the upward-pointing arrow at the left of the system tray, as shown in Figure 3-11. You can drag icons from the overflow area onto the system tray (or vice versa), or use the switches on this Settings page to show or hide individual icons.
Figure 3-11 Drag icons out of this overflow area and onto the system tray to make them always available for notifications and access to shortcut menus.

- **Taskbar Behaviors**  The final section on this page (shown in Figure 3-12) contains a limited selection of options you can use to manage the appearance of the taskbar as well as the behavior of taskbar buttons.

![Figure 3-12](image)

Figure 3-12 Use the Taskbar Alignment setting to move the Start button to the left. Note that some options shown here are available only on PCs with multiple displays.

The following is a rundown of the options shown in Figure 3-12:

- **Taskbar Alignment**  By default, the Windows 11 taskbar buttons are centered at the bottom of the display, with the Start button on its left. Change this option to Left if you want the Start button to appear in the lower-left corner, with taskbar buttons appearing to its right, as in previous Windows versions.
• **Automatically Hide The Taskbar**  By default, the taskbar remains visible at all times. If that’s inconvenient for any reason, you can tell it to get out of the way. With this option set, the taskbar retreats into the bottom edge of the desktop whenever a window has the focus. To display the hidden taskbar, move the mouse pointer to the bottom of the desktop. On a touchscreen, swipe from that edge toward the center of the screen.

• **Show Badges On Taskbar Apps**  Badges are small circular notifications that can appear over taskbar buttons to indicate that something in that app needs your attention. Badges on the Clock icon, for example, indicate that an alarm has been set, while badges over the To Do and Mail buttons indicate that you have overdue tasks and unread messages, respectively.

• **Show Flashing On Taskbar Apps**  This option allows Windows to flash a taskbar button when it requires immediate action on your part to proceed. If you turn this option off, the taskbar button changes color to alert you, without calling any additional attention to itself.

• **Show My Taskbar On All Displays**  If your PC is configured to use multiple displays, you can choose whether you want each display to have its own taskbar. If this option is off, the taskbar appears only on the main display. (You specify the main display in Settings > System > Display. For details, see “Configuring displays and graphics adapters” in Chapter 13, “Managing hardware and devices.”)

• **When Using Multiple Displays, Show My Taskbar Apps On**  If you’ve chosen to show taskbars on all displays, you can choose whether you want buttons for running apps to appear on all taskbars, on the main taskbar and the window where the window is open, or only on the taskbar where the window is open. Note that the last option can be confusing if you have an app’s button pinned to the main taskbar, but it’s open on a secondary window.

• **Share Any Window From My Taskbar**  This option allows you to share a window in a Microsoft Teams meeting using a menu on the taskbar icon. Note that this feature works with the Microsoft 365 version of Teams, not the free consumer-focused version included with Windows.

• **Select The Far Corner Of The Taskbar To Show The Desktop**  With this option (called Peek in previous Windows versions) on, clicking in the lower-right corner of the display (beyond the Notification Center button) hides all open windows, giving you the opportunity to see the underlying desktop. Click again to restore the previous arrangement.
Pinning apps to the taskbar

Pinning apps to the taskbar makes it easy to find and run favorite apps without the need to open Start or use the search box to find the app's shortcut. To pin an app to the taskbar, simply drag its icon or a shortcut (from Start, from the desktop, or from any other folder) to the taskbar. Alternatively, right-click a pinned app (in any location) or the taskbar button for a running app and then click Pin To Taskbar.

To remove a pinned app from the taskbar, right-click the pinned app and then click Unpin From Taskbar. This command also appears on other shortcuts to the app, including those on the desktop and on Start.

You can use taskbar buttons to launch an app that’s not currently running or to switch from one running app to another. You can also click a taskbar button to minimize an open window or to restore a minimized window. If those features sound too obvious, here’s a trick you might not know: You can open a new instance of an app that’s already running—a new Microsoft Word document, for example, or a fresh File Explorer window—by right-clicking the taskbar button and then clicking the app name; alternatively, hold Shift and click the app's taskbar button.

Changing the order of taskbar buttons

To change the order of buttons on the taskbar, drag them into position. Pinned apps retain their order between sessions, allowing you to quickly find your most used apps in their familiar (to you) location.

Inside OUT

*Use shortcut keys for taskbar buttons*

The first 10 app buttons on the taskbar (not counting the Start button or the optional Search, Task View, Widgets, or Chat buttons) are accessible by keyboard as well as by mouse. Press Windows key+1 for the first, Windows key+2 for the second, and so on (using 0 for the tenth). Using one of these shortcuts is equivalent to clicking the corresponding taskbar button: If the app isn’t running, it starts; if it has a single open window, you switch to that window; if it has multiple open windows, Windows displays previews of all windows and switches to the first window. Press Shift+Windows key+*number* to open a new document in the associated app.

Hold down the Windows key and tap the number key repeatedly to cycle between all open windows for that app.

Note that when you change the order of a taskbar button, you also change the Windows key+*number* combination that starts that particular app.
Another useful shortcut key is Windows key+T, which brings focus to the first app button on the taskbar. At that point, you can repeatedly press Windows key+T, Shift+Windows key+T, or the arrow keys to select other taskbar buttons. When a taskbar button is selected, you can press the Spacebar to “click” the button or press the Menu key to display its Jump List.

Using Jump Lists for quick access to documents and folders

A Jump List is the official name for the set of additional menu options that appear when you right-click a taskbar button for an app that supports this feature.

For Microsoft Office programs, Adobe Acrobat, and other document-centric apps, Jump Lists typically include links to recently opened files as well as pinned shortcuts to files and folders. In Microsoft Edge, these groups are labeled Top Sites and Recently Closed. Jump Lists can include shortcuts to common tasks that can be performed with that program, such as New Window or New InPrivate Window on a Microsoft Edge Jump List, and New Email Message or New Appointment on the Jump List for Microsoft Outlook.

Figure 3-13 shows the default Jump List for File Explorer.

Figure 3-13 Right-click a taskbar button, such as File Explorer, to see a Jump List showing recently opened files and folders with the option to pin items for quick access.
Individual files and folders can’t be pinned directly to the taskbar, but you can add them to Jump Lists on any program that supports this feature. Opening a file or folder from File Explorer adds an entry for that to the Recent list in the app where it opened. Right-click the taskbar button, point to its entry, and click the pushpin icon to move the file or folder to the Pinned section of the Jump List:

- To open a pinned document or folder, right-click the taskbar button and then click the name of the document or folder.
- To remove a pinned document or folder from the Jump List, right-click the taskbar button and point to the name of the document or folder to be removed. Click the pushpin icon that appears.

**Customizing the Quick Settings pane**

Three icons on the right side of the taskbar behave differently than their neighbors. The network, volume, and battery icons sit between the system tray and the clock and cannot be hidden or moved.

Right-clicking any of these three icons reveals a shortcut menu specific to that icon’s function. Clicking any part of the region, however, opens the Quick Settings pane, which is shown in Figure 3-14. As an alternative, use the keyboard shortcut Windows key+A to open Quick Settings.

![Quick Settings pane](image)

**Figure 3-14** The Quick Settings pane includes a wide-ranging assortment of tools for efficiently managing common system settings.

This compact pane packs an impressive collection of controls into its small space. On the example shown in Figure 3-14, each of the five buttons at the top of the pane allows direct control
over common system settings without having to open the full Settings app. Two slider controls below that control screen brightness and system volume, respectively. Clicking the battery icon opens the Power & Battery page in Settings, where you can change the power mode or turn on Battery Saver mode.

The playback controls above the Quick Settings pane are available for apps that don’t include these functions on the taskbar item itself, as is the case with a Progressive Web App that uses Microsoft Edge as its engine.

Quick Settings controls that have an arrow on the right allow you to choose an additional option for that control. Click the arrow to the right of the volume slider, for example, to direct sound output to a different device. Both the Wi-Fi and Bluetooth controls offer a split button, with the left side turning the feature on or off. Click the arrow on the right of the Wi-Fi control to select from a list of available Wi-Fi networks; click the arrow on the right of the Bluetooth button to display a list of paired Bluetooth devices that are available for connection, as shown in Figure 3-15.

![Figure 3-15](image)

Figure 3-15  Click the arrow to the right of the Bluetooth button in Quick Settings to open this list and connect to a previously paired device.

The gear icon in the lower-right corner of Quick Settings opens the full Settings app. Click the pen icon just to its left to add, remove, or rearrange the controls at the top of the pane, as shown in Figure 3-16. Click Add to display a list of available controls that can be pinned to this region; click the unpin icon next to any control to remove it. Drag icons to change their order.
Managing notifications and eliminating distractions

Windows 11 is capable of displaying notifications from apps, services, and Windows itself, alerting you to incoming messages, alarms, and events that require your attention. These notifications can pop up as banners in the lower-right corner of the primary display; they also show up in the notification center, a pane that appears at the right side of your screen when you swipe in from the right (on a touchscreen), press Windows key+N, or click the clock on the right of the taskbar. In addition to hosting notifications, this pane includes a collapsible calendar as well as a pair of features that you can use to eliminate distractions caused by, among other things, notifications.

Figure 3-17 shows the notification center with two notifications and Do Not Disturb turned on. Notifications are grouped under headings corresponding to the notifying applications.
Notifications are a useful way to stay on top of events. To lessen their potential as a source of distraction, use the Do Not Disturb feature (top) or start a Focus session (bottom).

You can respond to notifications in various ways. If you hover the mouse pointer over a notification, a Close button appears in its upper-right corner, with a Settings button (three dots) just to its left. Click Close to dismiss the notification. If you click on the body of the notification, the relevant action occurs. For example, clicking on an email message opens it in the associated app (Mail or Outlook, for example); clicking on a message from Snipping Tool telling you that you’ve successfully captured a screenshot opens the Snipping Tool app with the capture available for immediate editing. Acting on a notification in this fashion removes it from the notification center immediately.

If there are more notifications from a single app than will fit in the notification center, a small message at the bottom lets you know how many additional alerts are available. Click that message to expand the list and see all available notifications. You can click the Close button to the right of any heading to close all notifications in that group.

Click Clear All, in the top-right corner of the notification center, to clear all notifications immediately.
Customizing notifications

The options for controlling which apps and services can deliver messages to the notification center are available in Settings > System > Notifications, as shown in Figure 3-18. The Notifications section at the top of the page contains an On/Off switch that allows you to shut off all notifications. If you leave notifications enabled, use the checkboxes below that switch to eliminate sounds associated with notifications and to control whether messages are displayed on your lock screen.

Figure 3-18 Use the switch at the top of this page to suppress all notifications.

Turning off all notifications is a fairly drastic step. A more measured approach if you find the volume of notifications excessive is to adjust settings for each source. You can make this adjustment directly from the notification center by clicking the Settings button to the right of a group heading. That action opens a menu like the one shown in Figure 3-19.

Figure 3-19 Use this Settings menu to quickly adjust notification options for a group that’s currently visible in the notification center.
If you decide you don’t really need to see notifications from Snipping Tool, for example, click its Settings button and then choose Turn Off All Notifications For Snipping Tool. If, on the other hand, you want those notifications to be treated with high priority so that you see them above other notifications, even when Do Not Disturb is turned on, choose Make Snipping Tool High Priority.

For more granular control over notifications on an app-by-app basis, click Go To Notification Settings from this menu. That opens a page like the one shown in Figure 3-20.

![Figure 3-20](image.png)

*Figure 3-20* Every app, service, and system function capable of sending notifications can be fine-tuned using settings like the ones shown here.

Most of the options in this page are self-explanatory. If you don’t want notification banners to appear briefly in the lower-right corner, clear the Show Notification Banners box. (A jargon note: Windows calls this type of alert “toast,” because of the way it pops up, like a slice of bread from a toaster.) Conversely, if you want to see notification banners as they arrive but you don’t need to see the ones you missed, clear the Show Notifications In Notification Center box.

The three options under the Priority of Notifications In Notification Center heading allow you to roughly sort the contents of this pane by importance. Set your must-see notifications to the Top option; use High for those you want to see near the top; everything else is categorized as Normal.
On a well-used Windows 11 PC, dozens of apps and services, as well as Windows features such as USB and Bluetooth, are capable of sending you notifications. You can curate what you see in the notification center by scrolling through the entire list at the bottom of Settings > System > Notifications. Turn the switch to Off for any app you never want to hear from, and then go through the individual settings to adjust the behavior of alerts from those that are allowed to send notifications.

**Eliminating distractions**

Notifications are designed to get your attention. That’s a mixed blessing if you’re trying to do something that demands your undivided attention, like finish a high-priority work project or play a game against a skilled online rival.

For those instances, two features are especially useful: Do Not Disturb and Focus.

Do Not Disturb does exactly what its name promises: When you click the Do Not Disturb button at the top of the notification center (or go to Settings > System > Notifications and turn on the corresponding switch), Windows temporarily suppresses toast-style notifications, sending them directly to the notification center. The only exceptions are incoming voice and video calls (including VOIP calls), reminders (you don’t want to miss an appointment because you were busy playing Halo), and notifications from any app you set as High Priority. To adjust these settings, open the Notifications page in Settings and click Set Priority Notifications.

Windows 11 can turn on Do Not Disturb automatically. By default, it does so when you’re duplicating your display (on the theory that you’re probably delivering a presentation and don’t want your audience to be distracted by your notifications), when you’re playing a game, or when you’re using an app in full-screen mode. Do Not Disturb is also on automatically for the first hour after a Windows feature update, when the system is busy doing housekeeping tasks.

You can adjust these settings and also specify times when you want Windows to remain quiet. You’ll find these options on the Notifications page in Settings. Expand the Turn On Do Not Disturb Automatically section and configure the options you see there. In Figure 3-21, for example, we’ve told Windows to turn on Do Not Disturb between 11:00 PM and 6:00 AM.

The Focus feature (which was known as Focus Assist and before that as Quiet Hours in Windows 10) is a productivity-focused feature designed to minimize interruptions from your computer for a specific period of time while you concentrate. The idea is that you will focus your attention, uninterrupted, for a burst of productive activity.
Figure 3-21  Windows turns on Do Not Disturb automatically when it senses you don’t want to be bothered. You can set your own “quiet hours” here.

To start a focus session, open the notification center and look for the controls at the bottom of the pane, below the calendar. By default, a focus session lasts 30 minutes. Use the plus and minus buttons to change the time, if necessary, and then click Focus. If you set a session for more than 30 minutes, as we’ve done in Figure 3-22, Windows offers to give you breaks.

Figure 3-22  Use focus sessions to increase your productivity by hiding notifications and other distractions for a set period of time.
When you’re in a focus session, Windows turns on Do Not Disturb automatically and suppresses notifications and badges on taskbar buttons. To help you stay focused, Windows displays a minimalist view of the Clock app with a small timer and a Stop button that allows you to end the session early. By default, this timer shows a simple circular progress indicator; you can click to expand it to show the full time remaining in your session. When your focus session ends, Windows lets you know by interrupting your train of thought with (naturally) a notification.

To configure these options, go to Settings > System > Focus. Note that you cannot adjust these settings while you’re in the middle of a focus session.

Managing and arranging windows

Windows 11 includes a host of keyboard shortcuts and gestures that greatly simplify the everyday tasks of resizing, moving, minimizing, arranging, and otherwise managing windows. The most useful trick is a collection of “snap” techniques that have been around for several Windows versions; Windows 11 supercharges these options.

The simplest window-snapping scenario is a PC with a single display, where you want to arrange two windows side by side. You might want to compare two Word documents; move files between the Documents folder and an archive, each open in separate File Explorer windows; or do financial research in a web browser and plug the numbers into an Excel spreadsheet.

Drag a window title bar to the left or right edge of the screen, and it snaps to fill that half of the display. Drag a window title bar to any corner of the screen, and it snaps to fill that quadrant of the display. As soon as you let go of the title bar, the window snaps into its position, and Windows helpfully offers thumbnails for all other open windows to help you choose what to run alongside your first snapped window.

In Figure 3-23, for example, we’ve just snapped a File Explorer window to the right side of the screen and now have a choice of seven other running windows to snap opposite it. (If you don’t feel like snapping a second window, just press Esc or click anywhere except on one of those thumbnails. They vanish immediately and retain their previous size and position.)

An even easier window-snapping technique, new in Windows 11, allows you to quickly snap a window into one of several predetermined layouts by pointing and clicking—no dragging and dropping required. To get started, hover the mouse pointer over the maximize button on the window you want to rearrange. That displays a list of available layouts like the one shown in Figure 3-24.
Figure 3-23  When you snap a window to one edge of the display, Windows shows other open windows in thumbnails alongside the snapped window for easy side-by-side arrangement.

Figure 3-24  Hover the mouse pointer over the maximize button to expose this menu of available snap layouts. Click to immediately snap the window into the chosen position.
A variation of this feature, first available in Windows 11 version 22H2, makes window snapping easier on a touchscreen device. Drag the title bar up until you see a menu of available layouts drop down from the center of the display's upper edge, as shown in Figure 3-25.

Figure 3-25  On a touchscreen device, you can drag a window's title bar to the top of the display to choose from available snap layouts.

Inside OUT

*Expand your selection of window-snapping layouts*

Alert readers might notice that Figure 3-25 contains an expanded selection of layouts, with options to position three windows side by side, rather than two. Those options are available only on wide displays, those with an effective resolution of at least 1850 pixels in width. (To calculate effective resolution, divide the display's native resolution by its scaling factor. The native resolution of a Surface Pro device, for example, has a width of 2880 pixels, but at the recommended scaling factor of 200%, its effective resolution is 1440 pixels wide.)

If your effective display resolution is too narrow to support the larger selection of window-snapping layouts in Windows 11, you have an option. Use the FancyZones utility, which is part of the Microsoft PowerToys package. Full documentation, including a download link, is available at https://learn.microsoft.com/windows/powertoys.

As soon as you begin dragging a snapped window away from the edge of the screen, it returns to its previous size and position.

If you drag the top window border (not the title bar) to the top edge of the screen, or drag the bottom border to the bottom edge of the screen, the window snaps to full height when you reach the edge, without changing its width. When you drag the border away from the window edge, the opposite border snaps to its previous position.
Inside OUT

Snap side-by-side Windows at different widths

Although Windows automatically arranges side-by-side windows at equal widths, you don’t have to settle for symmetry. On a large desktop monitor, for example, you might want to arrange a news feed or chat session along the right side of your display, using a third or less of the total display width and leaving room for Word or Excel to have a much larger share of the screen real estate.

If you have a large enough monitor, you can choose this option from a predetermined layout. But regardless of the effective display resolution, you can change the relative width of snapped windows with ease. The secret is to snap the first window and immediately drag its inside edge to adjust the window to your preferred width. Now grab the title bar of the window you want to see alongside it and snap it to the opposite edge of the display. The newly snapped window expands to fill the space remaining after you adjusted the width of the first window. To readjust the division of space between the two windows, you can drag the border between them; when doing research on the web, for example, you might opt for a wider Microsoft Word or OneNote window to hold your notes with a relatively slim window for your browser alongside.

The rules work the same with multimonitor setups. With two side-by-side monitors, for example, you can snap a window to the inside edge of a display, allowing for two pairs of equal-size windows lined up from left to right. By dragging the title bar, you also can move a maximized window from one screen to another on a multimonitor system.

Inside OUT

Shake to minimize distractions

An ancient Windows feature called Aero Shake, introduced with Windows Vista, survives in Windows 11. Grab the window’s title bar and quickly move it back and forth a few times. Suddenly, all windows retreat to the taskbar except the one whose title bar you just shook. This move takes a bit of practice, but it’s worth learning. It requires only three smooth “shakes”—a left, right, left motion is best—not maniacal shaking. If this feature isn’t working, you might need to turn it on. Go to Settings > System > Multitasking and turn the Title Bar Window Shake switch to the On position.
Windows 11 includes keyboard shortcuts that correspond with the preceding mouse gestures. These (and a few extras) are shown in Table 3-1.

**Table 3-1** Keyboard shortcuts and gestures for resizing and moving windows

<table>
<thead>
<tr>
<th>Task</th>
<th>Keyboard shortcut</th>
<th>Gesture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximize window</td>
<td>Windows key+Up Arrow</td>
<td>Drag title bar to top of screen</td>
</tr>
<tr>
<td>Resize window to full screen height</td>
<td>Shift+Windows key+Up Arrow</td>
<td>Drag top or bottom border to edge of screen</td>
</tr>
<tr>
<td>without changing its width</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restore a maximized or full-height window</td>
<td>Windows key+Down Arrow</td>
<td>Drag title bar away from screen edge</td>
</tr>
<tr>
<td>Minimize a restored window</td>
<td>Windows key+Down Arrow</td>
<td>Click the Minimize button</td>
</tr>
<tr>
<td>Snap to the left half of the screen</td>
<td>Windows key+Left Arrow*</td>
<td>Drag title bar to left edge</td>
</tr>
<tr>
<td>Snap to the right half of the screen</td>
<td>Windows key+Right Arrow*</td>
<td>Drag title bar to right edge</td>
</tr>
<tr>
<td>Move to the next virtual desktop</td>
<td>Ctrl+Windows key+Left/Right Arrow</td>
<td>Three-finger swipe on precision touchpad; none for mouse</td>
</tr>
<tr>
<td>Move to the next monitor</td>
<td>Shift+Windows key+Left/Right Arrow</td>
<td>Drag title bar</td>
</tr>
<tr>
<td>Minimize all windows except the active window (press again to restore windows previously minimized with this shortcut)</td>
<td>Windows key+Home</td>
<td>“Shake” the title bar</td>
</tr>
<tr>
<td>Minimize all windows</td>
<td>Windows key+M</td>
<td></td>
</tr>
<tr>
<td>Restore windows after minimizing</td>
<td>Shift+Windows key+M</td>
<td></td>
</tr>
</tbody>
</table>

* Pressing this key repeatedly cycles through the left, right, and restored positions. If you have more than one monitor, it cycles these positions on each monitor in turn.

The Windows 11 taskbar also exposes some traditional window-management menus. The secret? Hold the Shift key as you right-click a taskbar button. For a button that represents a single window, the menu includes the following commands: Restore, Move, Size, Minimize, Maximize, and Close.

Window snapping is one of our favorite Windows 11 features. But if you prefer to arrange windows manually, go to Settings > System > Multitasking. Turning the Snap Windows switch to the Off position disables this feature completely. If you’d like to adjust some of the available options (turning off snap layouts that appear when you drag a window to the top of the screen, for example), use the checkboxes beneath this switch.
Switching between tasks and desktops

As in previous Windows versions, you can switch to a different app by clicking its taskbar button. And if you’re not sure which icon your document is hidden under, hover the mouse pointer over a taskbar button to display a thumbnail image of the window (or windows) above the button.

If the live thumbnail isn’t enough to help you select the correct window, hover the mouse pointer over one of the preview images. That action brings the window to the forefront, temporarily masking out the contents of all other open windows.

On a modern PC, with ample memory and disk space, the number of open windows can become overwhelming, making it cumbersome to manage those windows manually. To simplify that task, Windows 11 offers two features that can make the management process simpler: Task View and Virtual Desktops.

Using Task View to switch between windows

Task View is a time-tested alternative to manual hunt-and-click window management techniques. It displays large, live thumbnails of each open window on the current display so that you can switch with confidence.

To begin, click the Task View button or use the Windows key+Tab shortcut. On a touchscreen-equipped device, you can swipe in from the bottom of the display using three fingers. Figure 3-26 shows the results on a system with seven windows available.

![Figure 3-26](image)

Opening Task View shows running programs using their windowed dimensions. Clicking or tapping any thumbnail opens it in its current position.
Those thumbnails remain open until you do something, usually by clicking or tapping a thumbnail to switch to that window or by pressing Esc to return to the current window.

If there are too many open windows to fit as thumbnails on the display, use the up and down arrows at the bottom of the screen to scroll through the full list.

The old-fashioned Alt+Tab task switcher, familiar to every Windows user of a certain age, is still available as well. The concept is similar, but the thumbnails appear only as long as you continue to hold down the Alt key. Hold down Alt and tap the Tab key to cycle (left to right, top to bottom) through all open windows. When you’ve highlighted the window you want to bring to the front, release the Alt and Tab keys.

When using Task View, you also have the option of closing a window by clicking the X in the upper-right corner of the preview or, if your mouse scroll wheel supports clicking, by middle-clicking anywhere in the preview image. Other basic window tasks are available on the shortcut menu that appears when you right-click the preview image.

**Switching between virtual desktops**

The idea of virtual desktops is straightforward: Instead of arranging program windows on a single desktop, you create a second, third, fourth, and so on. On each desktop, you arrange individual apps (or combinations of related apps) that you want to use for a specific task. Then, when it’s time to tackle one of those tasks, you switch to the virtual desktop and get right to work, without being distracted by the unrelated programs running on those other desktops.

To create a new desktop, allow the mouse pointer to hover over the Task View button and then click the New Desktop shortcut. (If you’ve hidden the Task View button, or if you just prefer keyboard shortcuts, press Windows key+Tab to make the list of currently configured desktops and the New Desktop icon visible.)

Virtual desktops show up as a row of thumbnails along the bottom of the Task View window, as shown in Figure 3-27.

![Figure 3-27](image)

**Figure 3-27** Arranging groups of open windows into separate virtual desktops can help you focus on specific tasks without being overwhelmed by unrelated windows.
Right-click a virtual desktop to give it a new name or background.

The system depicted in Figure 3-27 has two virtual desktops. Windows draws a bright border to indicate which desktop is active, and it dims the others. A New Desktop thumbnail makes it easy to expand the layout. You can switch from one virtual desktop to another by clicking its thumbnail. You’ll notice that your taskbar changes to reflect the makeup of the current desktop. To close an existing virtual desktop, select its name and click the Close button that appears. If any windows are open on the desktop you are closing, they are transferred to the preceding desktop—from Desktop 2 to Desktop 1, for example.

To change the name of a virtual desktop from its generic default—for example, from Desktop 2 to Annual Report Project—right-click the thumbnail and choose Rename.

Using a keyboard and voice input in Windows 11

If you need to enter text in an app or dialog in Windows 11, you have a variety of options. Most of the time, you type on a physical keyboard attached to your PC. If you’re using a touchscreen device, you have the option of using a virtual keyboard where you can tap or swipe on the screen. And in a new feature, added to Windows 11 in version 22H2, you can also quite literally tell your PC what to do by using voice commands and dictation. We cover all three forms of input in this section.

Customizing and using a physical keyboard

For the most part, becoming more productive with a desktop or laptop keyboard is a simple matter of adjusting to the different “feel” of each physical device. The very limited set of options for fine-tuning how the keyboard works are still in the old-style Control Panel and haven’t made it to the modern Settings app. To find these options, type keyboard in the Search box and then click the result that appears under the Settings heading. That action opens the dialog shown in Figure 3-28.

The repeat delay—the amount of time Windows waits as you hold down a key before repeating that key—is set, by default, a bit long for the tastes of some proficient typists. You can make it shorter by dragging the slider to the right. On the other hand, if you sometimes find that Windows gives you an unwanted string of repeated characters, you can drag the slider left. You might also then want to reduce the repeat rate.
Adjust these options if you find that your keyboard occasionally repeats characters without your permission.

**Inside OUT**

*Reconfigure the Caps Lock key to avoid shouting*

If your fingers occasionally slip and accidentally strike the Caps Lock key, causing your emails to LOOK LIKE YOU’RE SHOUTING and proper nouns like nEW yORK cITY to appear in completely mixed-up case, there’s a solution.

Although it’s possible to edit the registry to disable the Caps Lock key, this technique is needlessly complex. The much safer, simpler alternative is to enlist the help of a software utility to make this change. We’ve successfully used SharpKeys (a free download from [https://github.com/randyrants/sharpkeys](https://github.com/randyrants/sharpkeys)) to turn off the Caps Lock key; you can use it to remap or turn off any key. We can also recommend the Microsoft PowerToys utility package, which includes a keyboard remapping module. You’ll find it at [https://learn.microsoft.com/windows/powertoys/](https://learn.microsoft.com/windows/powertoys/). For documentation and to report any issues, go to [https://github.com/microsoft/PowerToys](https://github.com/microsoft/PowerToys).
Increasing productivity with keyboard shortcuts

Like its predecessors, Windows 11 offers so many keyboard shortcuts that learning them all would be a remarkable feat, a bit like memorizing 80 digits of pi. Becoming familiar with a handful (or several handfuls), on the other hand, can definitely improve your productivity without being a burden on your long-term memory.

Table 3-2 presents a selection of everyday shortcuts—the ones that we use most often and would have trouble living without. (These are, of course, in addition to the separate table, earlier in this chapter, of keyboard shortcuts having to do with window management.) Because your own needs probably differ from ours, however, you might want to peruse the truly exhaustive list at https://aka.ms/keyboard-shortcuts.

Table 3-2  A short list of general-purpose keyboard shortcuts

<table>
<thead>
<tr>
<th>Shortcut</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ctrl+C</td>
<td>Copy selection</td>
</tr>
<tr>
<td>Ctrl+X</td>
<td>Cut selection</td>
</tr>
<tr>
<td>Ctrl+V</td>
<td>Paste Clipboard contents</td>
</tr>
<tr>
<td>Ctrl+Z</td>
<td>Undo</td>
</tr>
<tr>
<td>Ctrl+Y</td>
<td>Redo</td>
</tr>
<tr>
<td>Ctrl+N</td>
<td>Open new window (in many apps)</td>
</tr>
<tr>
<td>Ctrl+S</td>
<td>Save</td>
</tr>
<tr>
<td>Ctrl+W</td>
<td>Close current window (in many apps)</td>
</tr>
<tr>
<td>Ctrl+P</td>
<td>Print (in many apps)</td>
</tr>
<tr>
<td>Ctrl+A</td>
<td>Select all</td>
</tr>
<tr>
<td>Ctrl+Shift+Esc</td>
<td>Open Task Manager</td>
</tr>
<tr>
<td>F2</td>
<td>Rename (in File Explorer)</td>
</tr>
<tr>
<td>F3</td>
<td>Search (File Explorer and most web browsers)</td>
</tr>
<tr>
<td>F5</td>
<td>Refresh (File Explorer and most web browsers)</td>
</tr>
<tr>
<td>Alt+F4</td>
<td>Close current window</td>
</tr>
<tr>
<td>Alt+Enter</td>
<td>Display the properties dialog for the currently selected object</td>
</tr>
<tr>
<td>Windows key</td>
<td>Display Start</td>
</tr>
<tr>
<td>Windows key+E</td>
<td>Open new File Explorer window</td>
</tr>
<tr>
<td>Windows key+I</td>
<td>Open Settings</td>
</tr>
<tr>
<td>Windows key+R</td>
<td>Open the Run command</td>
</tr>
<tr>
<td>Windows key+X</td>
<td>Open the Quick Link menu</td>
</tr>
</tbody>
</table>
A shortcut for emojis and more

Windows 11 offers an impressive tool for entering characters that aren’t available on a standard keyboard. Press Windows key+. (period) or Windows key+; (semicolon) in any window that accepts text input to open the emoji keyboard. That name, unfortunately, doesn’t even begin to hint at what this versatile input tool can do for you. Yes, it allows you to enter any character from the standards-based emoji library, but it does much more. Choosing one of the characters along the top row changes the input type to the following:

- **Emoji**  Emojis are arranged by category (smiley faces, food, people, and so on). To change the skin tone of an emoji in the people category, click one of the six colored dots alongside the category heading.

  **NOTE**
  For a full list of officially supported Windows-compatible emoji characters, see [https://emojipedia.org/microsoft-emoji-list/](https://emojipedia.org/microsoft-emoji-list/).

- **GIF**  Use this tool to search for animated GIFs and insert them into social media posts or presentations.

- **Kaomoji**  These are combinations of text characters that take on expressive facial characteristics, with one of the most famous being the shrug: `¯\_(ツ)_/¯`.

- **Symbols**  This panel is extraordinarily useful when you need to enter unusual forms of punctuation, currency symbols, Latin characters with diacritic marks, and other characters that would otherwise require obscure keyboard shortcuts or the ancient Character Map utility.

- **Clipboard History**  If you’ve enabled this feature, the 25 most recent items copied to the Clipboard appear here. To open this panel directly, use the keyboard shortcut Windows key+V; you can then scroll through the list and click any item to paste it at the current insertion point.

The emoji library is also accessible via the Touch Keyboard, and we discuss its use later in this chapter (see “Using the Touch Keyboard”).

Using alternative keyboard layouts

Windows 11 offers keyboard support for more than 300 languages. Most of these languages are available as full language packs, and installing a language pack changes the entire Windows user interface—menus, dialogs, and all—to the selected language. But you can also simply install a keyboard layout for another language, without changing the user interface. This might prove handy if you work in an international environment and occasionally need to dash off an email to, say, a Ukrainian-speaking colleague or customer.
To install another keyboard, go to Settings > Time & Language > Language & Region. When you click Add A Language, the entire set of available languages appears, as shown in Figure 3-29, and you can make your choice. When the keyboard is installed, it becomes available through the Input Indicator system icon, which typically lives on the taskbar, adjacent to the clock. Clicking there pops up a menu of available keyboards, along with a Language Preferences command.

![Figure 3-29](image)

After you install an additional language, you can switch the keyboard layout to support that language.

To remove a language, make it the default, or set options relating to the language, return to Settings > Time & Language > Language & Region, and then click on the language.

Inside OUT

For emojis, accented characters, and language assistance, use the Touch Keyboard.

The primary purpose of the Touch Keyboard, as its name suggests, is to facilitate input on a touch-enabled device. (We discuss this feature in the section that follows this one.) But it’s invaluable for certain kinds of input on any computer—which is why it’s also available on machines that lack a touch display.

To display the emoji panel above the Touch Keyboard, click on the heart icon in the upper-left corner, above the Esc key. To enter a character with a diacritical mark, click and hold the unadorned character; your choices will appear in a pop-up window. Hold the ň, for example, and the option to type ň will appear. Hold the o, and you’ll have the
opportunity to enter variants like ò, ö, ô, and even œ. If you’ve ever labored to memorize ANSI codes or wandered through Character Map in search of the accent you need, you’ll certainly appreciate this feature.

As for language assistance, suppose you’re a whiz touch typist in English but you hunt and peck in Russian. When you select Russian as your input source, the Touch Keyboard turns to Cyrillic. You can use it as a visual layout guide while you type with your standard keyboard. Or you can use the Touch Keyboard to do the pecking as well as the hunting.

Using the Touch Keyboard

As we noted earlier, the Touch Keyboard is available on any device, even one without a touchscreen. (In this configuration, you need to use a mouse to “tap” the virtual keys.) But the Touch Keyboard is most useful, indeed indispensable, on a touchscreen-equipped device, especially one where you’ve temporarily detached the physical keyboard. Use it to enter text or provide other forms of keyboard input in dialogs, web forms, your browser’s address bar, documents, the search box—anywhere you would normally need a physical keyboard to provide input.

To make the Touch Keyboard visible, tap its icon in the system tray. If the icon isn’t visible, go to Settings > Personalization > Taskbar and slide the Touch Keyboard switch to the On position.

Figure 3-30 shows the standard Touch Keyboard layout.
When no physical keyboard is attached, tapping in any location that accepts text input should cause the Touch Keyboard to appear automatically. (To turn this feature on or off, go to Settings > Time & Language > Typing and expand the Touch Keyboard section. There, you can also find options to add key sounds as you type, automatically add a period when you double-tap the spacebar, and capitalize the first word of a new sentence.)

Clicking the gear icon in the upper-left corner allows you to choose an alternative layout. Choose Default if you want to see a virtual keyboard that contains all the characters on a standard 103-key keyboard, including backslashes, square brackets, and the separate row of numbers, among others. To display function keys (F1 through F12), switch to the Traditional layout and tap Fn.

The Small layout shrinks the Default layout to roughly a quarter of its width. You can then drag that keyboard to any location on the screen, which is handy if the larger layout is interfering with your ability to see a complex document such as a form.

Choose the Split layout if you’re working with a tablet-style device and you want to be able to enter text using your left and right thumbs.

On the default layout, you can enter numbers by pressing and holding the respective key on the top row (Q for 1, W for 2, and so on). That technique isn’t productive if you need to do extensive numeric input, of course. In that case, tap the &123 key in the lower-left corner to replace the standard QWERTY layout with one that includes numbers and special characters, as shown in Figure 3-31.

![Figure 3-31](image)

If the symbol you’re looking for isn’t visible, tap the right arrow key just above Ctrl to display a second layout containing additional symbols.

Unlike their physical counterparts, the Ctrl, Alt, and Windows keys on the Touch Keyboard are “sticky.” Tapping any of those keys causes the key you tapped to change color to indicate it’s selected; its action takes effect when combined with whatever key you type next. Thus, to copy text using the standard Ctrl+C shortcut, tap Ctrl and then tap C. To open File Explorer, tap the
Windows key and then tap E. (To open the Start menu when the Touch Keyboard is covering the taskbar, tap the Windows key twice.)

In some respects, the Touch Keyboard is more versatile than its physical counterparts. Entering a typographic symbol like the interrobang (a character consisting of an exclamation point superimposed on a question mark) or an emoji doesn’t require the use of ANSI codes. Instead, you can enter characters directly. To enter an interrobang, for example, click (or press) and hold either the question mark or the exclamation point. Relevant special-character options appear in a panel above the character you clicked. Use the same technique to enter, for example, an accented vowel.

**Inside OUT**

*Swipe to type*

If you find hunting and pecking is onerous and slow, draw your words instead. Using either the compact or the wide (default) layout of the Touch Keyboard, you can create words by drawing a line from one letter to the next. Windows does an excellent job of recognizing your intentions, and where it cannot, it proposes alternative possibilities (just as it would if you misspelled using conventional typing methods). Mobile phones have had this “swipe to type” capability for some time, and if you’ve texted this way on a hand-held platform, you’ll find it much the same on your Windows tablet.

With all these layouts, you can take advantage of Microsoft’s superb text-prediction engine in apps that support it, such as Microsoft Word. As soon as you finish a word (and sometimes before), likely continuations appear in a row at the top of the keyboard. So, for example, to write “Give me a few minutes to get the money,” all you need to type is the first two letters. You can click your way through the rest of the sentence. If you’re sending input to an app that understands emojis, the engine suggests those as well as text continuations.

One additional option that appears when you tap the gear icon is Handwriting, which replaces the keyboard with an input panel where you can enter text. This panel is most useful with devices that support pen input, but you can also use your fingertip to enter text. Windows automatically translates your printing or cursive input into characters for entry at the current insertion point.

If your handwriting is so sloppy that even you have trouble deciphering it, you might be in for a surprise. In the unlikely event that the panel can’t figure out what you meant, you can select from a row of suggestions that appears at the top of the window.
Using voice commands and dictating text

If you’d rather not type, why not talk instead? Position the insertion point in any place where text input is available, and press Windows key+H to turn on voice typing. If the Touch Keyboard is visible, tap the microphone button to begin.

The first time you use this feature, you’re prompted to install device-based speech recognition components. When that installation completes, you see a microphone button that you can click or tap to begin dictating.

You can pause or stop dictation using voice commands like “Pause dictation” or “Stop listening.” In addition to words, you can dictate punctuation symbols and such editing instructions as “delete last ten words” or “new line.”

Beginning with Windows 11 Version 22H2, you can also turn on a feature called Voice Access, which enables you to control every Windows function using your voice. To get started, run the Voice Access app, which downloads the required components and prompts you to set up your microphone. Voice Access adds a bar to the top of the display with a microphone button and a gear icon to adjust settings. To turn the feature on, say “voice access wake up.” To see a list of commands you can use, say “what can I say?”

Voice Access has a rich command set and some surprisingly powerful features. For example, you can ask it to add numbers to the screen identifying every possible object that can be clicked and then say “click 14” instead of trying to describe the button you want to interact with. For people who have difficulty interacting with a physical keyboard or mouse, Voice Access is worth mastering.

Using a pen with Windows 11

On PCs designed to work with a pen, including Microsoft’s line of Surface Pro tablets, a pen can be a powerful input tool. You can use it in place of a mouse, to point and click with more precision than you can get from a fingertip. You can also use it to draw and to input text directly in apps that support it.

To make it easier to access apps that provide pen support, consider adding the Pen menu to the system tray. (You’ll find this setting under Settings > Personalization > Taskbar > System Tray Icons. Tap the Pen icon to open this menu, and then tap the gear icon and choose Edit Pen Menu to see a list of pen-compatible apps that you can pin here.

Options relating to your pen are located at Settings > Bluetooth & Devices > Pen & Windows Ink. In the lower portion of that settings page is a set of options for configuring pen shortcuts. (See Figure 3-32.) These options, which require a pen with a shortcut button, govern what happens when you press that button once, press it twice in quick succession, or press and hold.
Figure 3-32  You can train your pen to launch a program, perform a screen capture, or open the Pen menu when you use one of its shortcut buttons.

Within the three sets of dropdowns are options to launch programs, capture screens, and more.
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