COVERS WINDOWS 11 VERSIONS 24H2, 25H2 AND 26H1

WINDOWS 11 FIELD GUIDE 2026

PAUL THURROTT
RAFAEL RIVERA

Windows 11 Field Guide

2026 Edition

Paul Thurrott and Rafael Rivera

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About the Book

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We want your feedback!

We are very interested in any feedback you may have about the book. If you find a typo or other mistake or would like to see the book expanded to address additional topics, please contact Paul at paul@thurrott.com.

Thanks!

This book is dedicated to you, our readers. Thanks for your support.

– Paul and Rafael

Meet the authors

Paul Thurrott

Paul is an award-winning technology journalist and blogger with over 30 years of industry experience and the author of about 30 books. He was formerly the senior technology analyst at Windows IT Pro, the creator of the SuperSite for Windows, and the News Editor at Petri.

On the web

- Thurrott.com
- Eternal Spring

YouTube

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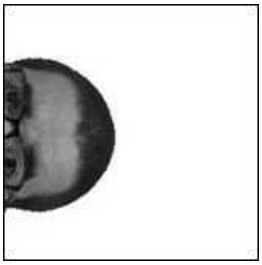
Rafael Rivera



Rafael is a software developer for a VAR 500 company, Telos Corporation, where he works on mission critical systems for the United States Department of Defense and Intelligence Community. He is also a certified reverse engineering analyst and takes Windows apart for fun in his free time. You can reach Rafael via email or on X/Twitter.

Introduction

Welcome to the 2026 edition of the *Windows 11 Field Guide*!

This edition covers all supported Windows 11 versions–24H2, 25H2, and 26H1–and the new and existing features that Microsoft is delivering to its customers. It will evolve throughout 2026 to address recent changes and to transition to what I hope will be a sleeker, more manageable book. This will require a lot of time and work and will likely occur over at least a few editions of the book.

This edition requires some contradictory work, some of which will reduce the page count and file download size and some that will increase both. I need to do both, and I want to do so without making this book less useful as a how-to and a reference.

Here's what I've done and am doing.

Remove out-of-date content. Windows 11 is constantly evolving, and though much of that involves the addition of new features, Microsoft also removes features as needed. So I've removed the Mail, Calendar, Microsoft 365, and Movies & TV chapters as the apps those chapters covered are no longer included with Windows 11. I also edited the Microsoft Store chapter to remove content related to the movies and TV show content it no longer sells. (And I removed the stub Outlook chapter because it was just a "coming soon" note.)

Consolidate multiple chapters into single chapters. I'm working on a new format for the book that is only partially realized now. But in this edition, I consolidated three chapters related to upgrading into a single chapter and four chapters related to installing Windows 11 into a single chapter, both of which are shorter/smaller than the original content. I will continue looking for other places to make similar chapters.

Add new chapters. Some of the functional updates in Windows 11 this past year require new standalone chapters. So far, I've added new chapters about Microsoft Paint, Notepad, Quick Machine Recovery, and a short chapter on account security basics. More is on the way.

Update existing chapters. I've started updating some chapters with the new format, including Desktop and Passkeys, and several more are already in progress too.

Shift the focus away from Windows 10 upgrades. When I first wrote the *Windows 11 Field Guide*, helping people who were upgrading from Windows 10 to understand the differences was a key focus. But four years later, there are over one billion people using Windows 11, and Windows 10 will exit extended support for consumers later this year. So I've removed all the "Where did it go?" blurbs, and I will soon integrate updated Install and Upgrade chapters that replace multiple chapters in the current version of the book.

Screenshots. Two years ago, I reduced the quality and size of the screenshots used throughout the book to help make the published PDF and EPUB files you download smaller. Since then, I've been

working on various format changes for the book based in part on my experiences writing *Eternal Spring: Our Guide to Mexico City* with my wife. And a big part of the coming format change for this book will include retaking and cropping screenshots so that they take up less vertical space, and then removing unnecessary screenshots. Both changes will result in a lower page count and smaller file downloads.

Shift content to other books and make bundles. This past year, I created a related book, *De-Enshittify Windows 11*, that overlaps with but also expands on the content in this book. *De-Enshittify Windows 11* is a much smaller book than the *Windows 11 Field Guide*, and it's less expensive. I will soon create a bundle that will let new readers buy this book and *De-Enshittify Windows 11* for a lower cost than buying each separately. I am considering other smaller books that could be included in that or other bundles, and I may pull content out of this book to create smaller books that may just be bundled for free with this one. For example, separate and free Microsoft account Microsoft Edge books would save about 100 pages in length and significantly cut down the file download sizes. We'll see.

Moving to annual editions of the book. I meant to do this for Windows 11 version 25H2, but the format changes I'm trying to make and the sheer size of this book made that difficult to impossible. So for now, I am changing how I think of each edition so that they are year-based instead of version-based. This makes sense because all supported Windows 11 versions are functionally identical, even if there are low-level differences in some cases. So I will update this edition for free to existing owners, as before, but now through the release of Windows 11 version 26H2 in late 2026. And then it will be time for a new edition.

Thurrott Premium members get it for free. As with my other books, anyone who is a Thurrott Premium member will get the *Windows 11 Field Guide* 2026 edition for free.

Thanks for reading!

–Paul

June 2026

Introduction, 23H2 edition

Welcome to the 23H2 edition of the *Windows 11 Field Guide*! A lot has changed.

Thanks to Microsoft's "continuous innovation" strategy, this platform is a moving target that receives annual Feature Updates, quarterly "Moment" updates, and individual new features each month. And so this version of the book has been extensively updated with new content that covers the updates Microsoft delivered in Windows 11 version 23H2 ("Moment 4"), the "Moment 5" quarterly update, and throughout various interim features updates.

In what is perhaps a vain attempt to keep up with this update regimen, we update the book regularly, usually multiple times each month. But we also want to respect your email inbox, and so we don't message readers who have opted into email-based updates that often. Those who

would like more information can check-in at Thurrott.com, where Paul provides more regular updates about the content we've added or updated.

Here's the short version: We've added over 350 pages of new or updated content, several hundred new screenshots, and several completely new chapters to the book since Microsoft first released Windows 11 version 23H2 in late 2023. As a result, the *Windows 11 Field Guide* is now well over 1,000 pages long in PDF form.

We're not done yet. There's still more on our to-do list, and Microsoft continues to steamroll forward and will release Windows 11 version 24H2 as a rolling release over mid and late 2024. As such, we have decided to continue updating the *Windows 11 Field Guide*, for free, through at least the end of calendar year 2024.

Our goal has always been to make the ultimate guide to Windows 11, a book that can be used as both a how-to and a reference. We feel we've achieved that, and that the book is an incredible, unparalleled value. And we hope you do as well.

Thank you for your support!

– Paul Thurrott and Rafael Rivera

April 2024

Introduction, original 22H2 edition

Welcome to *Windows 11 Field Guide*. Like Windows 11 itself, this book is a bit different from its predecessor, the *Windows 10 Field Guide*. It's been simplified, so it looks a little different, and at this early stage, it covers only the biggest changes in this release.

For this reason, it comes with a free copy of the *Windows 10 Field Guide*. But we will continue updating this book until it is complete, and as Microsoft improves and changes Windows 11 over time. Our expectation is that the final book will be somewhere between 500 and 1000 pages long in its PDF version.

But the *Windows 11 Field Guide* also shares many things with its predecessor, of course.

It is self-published, and it is an entirely independent and self-created work.

It is being written and updated transparently over time so that readers can follow its progress and get all new updates for free.

It is quite inexpensive compared to physical books and even other e-books.

It's available in multiple digital formats—PDF and EPUB—so that it will work on any device you use for reading: PCs, tablets, phones, Kindle e-readers, whatever.

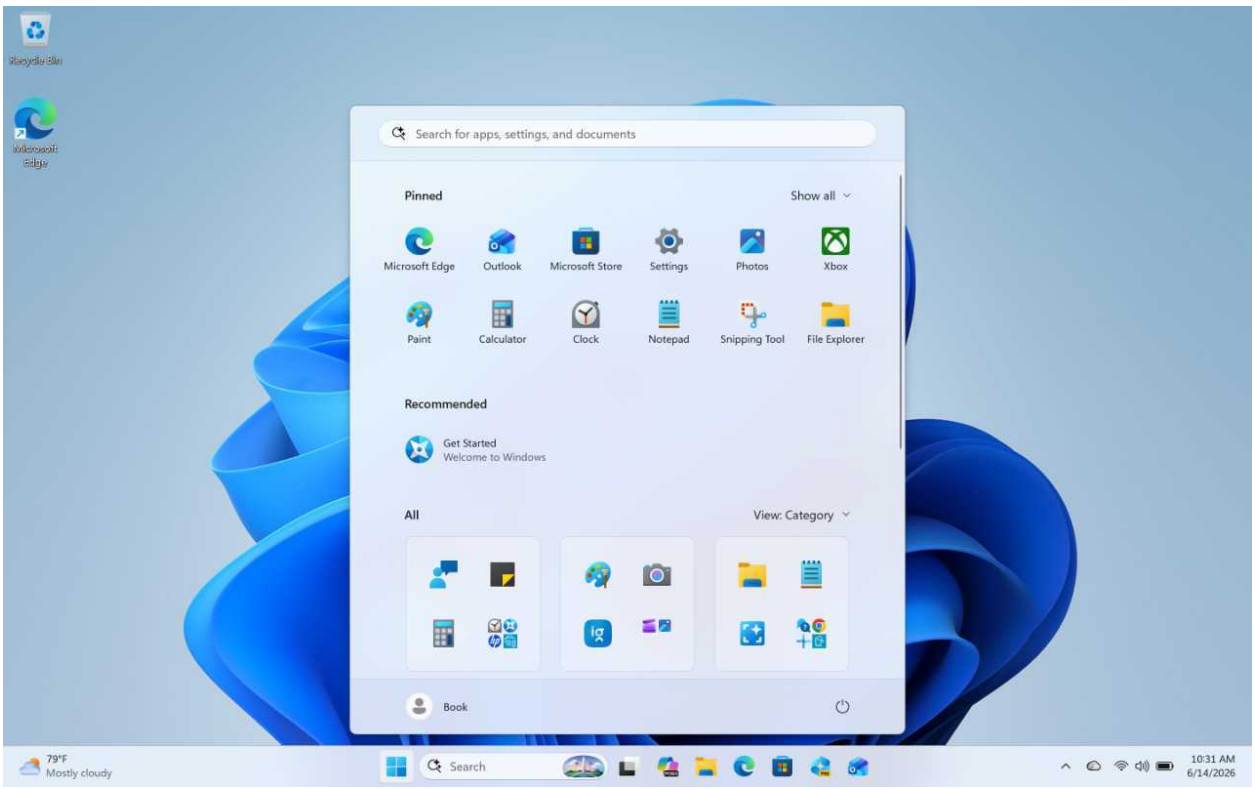
And perhaps most importantly, the *Windows 11 Field Guide* is intended as both a how-to and a reference: you can read it straight through if that's your thing, or you can dive in and out of specific areas to learn what's new and, in many cases, how to work around some of the limitations in this product version.

Thanks for reading!

– Paul Thurrott and Rafael Rivera

October 2022

What’s New in 2026



Windows 11 is simpler, more attractive, and more modern than its predecessors, but it’s also familiar and offers the same basic interactions and interfaces. It was first introduced by Microsoft in 2021 and has since rapidly evolved and improved with new features and bug and security fixes, and to address customer concerns.

I will dive into these topics in more detail throughout the book, but here is a quick breakdown of the major changes, improvements, and features available in Windows 11 in 2026.

It’s not about version numbers anymore

In the past, Microsoft updated each Windows version in turn, moving between major releases like Windows 10 and Windows 11 and annual interim releases like Windows 11 version 21H2 (where 21 indicates the year of release and H2 means “second half”; so this is a version from the second half of 2021) and 22H2. But things have changed in recent years.

Microsoft has continued releasing a new Windows 11 version each year, usually in the second half of the year. And each of these versions is supported for two years for the Windows 11 Home and Pro product editions used by individuals. But now each supported version of Windows 11 is updated with the same set of new features and fixes. So, at the time of this writing, Windows 11 versions 24H2 and 25H2 are current and supported, and are functionally identical.

2026 also saw the introduction of an unusual additional release, called Windows 11 version 26H1, that is made available only on new laptops running Windows 11 on Arm on new Qualcomm Snapdragon X2 processors. Like other supported versions of this product, Windows 11 version 26H1 is functionally identical to the other current and supported versions, though the introduction of new features in 26H1 sometimes trails 24H2 and 25H2 by a month.

Because of this change, this book no longer covers a specific Windows 11 version. Instead, it covers all supported Windows 11 versions, which include Windows 11 versions 24H2, 25H2, and 26H1.

Shifting hardware requirements

When Microsoft first introduced Windows 11, the system's new hardware requirements triggered some pushback from customers because they seemed to arbitrarily exclude PCs that were several years old or more. Microsoft also required PCs to have an enabled Trusted Platform Module (TPM) version 2.0 security trip for the first time, though it had said it would instate this requirement years earlier.

Today, the Windows 11 hardware requirements are reasonable. If anything, many of them–like the RAM and storage requirements–are unrealistically low. And it is not difficult to work around these requirements and install or upgrade the latest supported version of Windows 11 on just about any PC.

Also, there have been two major developments to the Windows 11 hardware requirements in recent years.

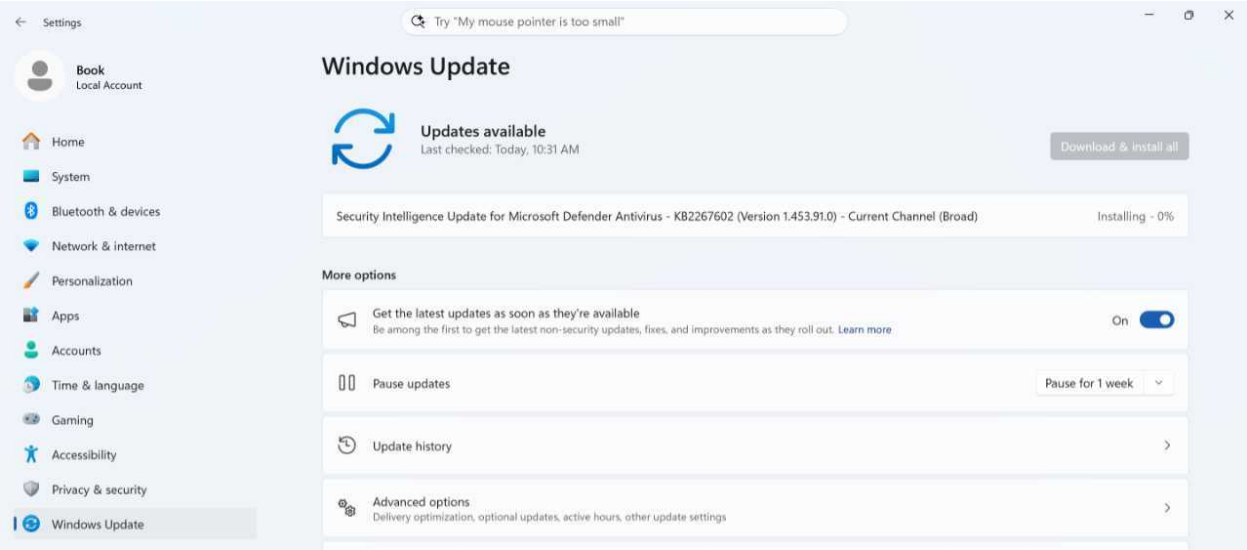
In 2024, Microsoft created a Copilot+ PC brand to identify a new class of PCs that have high-end and modern microprocessors, integrated and powerful neural processing units (NPUs), and higher base levels of RAM and storage. Those PCs that meet this specification gain numerous additional Windows 11 capabilities based on *local AI*, running on those PCs instead of in the cloud, that take advantage of the unique hardware.

In 2026, Microsoft set out to improve the underlying performance and reliability of Windows 11, an effort that includes lowering the overall resource usage of the system. This makes Windows 11 more usable on lower-end PCs that meet the minimum hardware requirements, and these updates should provide some headroom for those who don't wish to upgrade to a new PC.

Learn more: Understand the Windows 11 minimum hardware requirements.

Better software updates

As part of the performance and reliability focus noted above, Microsoft is adjusting how it updates Windows 11 so that it is more predictable and interrupts your work less frequently. Most users will simply benefit from this work without having to make any configuration changes. But those that like to micromanage updates or ensure that they always have the latest new features as soon as possible will see interesting changes in Windows Update.

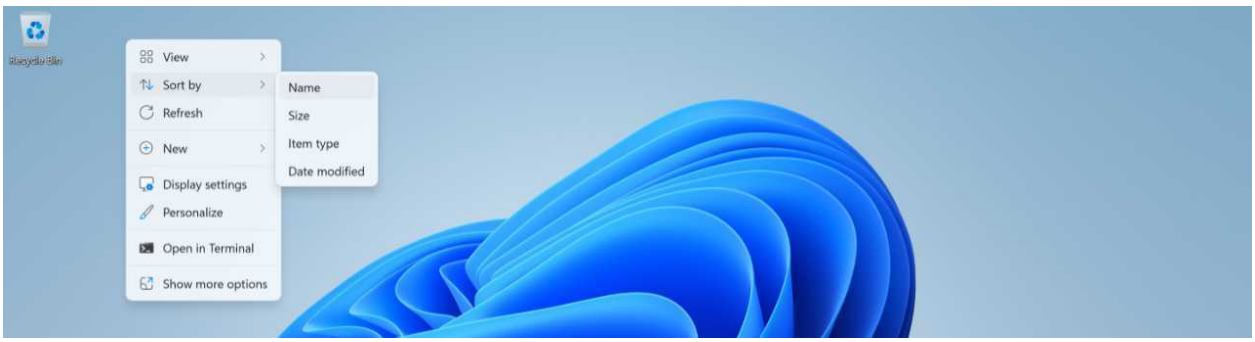


Basic user interfaces and interactions

Windows 11 introduced a new user experience based on Microsoft's Fluent design system that helps make the system look and feel simpler and more modern than its predecessors. It supports the same physical interactions as before–via keyboard, mouse and touchpad, multitouch displays, and smart pens–and consists of the same basic desktop user interface (UI) that Windows has utilized since 1995.

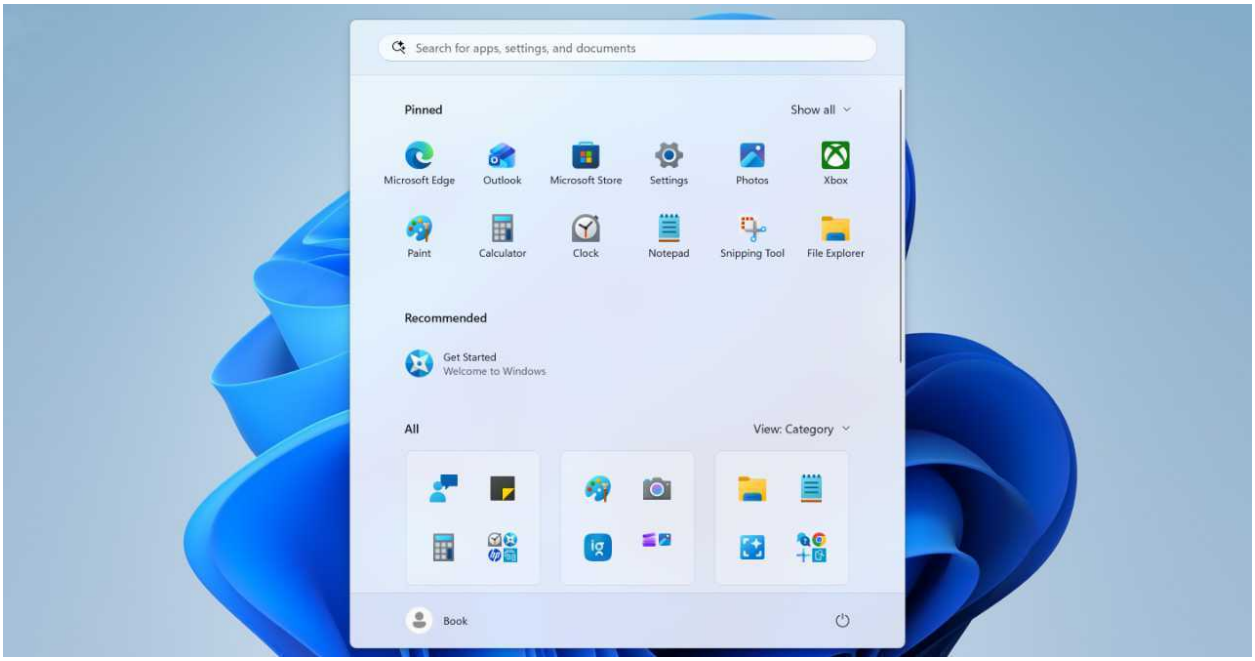
But there are visual refreshes and other updates all around. Like your smartphone, Windows 11 supports Light and Dark UI modes Key interfaces like Start and Taskbar icons are now centered by default. And windows and controls now display with curved corners instead of the sharp-edged corners from before, helping to make Windows 11 feel calmer and cleaner.

The Windows 11 Desktop is largely unchanged with a single Recycle Bin icon and the same basic functionality as in previous versions. But right-click *context menus* have been dramatically simplified and redesigned with the new look and feel.

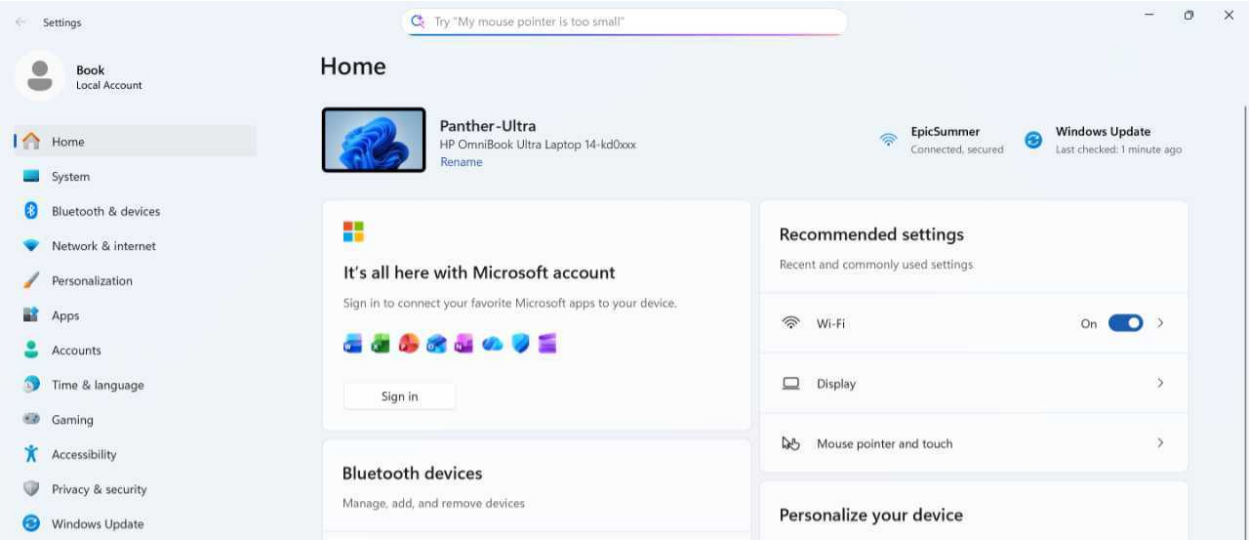


The Taskbar has been redesigned with a Widgets icon on the far left, Start, Search, Task view, and pinned app icons in the center, and a system tray with Network, Volume, and Power system icons and a time/date display in the system tray on the far right. The Taskbar right-click context menu has been made radically simpler. You can click the Network, Volume, or Power system icons to access a new Quick settings interface. And you can click the time/date display to access the Notification center, which provides separate Notifications and Calendar flyouts.

The Start menu has been overhauled several times since the initial release of Windows 11, and it now supports improved personalization capabilities.



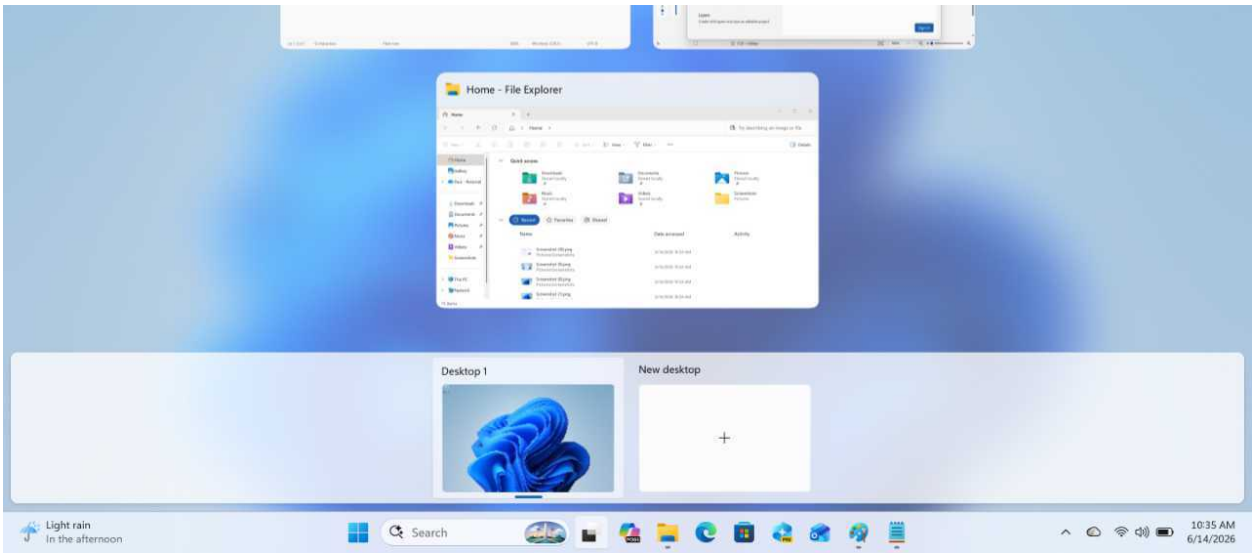
Windows 11 also provides a modern Settings app that largely replaces the legacy Control Panel and provides access to an incredible range of settings, personalization and accessibility features, Windows Update, recovery tools, and more.



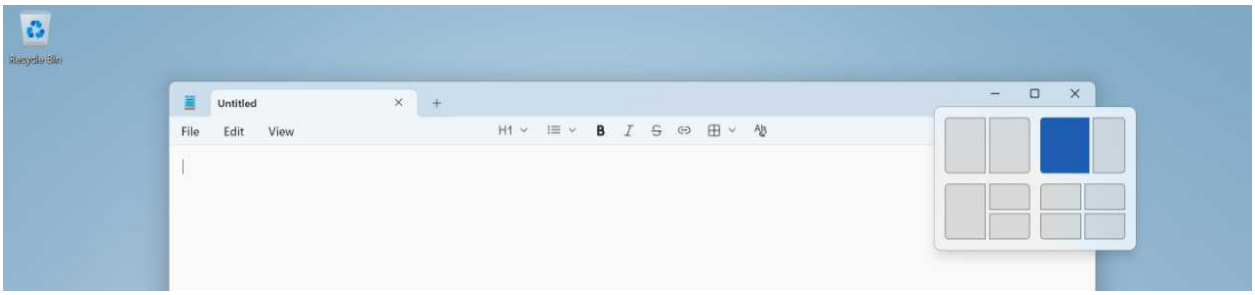
Multitasking

Windows 11 presents a refined set of multitasking tools, most of which will be familiar to long-time Windows users.

Alt + Tab is still available for switching between open apps and other windows, and it pulls in your three most recent Microsoft Edge tabs now by default, too. And Task view is a more persistent form of Alt + Tab with additional capabilities that include access to Desktops, a virtual desktop feature.

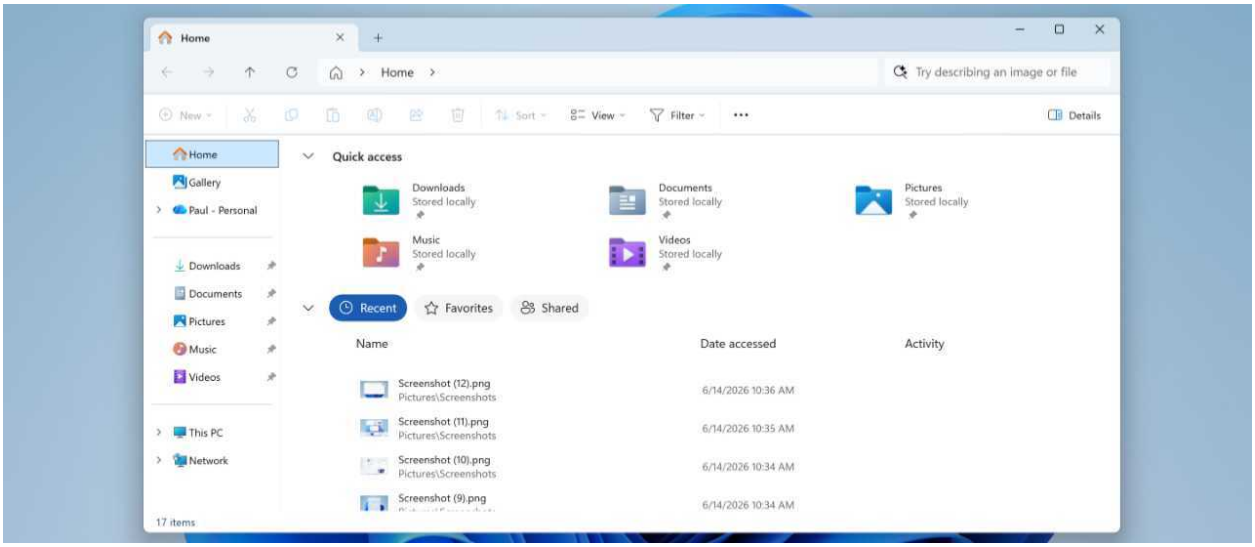


You can use Snap features like *Snap layouts*, *Snap suggestions*, and *Snap groups* to manage the placement or layout of on-screen apps and windows. And Task Manager has been significantly updated for those who need control over running processes and services, startup apps, and other low-level system functions. But you can also use an optional new "End task" option in the right-click context menu for Taskbar app shortcuts for quickly terminating badly-behaving and crashed apps.



Files and sync

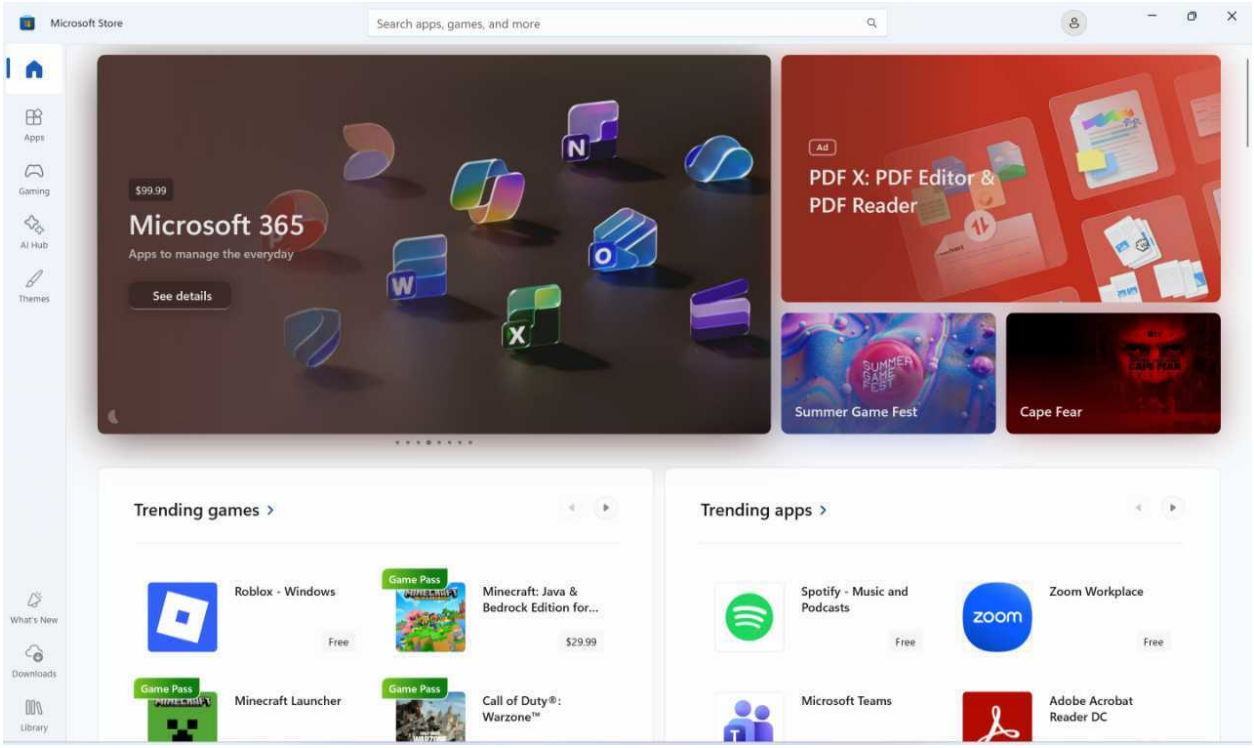
File Explorer is the Windows 11 file management app, and it's been updated repeatedly since the initial release of this platform with a modern look and feel, improved right-click context menus, new Home and Gallery views, deep integration with Microsoft's OneDrive cloud storage service, support for ZIP and several other archive file formats, and more.



The OneDrive integration includes useful features like Files On Demand, which lets you sync content from the cloud to the local file system so that it's available when the PC is offline and Folder backup, a sync feature that helps protect the content in key local folders like Desktop, Documents, and Pictures.

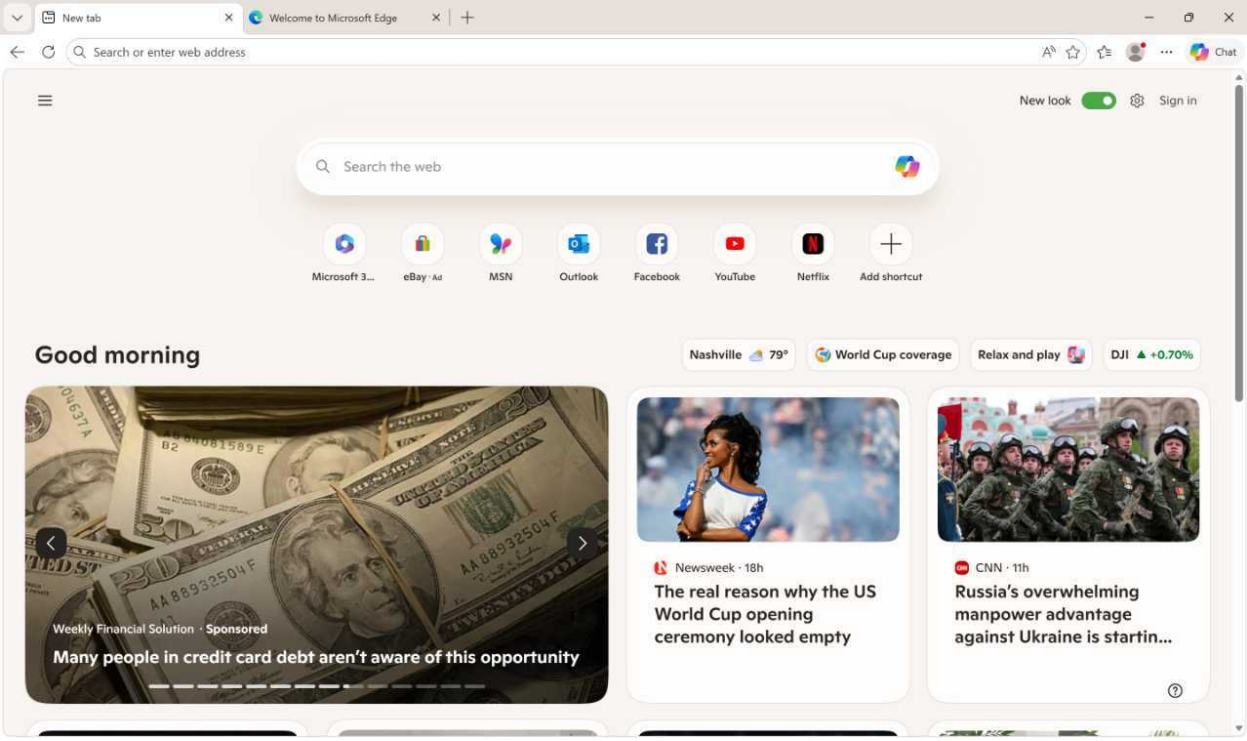
Apps

Windows 11 features a completely redesigned Microsoft Store with a much wider range of apps and games and improved navigation, and it will manage app updates automatically in most cases. But users can continue to download apps as needed from the web, of course, and use more technical and automated solutions like the Windows Package Manager (winget), a command line interface (CLI) for finding, installing, and managing apps from the web and the Microsoft Store.



Microsoft Edge and web browsers

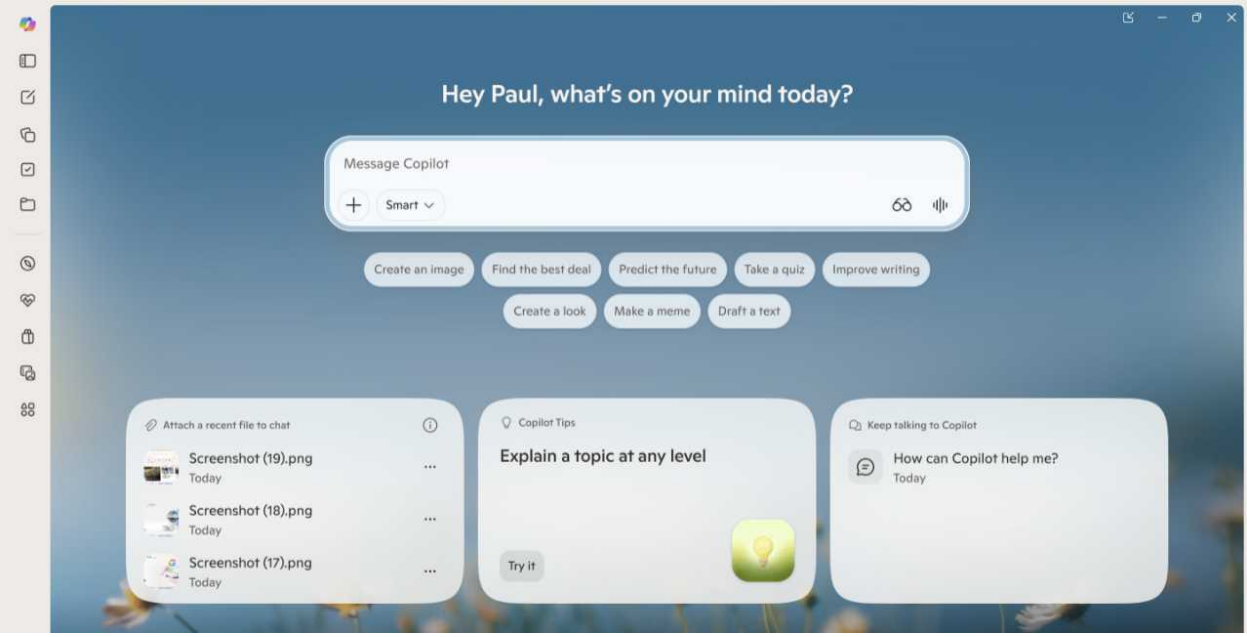
Windows 11 includes the Microsoft Edge web browser, which is modern, powerful, and attractive-looking. Unfortunately, Microsoft Edge is also controversial because it will ignore your choices if you prefer using another web browser by default and uses dark patterns to fool you into configuring it in ways that benefit Microsoft but harm your privacy. Fortunately, you can fix this with third-party utilities.



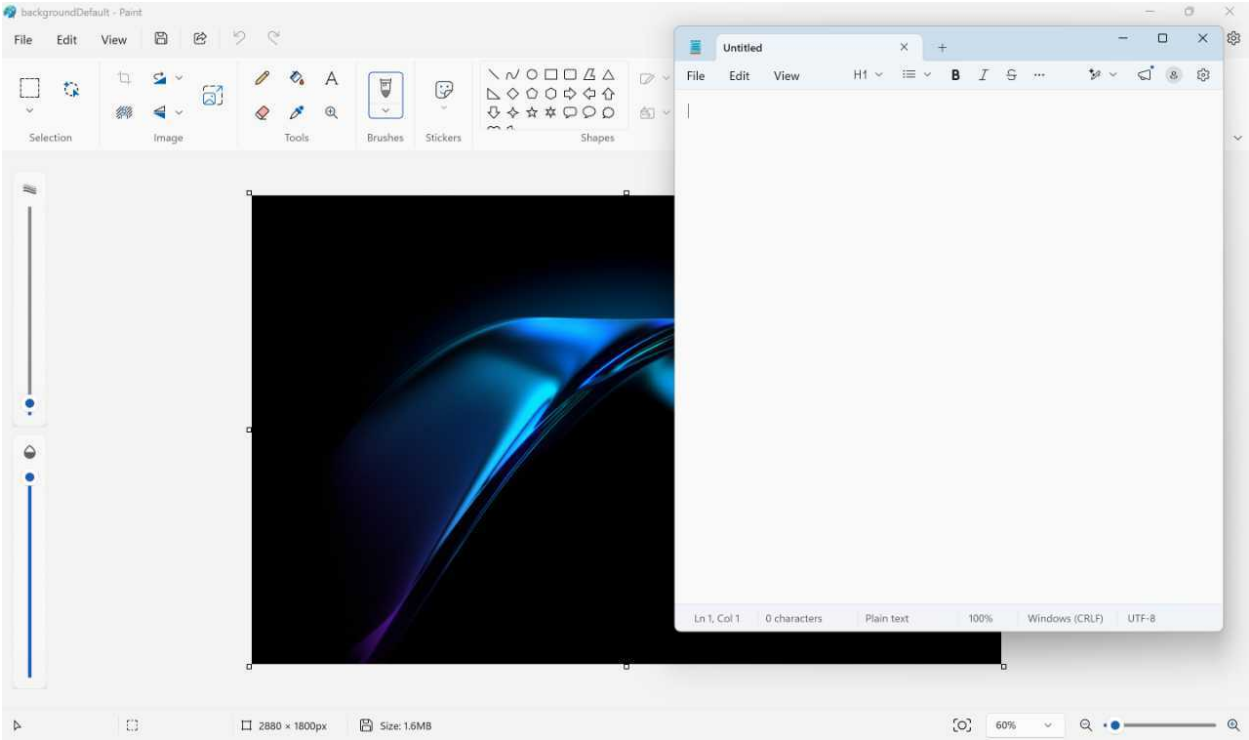
Other in-box apps

In addition to the Microsoft Store, Microsoft Edge, and File Explorer, Microsoft bundles numerous apps, many of high quality, with Windows 11. And many of these apps deliver AI-based functionality that can be quite useful.

Depending on your PC, you will find the Microsoft Copilot or Microsoft 365 Copilot chatbot app preinstalled, providing you with access to Microsoft's cloud-hosted AI capabilities similar to those found in OpenAI ChatGPT and Anthropic Claude. Some features are limited unless you pay for Copilot through a Microsoft 365 subscription.

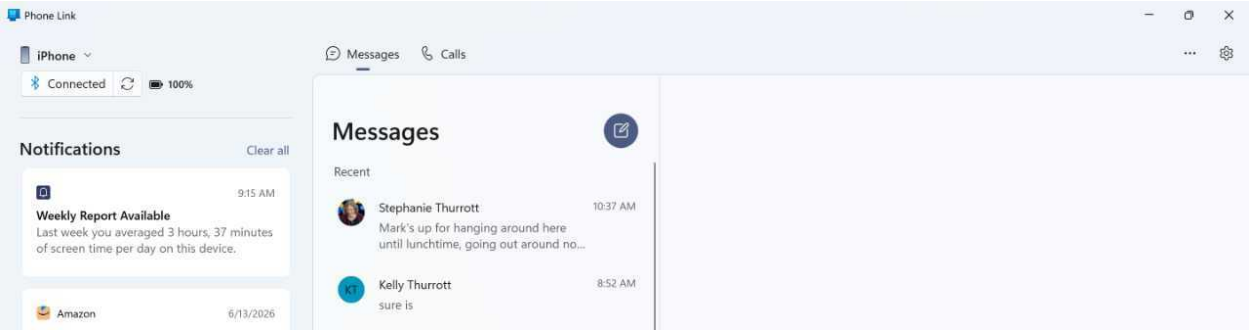


Core long-time in-box apps like Notepad, Paint, and Snipping Tool have received major functionality updates in recent years, many AI-based, as have the Photos app and Clipchamp, a powerful video editor. And Microsoft Teams replaced Skype years ago for those who wish to chat, call, or have meetings with others.



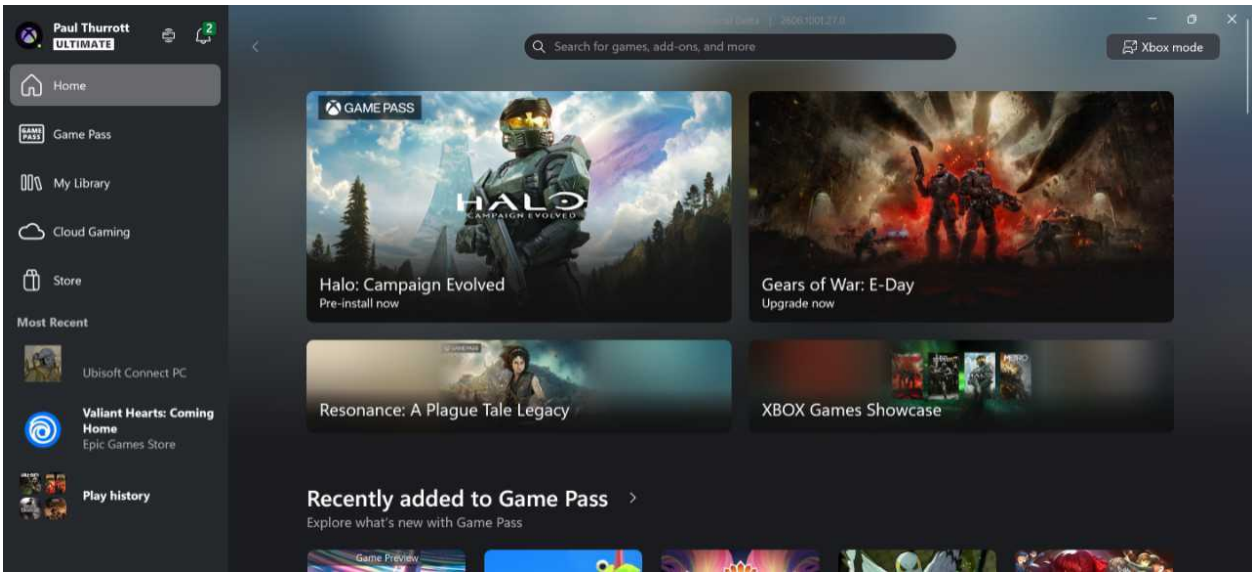
And then there are more modern in-box apps. Media Player replaces the classic Windows Media

Player app from yesterday and helps you manage and play locally-stored music and video files. And Phone Link integrates deeply with your smartphone, especially if you have an Android-based phone, so you can access many of that device's features directly on your PC.



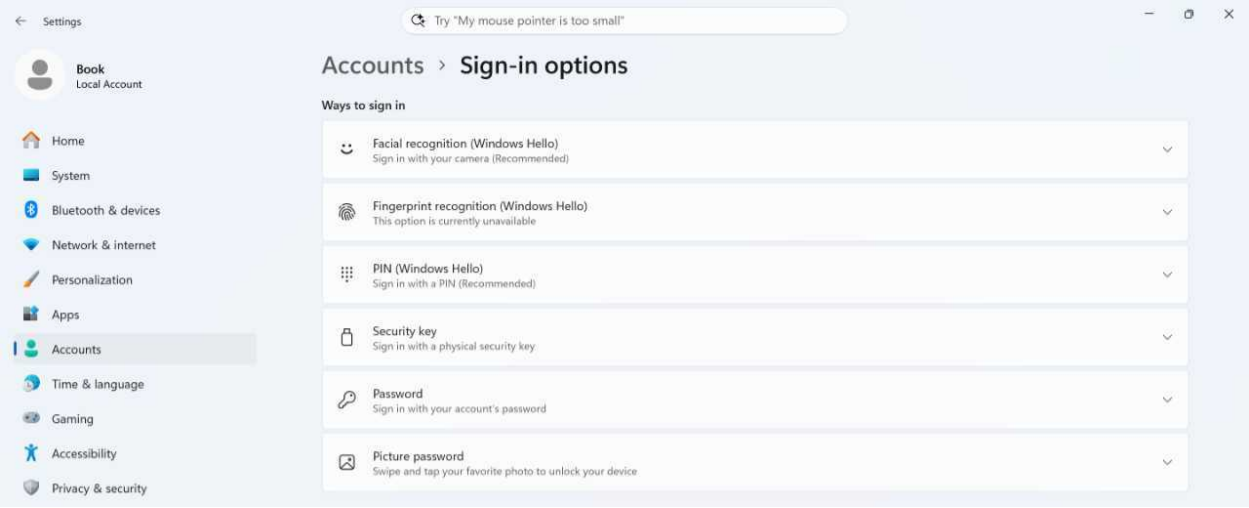
Videogames

Windows has long been one of the most popular ways to play videogames, and Microsoft supports Windows 11-based gamers with a dedicated XBOX app that supports, among other things, Microsoft's Game Pass subscriptions and Microsoft Store-based game purchases, a dedicated XBOX Mode for gamers that improves performance and reliability, and a Game Bar for taking screenshots, recording videos, broadcasting live game play footage, interacting with your friends, and more without having to leave the game you're playing.



User accounts, security, and recovery

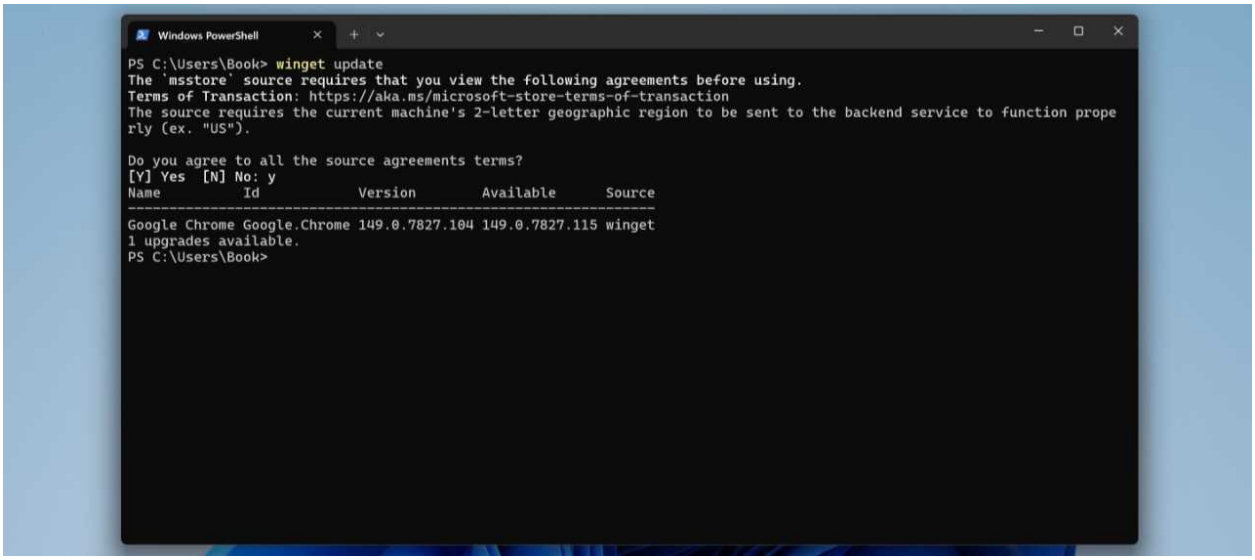
Microsoft makes it particularly easy for users to sign in to Windows 11 using its Microsoft account (MSA) and Microsoft Work and School account, but you can also use a local account if you prefer.



Either way, you can protect your sign-in account with Windows Hello biometric authentication, secure the disks in your PC with device encryption, and use Windows Security, Windows Defender, and other integrated security tools to protect you and your data while using Windows 11. And if something does go wrong, Windows 11 offers a growing set of recovery tools to help set things right.

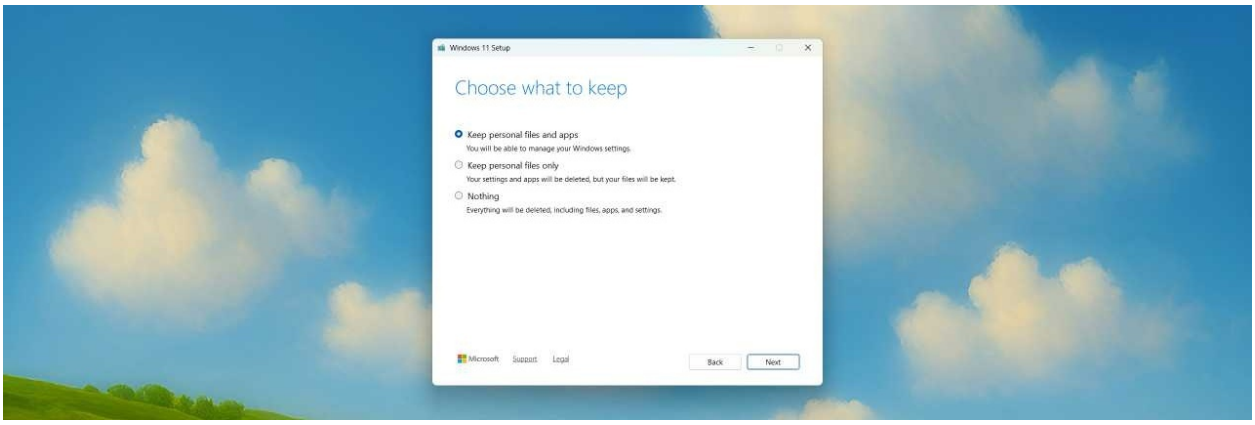
Power user capabilities

Power users, developers, engineers, and others who need more can take advantage of the powerful and modern Terminal app and its support for multiple command line environments and CLIs.



And there is a new Advanced interface in the Settings app where you can configure these and other power user features directly.

Upgrade



You can *upgrade* a PC running an earlier version of Windows 11 to the latest version. If this PC is *supported*, meaning that it meets the Windows 11 hardware requirements and isn't connected to any incompatible peripherals, the upgrade process is seamless and can even be quick. But you can manually update any Windows 11 PC to the latest OS version if you don't receive it automatically through Windows Update.

> **Tip**: At the time of this writing, the latest Windows 11 version you can upgrade to is version 25H2.

Understand the Windows 11 minimum hardware requirements

When Windows 11 debuted in 2021, some of its minimum hardware requirements were seen as arbitrary, but few were particularly onerous. Today, these requirements are even less problematic, but my recommendations for the minimum processor, RAM, and storage are much higher and more realistic than Microsoft's.

Microsoft requires that a PC include the following hardware components before it you can install or upgrade it to Windows 11.

Microprocessor. A reasonably modern 64-bit microprocessor or system on a chip (SoC) with a clock speed of 1 GHz. The specific processors vary by silicon manufacturer, but generally speaking, processors released in late 2017 or more recently are compatible.

> **Tip**: I recommend the newest microprocessor you can afford. Unless you're a gamer, Qualcomm Snapdragon X-series Arm processors are the best choice. But if you have to use a traditional x86-style PC for compatibility reasons, modern AMD chips are generally more reliable than those made by Intel.

RAM. 4 GB or more.

> **Tip**: 16 GB is the bare minimum for a good experience with Windows 11. If you can afford it, 32 GB is even better.

Storage. 64 GB of hard disk (HDD), eMMC, or SSD storage.

> **Tip**: 512 GB of SSD storage is a more realistic minimum. 1 TB or more is even better.

Firmware. Unified Extensible Firmware Interface (UEFI) with Secure Boot enabled.

Security platform. Trusted Platform Module (TPM) version 2.0.

> **Tip**: TPM 2.0 debuted in 2014, and all modern PCs include this security chipset or a superset like Microsoft Pluton.

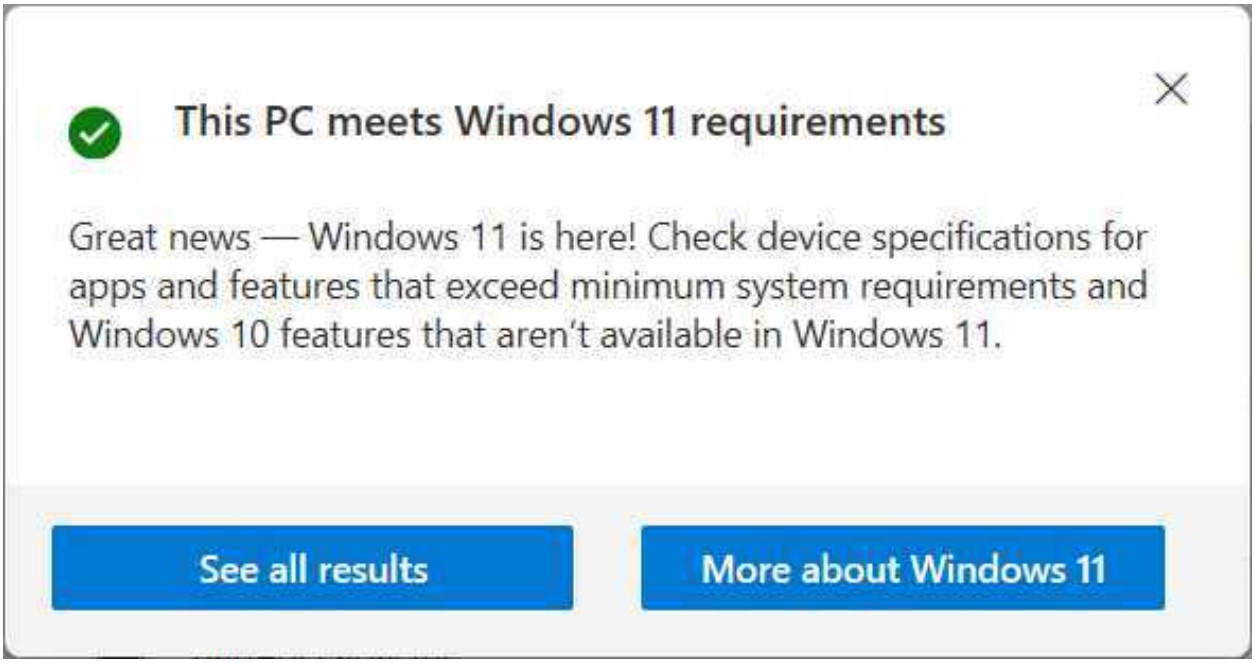
Display. A 9-inch display or bigger with a high-definition (HD, 720p) or higher resolution with 8-bits of color or more (256 colors).

> **Tip**: A display with a Full HD+ (1920 x 1200) resolution is a more realistic minimum, depending on the size of the screen.

Find out if your PC meets the minimum requirements

If you're not sure whether your current PC meets the Windows 11 minimum hardware requirements, you can download and run Microsoft's PC Health Check app to find out. If you're using a

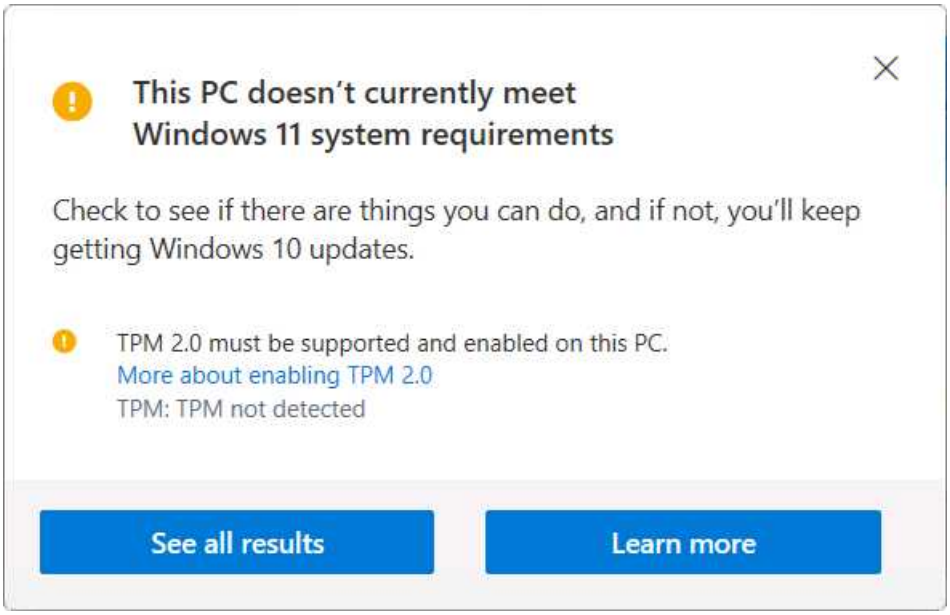
reasonably modern PC, you should discover that it meets the minimum requirements. If it does, you can move ahead with the upgrade.



What to do if your PC doesn't meet the minimum requirements

If your PC doesn't meet the minimum hardware requirements, Microsoft will block the upgrade. So you have a decision to make based on the reason it failed. In some cases, like Secure Boot and TPM 2.0, it may be a simple matter of enabling a feature that's not currently enabled.

> **Tip**: You enable Secure Boot and TPM 2.0 in your PC's firmware. Instructions for accessing this interface vary by PC, so check with your PC's or motherboard's user guide for details.



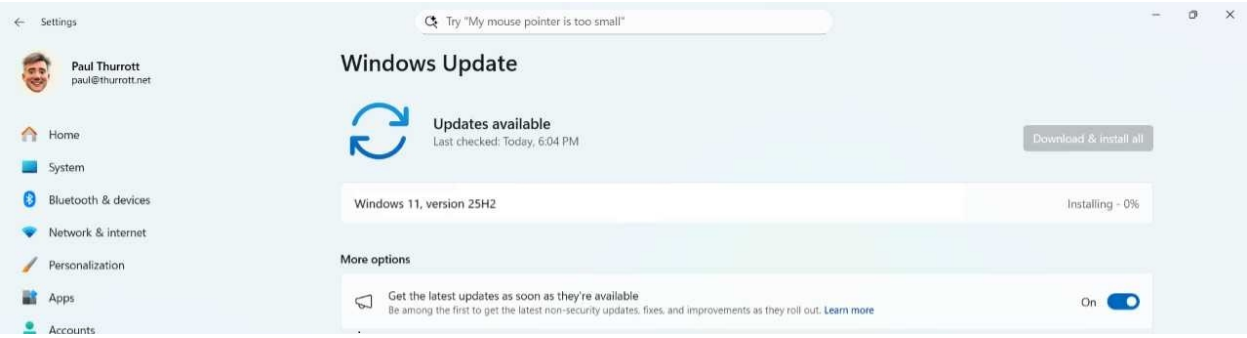
I don't recommend upgrading a PC to Windows 11 if it doesn't meet the minimum hardware requirements. They are minimums, after all, and if your PC doesn't meet them, the experience won't be good. Worse, Microsoft threatens users with the following if they bypass its block and upgrade anyway:

- The PC will be unsupported.
- Microsoft *might* stop delivering security updates. Note that it's never done this, and I can't imagine it ever would.
- If you disable Secure Boot or TPM 2.0 on your PC, it will be less secure.
- Microsoft *might* display an annoying watermark on the Desktop. Note that it has never done this to customers using a current, non-preview version of Windows 11.

If you still want to upgrade to Windows 11 and understand the downsides to doing so, you can. This is described in the next section.

Upgrade to Windows 11 version 25H2

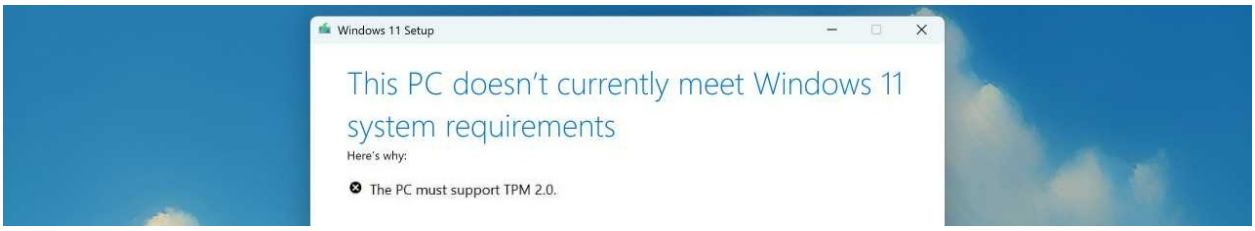
If your PC is running a supported version of Windows 11 and there are no upgrade blockers in place for your PC configuration, you will be offered the Windows 11 version 25H2 upgrade in Windows Update. This is the simplest and best way to upgrade. The PC will need to reboot and it could take up to 20 minutes to complete the offline upgrade process.



> **Tip**: If you are currently using Windows 11 version 24H2, the upgrade is delivered as an *enablement package* (eKB) because it shares the same code base as 25H2. This upgrade still requires a reboot, but it happens much more quickly.

If you're not offered the upgrade to Windows 11 version 25H2 in Windows Update, you will need to upgrade manually. To get started, download the Windows 11 installation disc image (ISO) file from Microsoft. Then, *mount* the ISO as a virtual disk in your PC's file system by double-clicking it after it fully downloads. In the File Explorer window that opens, run Setup.exe to start Windows Setup.

If you see a dialog like the following, you have to follow the steps in the next section.



Otherwise, you can jump ahead to the section Complete Windows Setup.

Bypass an upgrade blocker

To work around a compatibility blocker that prevents the upgrade, close Windows Setup by clicking the "Cancel" button. Then, open a Terminal window and then type the following command, replacing the *D:*, if necessary, with the correct drive letter for the virtual installation disk:

D:\setup.exe /product server

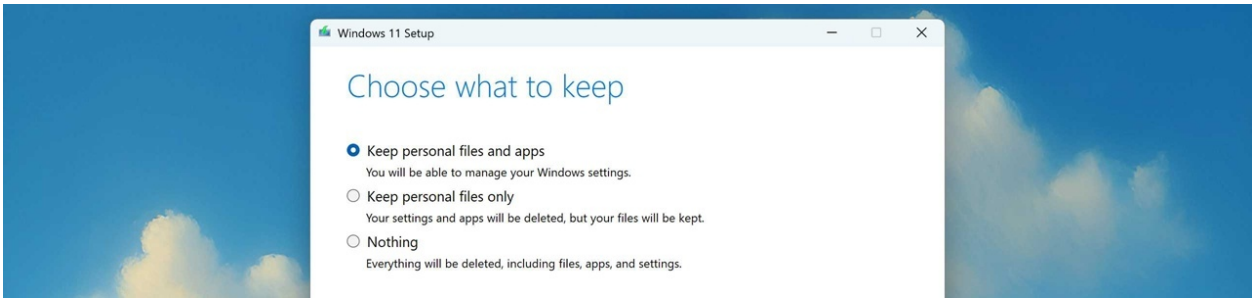
After tapping Enter, click "Yes" in the User Account Control (UAC) dialog that appears. Windows Setup will run normally, though it will say you're installing Windows Server, not Windows 11. Don't worry, you're just upgrading to the latest version of Windows 11.

Now, you can continue normally as described below.

Complete Windows Setup

Windows Setup guides you through several straightforward screens. It will check for updates (though you can optionally disable that by clicking the "Change how Setup downloads updates" link in the first step) and make sure your PC meets the Windows 11 minimum hardware requirements before finally landing on the "Ready to install" stage. This one requires some thought.

Unless you choose otherwise, Windows Setup will perform a traditional, non-destructive *in-place upgrade* in which Windows 11 is updated to version 25H2, but everything else on the PC—including your user accounts, documents and other files, any customizations you've made, and installed apps—is retained. That may be what you want, but you can click "Change what to keep" to see other options.



These options are:

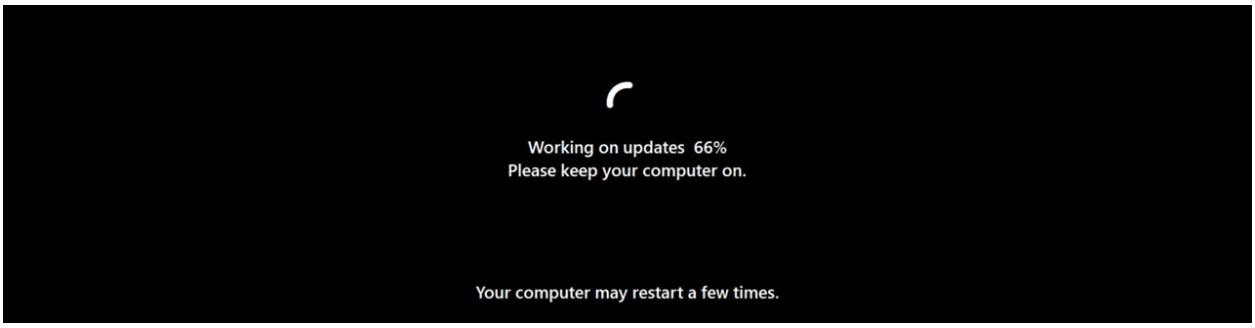
- **Keep personal files and apps**. This is the default option, a traditional, non-destructive in-place upgrade.
- **Keep personal files only**. This is a non-traditional and partially destructive upgrade in which your user accounts and their associated documents and other files are retained but customizations and installed app are not.
- **Nothing**. This most destructive of options is a *clean install* in which Windows is updated to version 25H2 but your user accounts, documents and other files, customizations, and installed apps are all removed.

Here, I assume you are choosing one of the first two options as both are upgrades, though the process you experience is the same until Windows Setup is complete. The "Nothing" option performs a clean install.

> **Learn more**: Install

After choosing what to keep, Windows Setup will continue without requiring any intervention. Though it switches to a blue full-screen experience, you can still do other work on the PC, at least until it reboots.

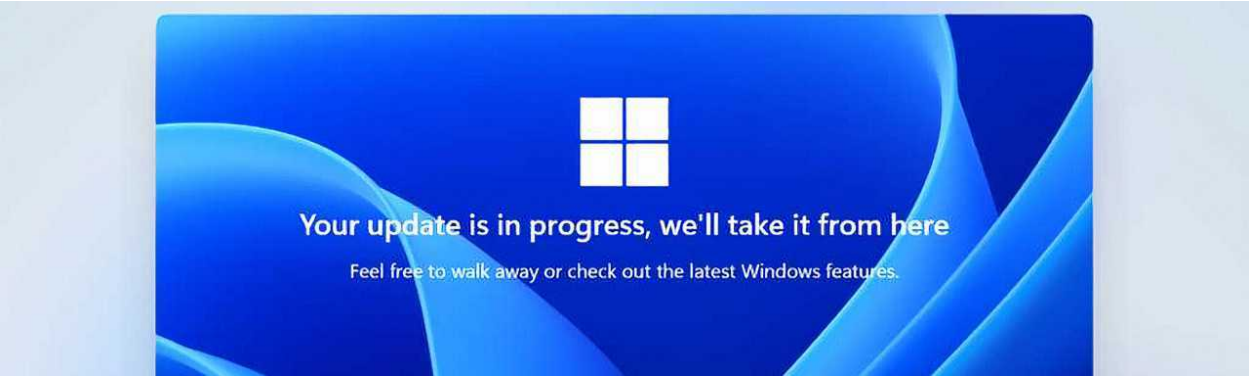
Eventually, Setup will reboot the PC and enter an offline phase in which it completes the upgrade. This process can take up to 30 minutes to complete, depending on your PC.



When Setup completes, the PC reboots again and you can sign-in normally when the Lock screen appears.

Learn more: If you chose “Nothing” as the upgrade type, you will instead experience the Out of Box Experience (OOBE) next, as described in the Install chapter.

Install



You can *clean install* Windows 11 on a PC in various ways, each of which is covered in this chapter. How you do so will depend on your needs and your situation.

- **You bought a new PC**. Skip ahead to the section Windows Setup Out of Box Experience.
- **You built a PC or own a PC with no operating system**. You can start right at the next section in this chapter.
- **You own a PC with Windows 11, but you want to reinstall it**. There are several ways to accomplish what is essentially a recovery task. But the best way is to use the Reset This PC utility that's accessible in the Settings app.

> **Learn more**: In the latter case, you could also use the manual upgrade method described in the Upgrade chapter in which you choose "Nothing" in the Choose what to keep screen of Windows Setup.

What you need

Before getting started, you need a way to install Windows 11. Which method you choose will depend on the state of the PC on which you're working:

The PC works and you can boot into Windows. In this case, all you need is the latest Windows 11 *disk image* (ISO) file, which you can download for free from the Microsoft website. (That said, you can also use the second method.)

The PC doesn't have Windows installed or can't boot into Windows for some reason. In this case, you need to create *Windows 11 installation media* in the form of a bootable USB flash drive. If you have an x64 (AMD/Intel-based) PC, this can be done using a Microsoft utility called the Media Creation Tool (also available on the Microsoft website), but I recommend using a free third-party tool called Rufus regardless of your PC's system architecture.

> **Tip**: Rufus works for Windows 11 on Arm installation media as well, but if you are installing Windows 11 on Arm, you need to download all the drivers for that PC separately. Where you find these drivers varies by PC maker.

How to proceed

Given the above, you have a choice of two paths forward.

Install Windows 11 using the Windows 11 disk image (ISO) file. This is arguably the easiest and quickest way, and it's described in the Upgrade chapter: Download the file from Microsoft, locate it in your Downloads folder, double-click it to *mount* the ISO as a virtual disk in your PC's file system, and then run Setup.exe in the root of that virtual disk to start Windows Setup. Then, follow the instructions in Complete Windows Setup in the Upgrade chapter, being sure to choose "Nothing" when you reach the "Choose what to keep" screen in Windows Setup.

Install Windows 11 using USB-based installation media. This is the method I focus on in this chapter. It's more versatile in that it works with Windows 11 on Arm as well as the more common x64-based versions of Windows 11. And if you use Rufus, you can customize Windows Setup to bypass some Microsoft-imposed limitations and blockers.

> **Tip**: Be sure to download the latest version of the Windows 11 disk image file and/or create new Windows 11 installation media even if you've done so in the past. Microsoft updates its disk images regularly and up-to-date installation media will include bug and security fixes, and even new features, that you will otherwise have to install afterwards with Windows Update.

Clean install Windows 11

Most people who need to clean install Windows 11 will create installation media that will be used to boot the PC into Windows Setup, which includes two phases, the first-boot experience and the Out of Box Experience (OOBE).

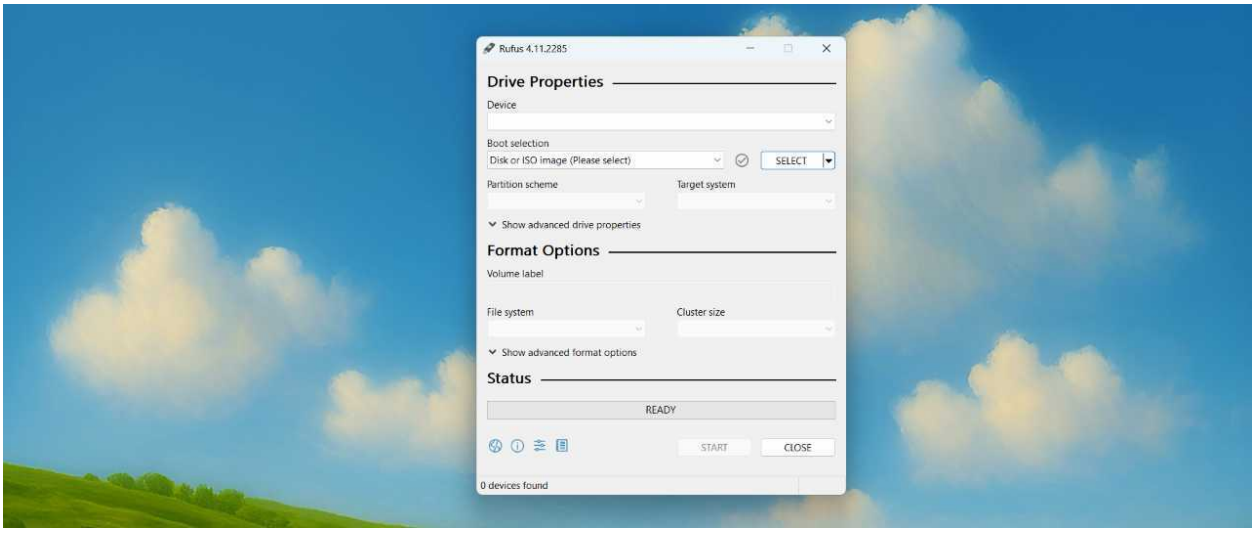
Create Windows 11 installation media

If you are clean installing Windows 11 on an x64-based PC and aren't concerned with customizing Windows Setup to bypass Microsoft's hardware requirement checks and other limitations, you can use its Media Creation Tool to create Windows 11 installation media: Just navigate to the Download Windows 11 page on the Microsoft website and follow the instructions under the section "Create Windows 11 Installation Media." This is straightforward, and once you're done, you can skip to the next section.

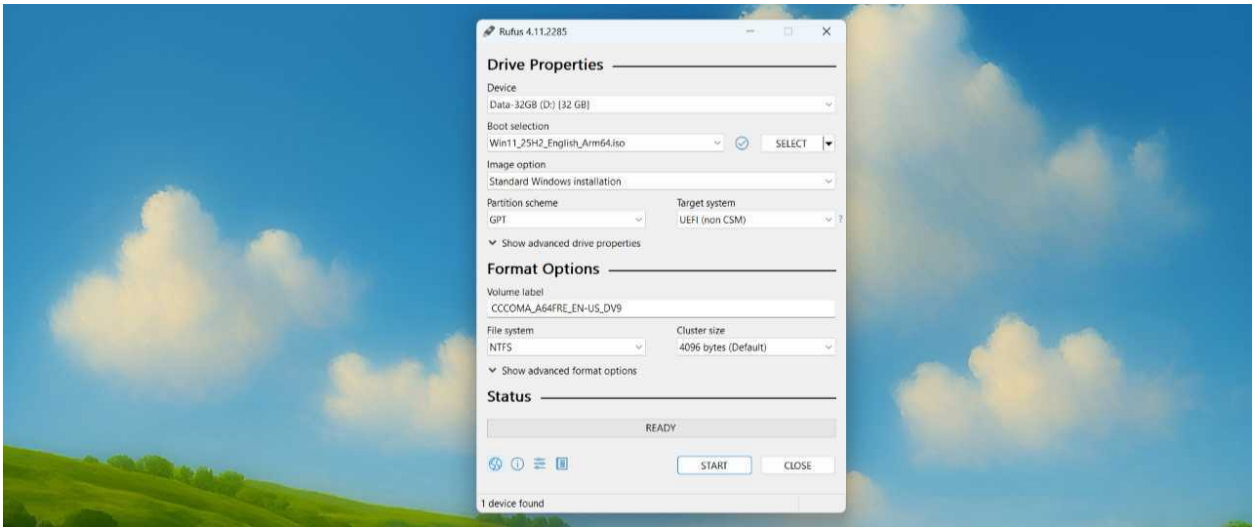
But I very much prefer to use Rufus for this. And unlike the Media Creation Tool, Rufus also works with Windows 11 on Arm.

To create the Windows 11 installation media with Rufus:

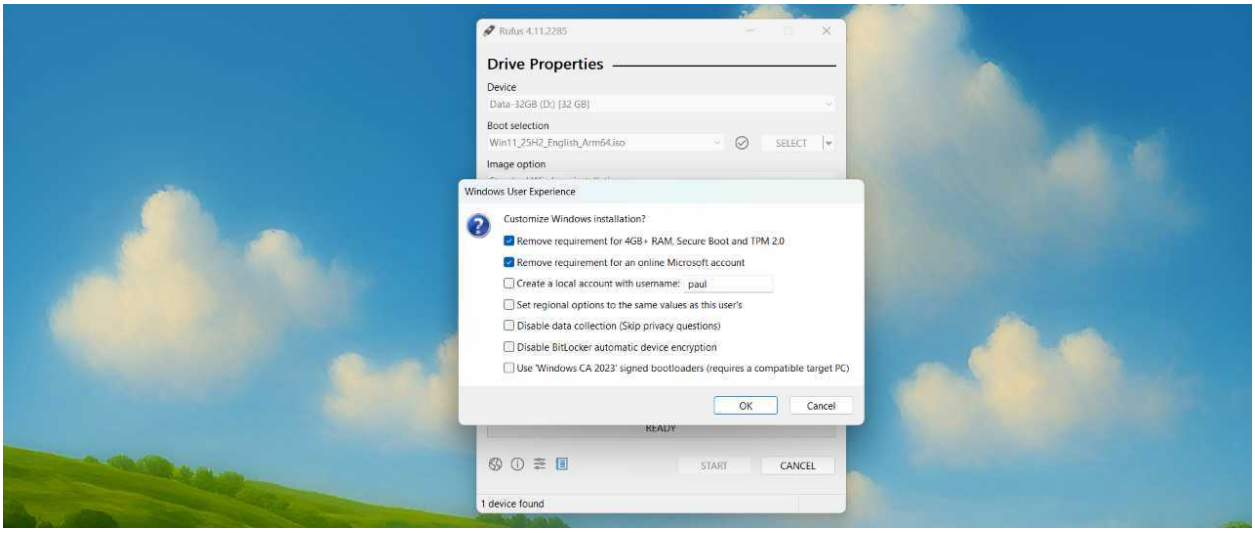
- Download the Windows 11 disk image for x64 PCs or the Windows 11 disk image for Arm-based PCs from the Microsoft website, depending on your PC's system architecture.
- If you have an Arm-based PC, download necessary drivers from your PC maker's website.
- Download the standard version of Rufus, being sure to get the correct version for your PC's system architecture (x64 or ARM64).
- Run Rufus.



- Insert the USB flash drive you will use for the Windows 11 installation media. This must be 8 GB or bigger, and it will be erased during this process, so back up any content it contains first.
- Click "Select" and open the Windows 11 disk image you just downloaded.



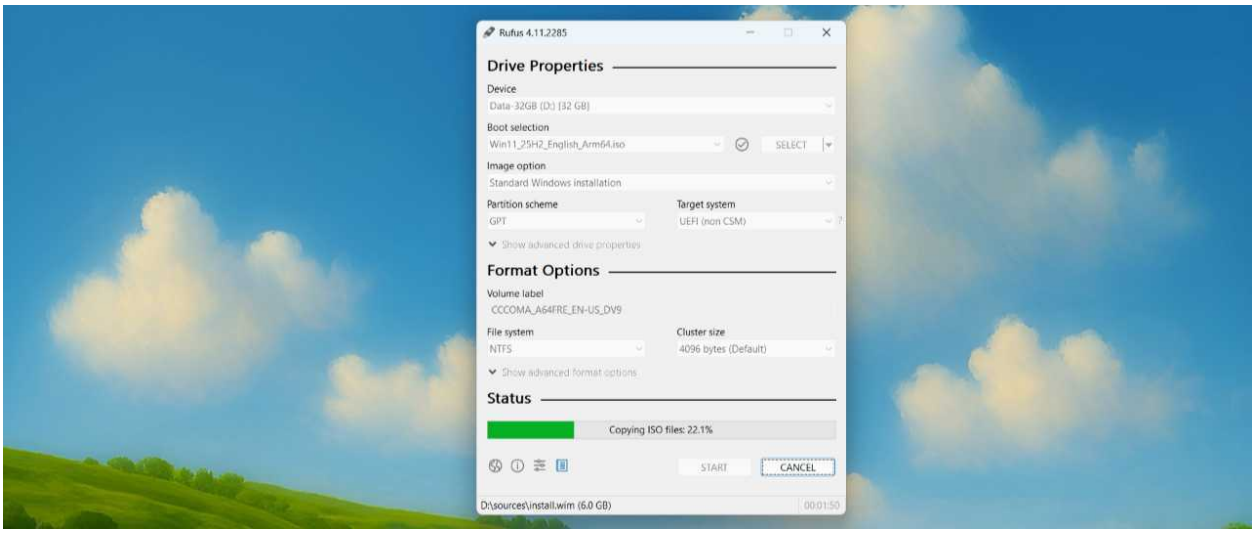
- Click “Start.” Rufus will display a “Windows User Experience” dialog with several choices to consider.



- For the most part, you can ignore these choices. But if you have particular needs, select the options you require and then click “OK” when you’re done making changes.

> **Tip**: The two most commonly needed options, bypassing the hardware compatibility checks and removing the online account (Microsoft account) requirement, are preselected for you, and it won’t harm the installation media if you leave these enabled.

- Rufus will warn that all the data on the USB flash drive will be deleted. Click “OK.”
- Rufus will create the Windows 11 installation media. When it’s done, the progress bar will read “READY.”



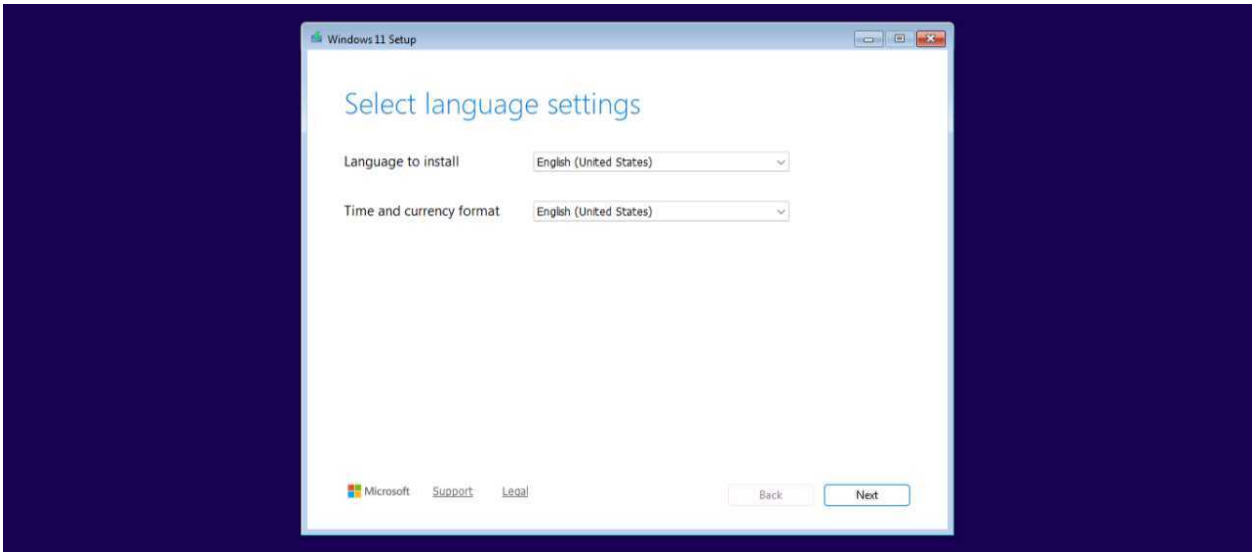
Run Windows Setup

Now that you’ve created your Windows 11 installation media, you can use it for its intended purpose: To clean install Windows 11. And to do *that*, you have to boot your PC with this USB flash disk. The two most common ways to do that are:

- **Advanced startup**. If you are using the PC that you created the installation media with or can otherwise boot into Windows on that PC, you can cause it to restart and then boot using the USB flash drive. To do so, open the Settings app, navigate to System > Recovery, and click “Restart now” next to “Advanced startup” under “Recovery options.” Click “Restart now” in the dialog that appears. When the PC reboots into the Windows Recovery Environment (WRE), click “Use a device” in the initial “Choose an option” screen. Then, select your USB flash drive in the “Use a device” screen.
- **Boot the PC directly from the USB flash drive**. You can also boot the PC directly from the USB flash drive. To do so, you need to know which key to press when the computer first comes on, so check with your PC maker’s document or use Google.

Complete the Windows Setup first-boot experience

The *first-boot experience* is a minimalistic experience that doesn’t vary from PC to PC. It is mostly straightforward, and only a few steps require a lot of thought.



You will complete the following steps.

Select language settings

By default, Windows Setup will configure the Windows 11 language and time and currency format to be the same as that used by the installation media. But if this isn't correct, you can change either or both settings here.

Select keyboard settings

This is identical to the previous step, except that it applies to the language used by your PC's keyboard.

Select setup options

In this screen, you choose between installing Windows 11, the correct choice, and repairing an existing install of Windows 11. Note that you must check the box "I agree everything will be deleted [from your PC] including files, apps, and settings" before you can proceed.

Product key

Here, you can optionally enter your Windows 11 product key that you received if you purchased Windows 11 Home or Pro so you could install it on a new PC. But you will not have this product key if you are clean installing Windows 11 on a PC that previously ran Windows 11. So you can enter the product key here, if you have it, or select "I don't have a product key."

> **Tip**: Select “I don’t have a product key” regardless. Most PCs will auto-activate, but if you need to activate manually you can always do so later.

Select image

If you didn’t enter a product key in the previous step, Windows Setup will display this screen so that you can choose the correct Windows 11 *product edition*. So choose accordingly.

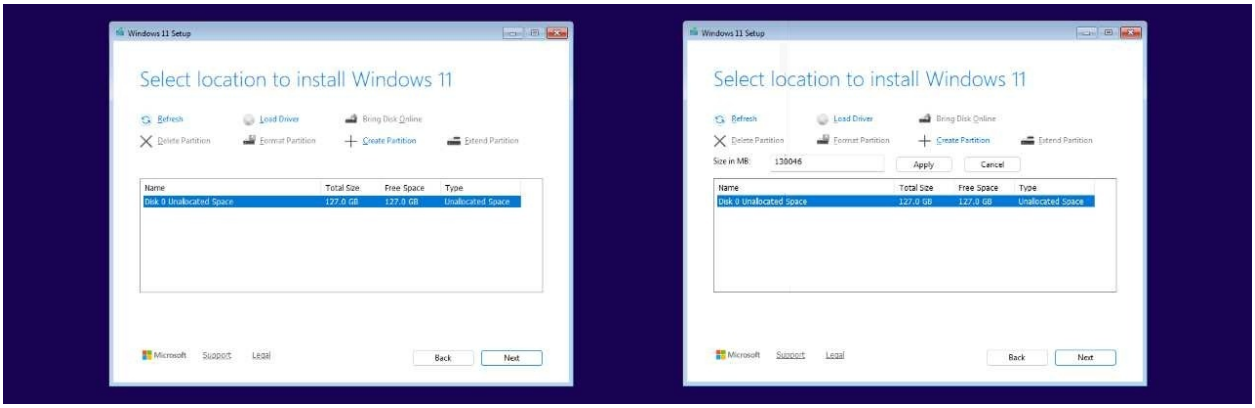
> **Warning**: You want to get this one right. PCs ship with specific Windows 11 product editions, and when you purchase Windows 11, you are likewise purchasing a specific edition, and the product key you received will only activate that product edition. If you choose the wrong product edition and then you can’t activate Windows 11, you will need to reinstall Windows 11.

Applicable notices and license terms

You must agree to the Microsoft software license terms before proceeding.

Select location to install Windows 11

Most PCs come with a single SSD or other storage device, and most people are best served by using Windows 11 with a single disk *partition* on that storage device. If that’s the case, you can simply accept the default, which will configure your one SSD as what’s called the *system partition,* or what most think of as the *C: drive*.



If you have a more complex configuration with multiple physical drives or plan to use multiple partitions, you can use this interface to create and manage those drives and partitions and then choose which will contain the Windows 11 install.

Ready to install

This screen simply summarizes the choices you've made, which, in short mean that you are about to clean install Windows 11.

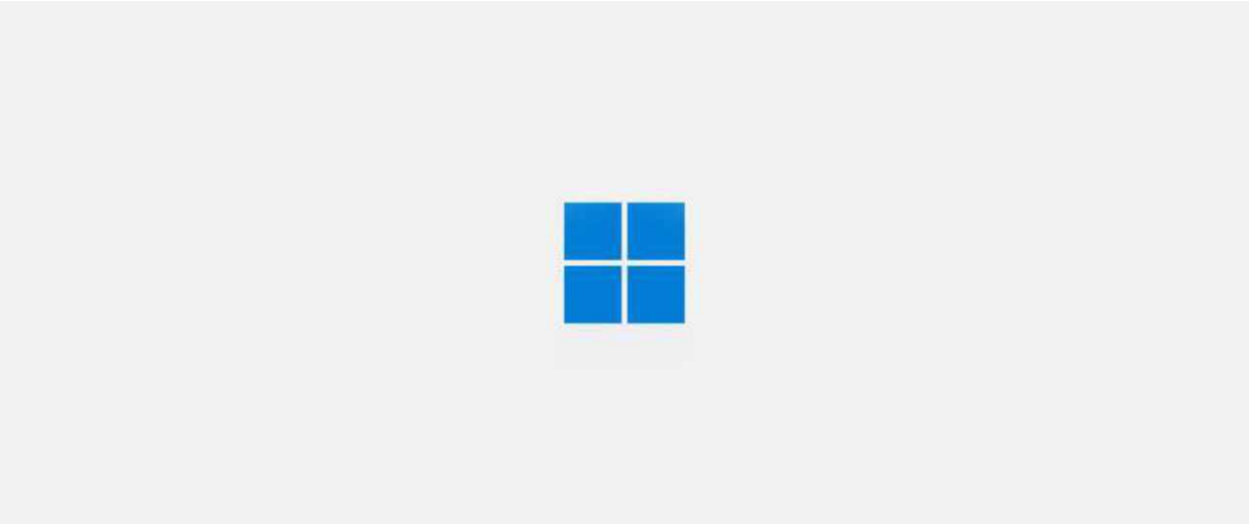
Installing Windows 11

Windows Setup will then transition into a full-screen experience during which it will perform as much of the installation as it can before rebooting and completing setup while offline.

When this process completes, Windows Setup will reboot the PC again and run the Out of Box Experience (OOBE).

Complete the Windows Setup Out of Box Experience (OOBE)

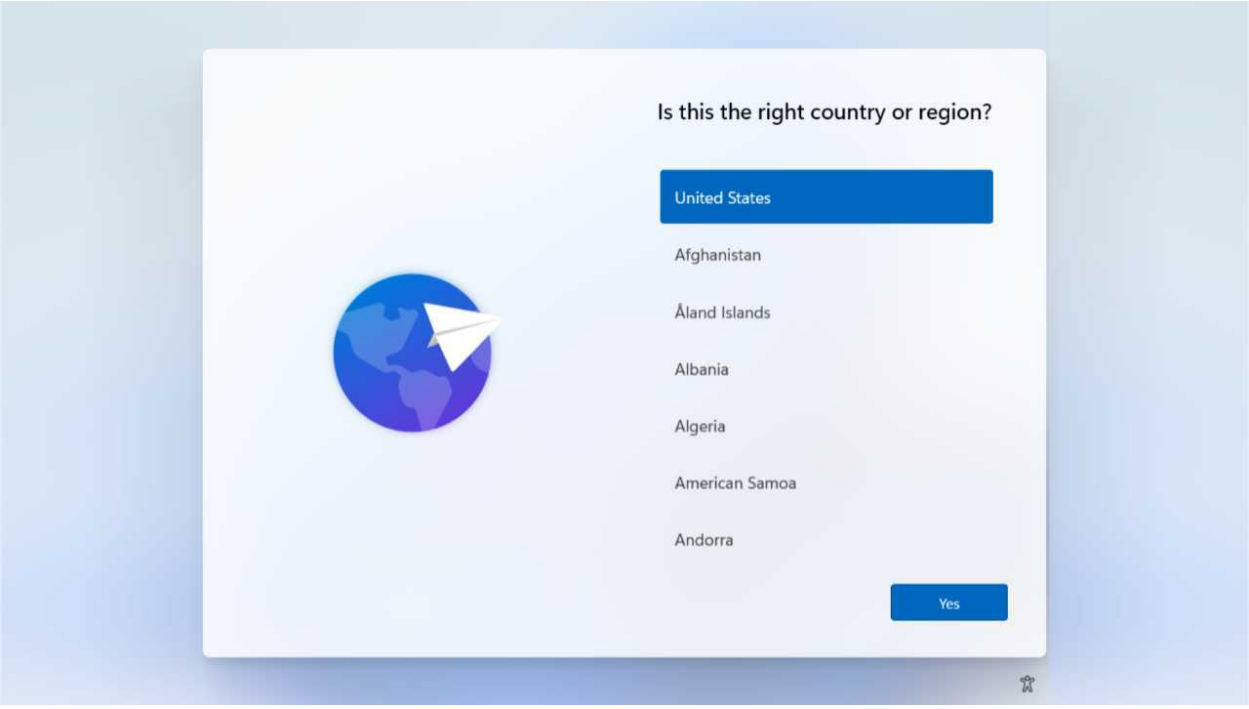
Everyone who installs Windows 11 must complete the Out of Box Experience (OOBE), including those who purchase a PC and turn it on for the first time. This is a prettier, more graphical experience than the first-boot experience, but it's also more involved and has far more tasks to complete.



The OOBE can vary a bit depending on your PC and its configuration, but you will encounter most of the steps documented here.

Is this the right country or region?

This should be set to the correct country, but if it isn't, you can make that change now.



Is this the right keyboard layout or input method?

As with the previous screen, this should be configured correctly.

Want to add a second keyboard layout?

While most people won't need this, Windows 11 supports multiple languages, and adding another keyboard layout is useful for those who are multilingual or need to work in two (or more) languages. Most can skip right past this.

Let's connect you to a network

If the PC is not connected to the Internet with an Ethernet cable, you will be prompted to connect to a network now. This can be a Wi-Fi network–available networks will be listed here–or Ethernet. Once you're online, you can proceed.

> **Learn more**: As with previous Windows versions, there are workarounds in Windows Setup that allow you to continue while offline and create a *local account* for Windows 11 instead of an *online*

> *account*. Those workarounds have changed a bit in Windows 11 in 2026, so I document one that will work for everyone later in the chapter.

Please review the License Agreement

After reading the Microsoft license agreement in its entirety, you can move on to the next step. Kidding.

Let's name your device

Here, you can optionally provide a unique name for your PC, though Microsoft will provide a random name otherwise. If you do create a custom name, the PC will reboot and the OOBE will restart at this point in the process when it comes back.

How would you like to set up this device?

In this crucial step, you choose *how* you will sign into Windows 11, and the two options you see here both map to a Microsoft online account type. They are:

- **Set up for personal use**. This is the right choice for individuals setting up Windows 11 for themselves. When you select this choice, you will sign into Windows 11 using a Microsoft account (MSA).
- **Set up for work or school**. As indicated on-screen, this choice is for those who are setting up a PC for use with work, school, or some other managed organization. This type of account, called a Microsoft Work or School account, works much like an MSA but is centrally controlled by IT staff at your organization.

Put simply, you will select the "Set up for personal use" choice unless you've been instructed to do otherwise.

> **Sign in with a local account instead**?
>
> Power users who prefer to sign into Windows 11 using a local account during the OOBE will notice that the most commonly used workarounds from previous versions no longer work with Windows 11 version 25H2. That's OK, as there are other workarounds that still work. Here is one that works with both Windows 11 Home and Pro.
>
> Type Shift + F10 to open a command line window. Then, select the command line window and type the following command:
>
> **reg add HKLMSOFTWAREMicrosoftWindowsCurrentVersionOOBE /v BypassNRO /t REG_DWORD /d 1 /f**
>
> After tapping Enter, type the following command to reboot the PC:

shutdown /r /t 0

When the PC restarts, the OOBE will start again. When you get to the "Let's connect you to a network screen," you can click a new "I don't have Internet" link and then create a local account instead of using a Microsoft account or Microsoft Work or School account.

A local account is old-fashioned and insecure by default. I recommend that you do not use this type of account unless you really know what you're doing.

Tip: By default, Windows Setup will create a folder for your user account in C:Users that's based on the first four characters of the Microsoft account (or Work and School account) you sign in with here. If you would like to customize that folder name during OOBE, you can. Here's how:

Type Shift + F10 to open a command line window. Then, select the command line window and type the following command:

cd oobe

After tapping Enter, type the following command exactly (where the *paul* is the user folder name you prefer and the length is 16 characters or less):

SetDefaultUserFolder.cmd *paul*

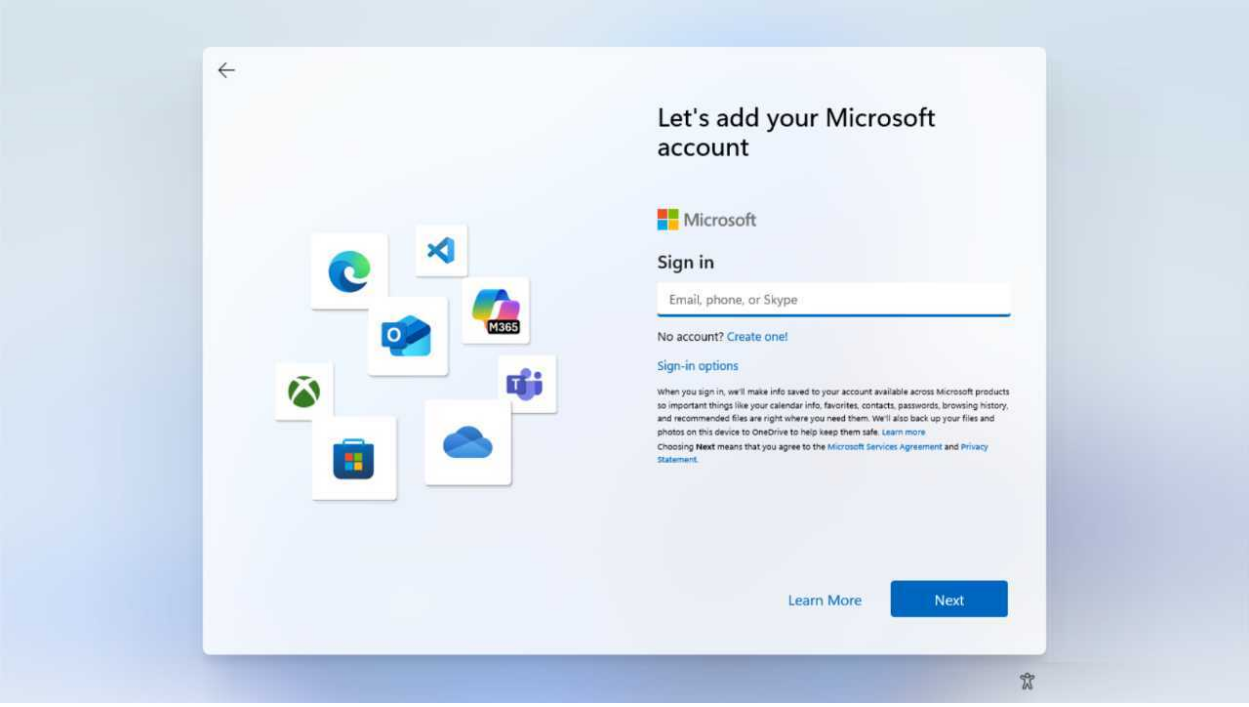
Then, tap Enter. You'll be told if the name you chose is valid and whether the operation was successful. When done, close the command line window to continue with the OOBE.

Unlock your Microsoft experience

After checking for updates again, the OOBE presents an unnecessary screen explaining why the choice you just made, to sign n with a Microsoft account, is so smart.

Let's add your Microsoft account

Here, you are prompted to sign-in with your Microsoft account. Just enter your email address and then, depending on how you have configured this account, you may need to enter a password, authenticate using a passkey or some other 2FA (two-factor authentication) method, or provide other credentials.



Want to use your face/finger to sign in faster and more securely?

If your PC supports Windows Hello facial and/or fingerprint recognition, the OOBE will prompt you to configure one of those authentication methods here. But it's easy enough to configure this later. If you see this screen, skip this for now.

Create a PIN

When you sign in to Windows 11 with any account that has an associated password, Microsoft requires you to create a PIN (personal identification number), which is similar to the code you use to access your bank accounts with a debit card. This PIN will make it easier to sign into the PC later, though Windows Hello facial and fingerprint recognition are both easier still.

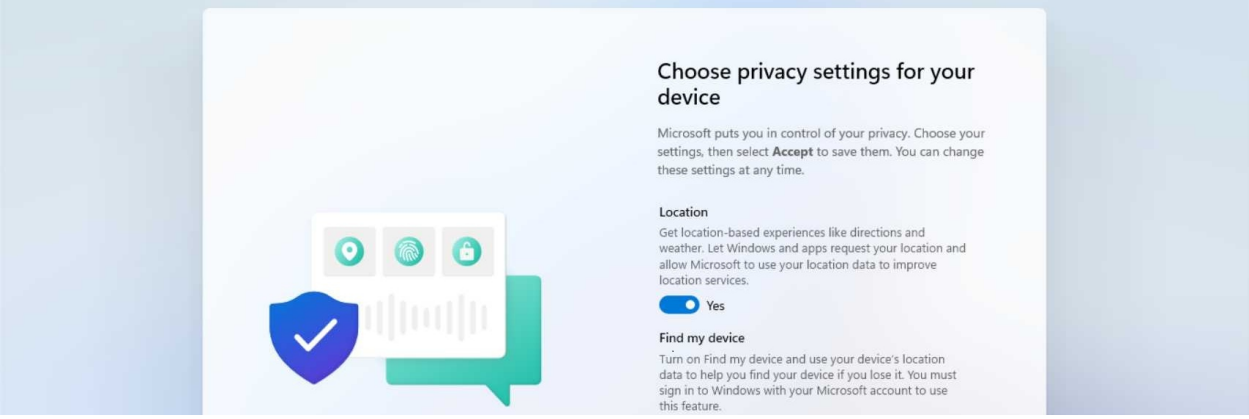
Set up a PIN

Here, you enter and then confirm a PIN. This PIN should be unique to this PC, and not reused across multiple PCs and devices. And it needs to be at least four characters in length, all of which are numbers by default.

> **Tip**: Select the checkbox next to "Include letters and symbols" if you would like to use other characters as well.

Choose privacy settings for your device

This is one of the more important steps in the OOBE and it's one you should pay attention to. In this step, Microsoft presents several high-level privacy settings, allowing you to configure each as being enabled or disabled.



My recommendations for each are:

Location. When this feature is enabled, Windows can access your location and pass it through to the Weather app and the weather display in Widgets. But other apps will need to ask your permission before they can use your location. And online services can determine your location using your IP address and other signals regardless. I recommend leaving this setting enabled, as it works with the Find my device feature below.

Find my device. Microsoft's Find My Device service stores the last known location of this PC and any others you've configured with a Microsoft account. You can view these PCs on the Microsoft account website to help you find one if it's lost or stolen. So I recommend leaving this enabled.

Diagnostic data. Windows 11 collects *telemetry data* so that it can detect, diagnose, and solve problems that impact all customers. That's reasonable, but Microsoft doesn't let you disable this behavior. And worse, it wants to collect even *more* data, as indicated by this toggle, which is configured to allow optional data collection by default. **Don't do it: configure this to "Required only."**

Inking & typing. This setting will help Microsoft improve its language recognition and suggestion capabilities if left enabled. I recommend disabling it, though this is arguably the most innocuous of the settings I always disable here.

Tailored experiences. I can't stress this strongly enough: **Do not under any circumstances enable this setting**. This is not about "tailoring" experiences for you. This is about advertising. Disable it.

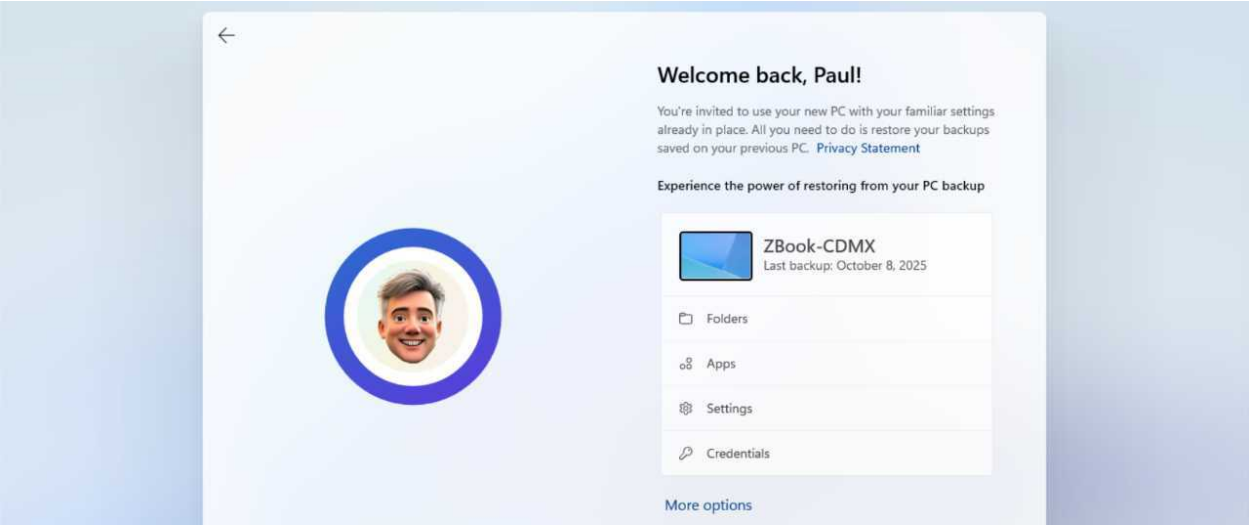
Advertising ID. This, too, is a ridiculous thing to agree to. If you leave this enabled, Windows 11 will create a unique identifier called an *advertising ID*, tie it to your sign-in account, and use it to let Microsoft and third-party advertisers track your activities online, see which websites and apps

you use, and then offer you customized advertisements based on that data. **Do not enable this setting**.

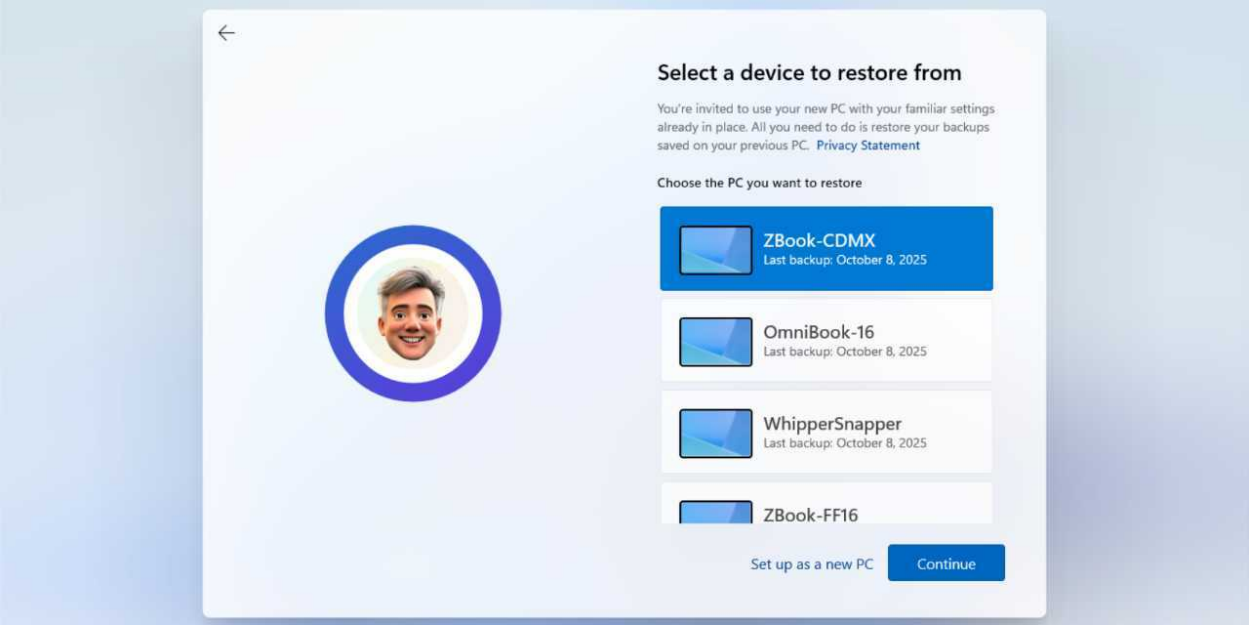
Presence. This setting will only be available if your PC includes *proximity sensors* that work with the Presence Sensing feature in Windows 11 to detect your presence, automatically wake up the PC as you approach, and then automatically turn off the display when you leave. You may find this functionality useful, and it helps optimize Windows Hello facial recognition. But I find it annoying and I always disable this.

Welcome back!

Windows 10 and Windows 11 include a Windows Backup app that works as a front end for settings—OneDrive folder backup, installed and pinned app preferences, some Windows settings and preferences, and online account, Wi-Fi network, and other passwords—that are otherwise scattered throughout the system. If you used Windows Backup to back up a previous PC, you can *restore* the backed-up settings here.



This screen initially displays the PC that was backed up most recently, but you can select "More options" to view more PCs and a "Set up as a new PC" option that is my preferred choice.



Let's customize your experience

Let's not. This step is tied to the privacy options you configured a few screens back, in that it's masquerading as a benefit to you when in fact it's really violating your privacy and pushing personalized tips, advertisements, and recommendations to you. **Do not customize your experience**. Choose "Skip" and move on.

Use your phone from your PC

Windows 11 includes a useful Phone Link app that integrates with your iPhone or Android smartphone and allows you to do things like send and receive text messages and phone calls through your PC. I do recommend using Phone Link, but you should set that up later. So skip this step.

Back up your phone's photos to keep them safe

Here, Microsoft is recommending that you install the OneDrive mobile app on your smartphone, primarily so that you can back up any photos you take on that device to its OneDrive cloud storage service. If you pay for additional OneDrive storage or a Microsoft 365 subscription (which provides additional storage) and haven't yet installed OneDrive on your phone, this is a fine idea.

Always have access to your recent browsing data

This step is tied to a malicious Microsoft Edge behavior in which the bundled web browser will automatically import your browsing data from Google Chrome every time it launches. This is a terrible idea, even if you intend to switch from Chrome to Edge. Click "Not now," only because there isn't a "Not ever" choice.

Back up your files to OneDrive

This step refers to a feature of the OneDrive app in Windows 11 called *Folder backup* that syncs your Desktop, Documents, and Pictures folders on the PC with OneDrive in the cloud and then to any other PCs that you sign into with the same Microsoft account. This is clearly useful—OneDrive provides version history and data recovery functionality—but only if you're paying for additional OneDrive storage or a Microsoft 365 subscription. My recommendation is to decline this offer now and then configure OneDrive as desired once you get into the Windows 11 Desktop and begin customizing the install.

> **Learn more**: If you don't see this step during the OOBE, Windows 11 will silently enable OneDrive Folder backup automatically. You can learn how to change that and further customize OneDrive in the OneDrive chapter.

Access granted: We're giving you a free trial of Microsoft 365

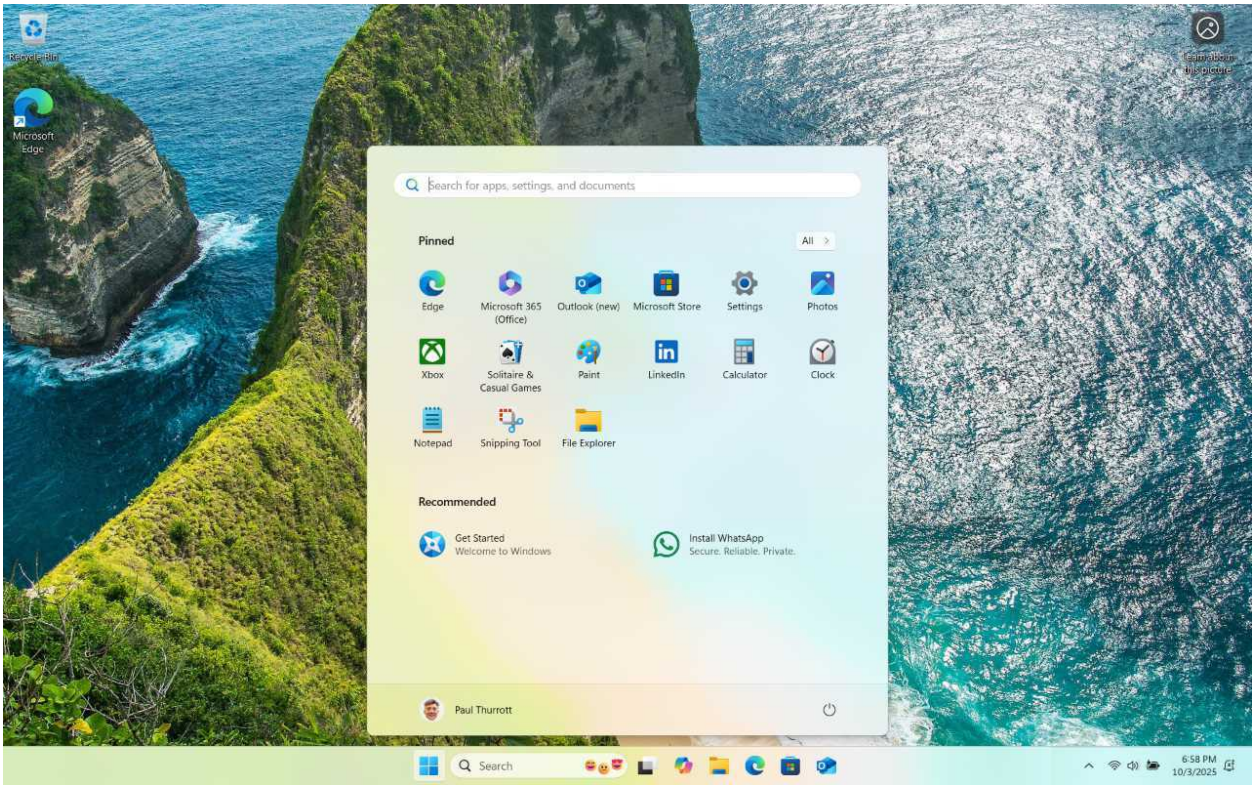
If you signed into Windows 11 with a Microsoft account and don't subscribe to Microsoft 365 Personal, Family, or Premium, you may see this screen advertising a free trial. Skip it.

Play over 100 high-quality games with PC Game Pass

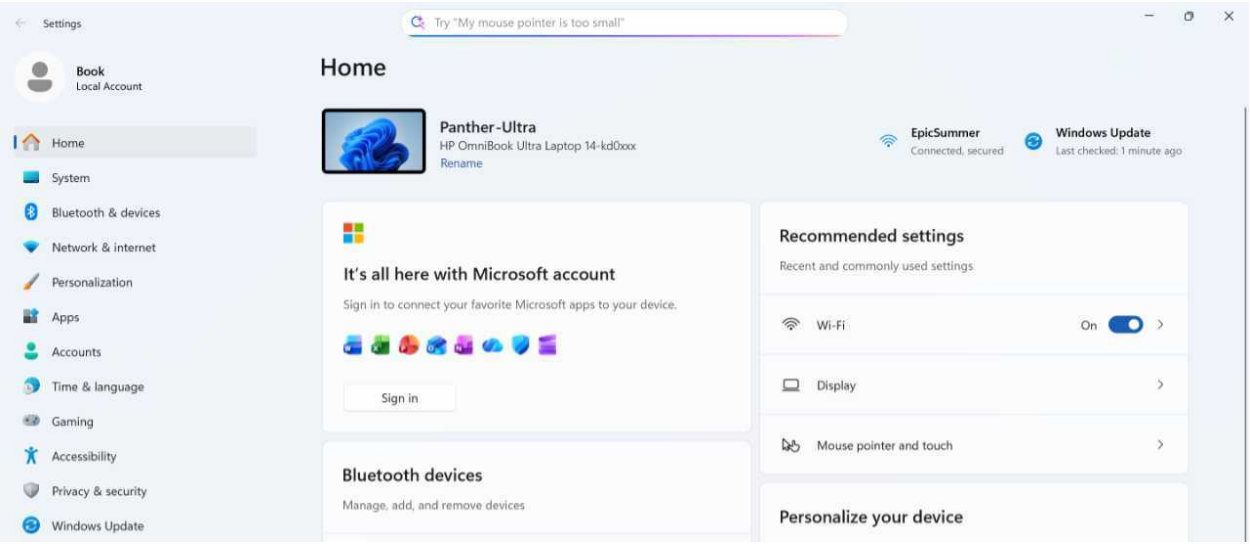
As per the previous screen, you may also see a screen advertising Microsoft's PC Game Pass service, one of several XBOX Game Pass subscriptions. Skip this as well.

Just a moment

And just like that, the Out of Box Experience (OOBE) and Windows Setup are complete. In moments, you will find yourself at the Windows 11 Desktop. So it's time to begin configuring the system to your preferences and install the apps you need.


Recycle Bin
Microsoft Edge
Learn about this picture
Search for apps, settings, and documents
Pinned
All
Edge
Microsoft 365 (Office)
Outlook (new)
Microsoft Store
Settings
Photos
Xbox
Solitaire & Casual Games
Paint
LinkedIn
Calculator
Clock
Notepad
Snipping Tool
File Explorer
Recommended
Get Started
Welcome to Windows
Install WhatsApp
Secure. Reliable. Private.
Paul Thurrott
Search
6:58 PM
10/3/2025

Initial Configuration and Personalization



After you upgrade to or install Windows 11, or have signed in to a new Windows 11 PC for the first time, you should ensure that everything is configured correctly for your needs and prepare your PC for the work ahead. This chapter provides a list of the post-install tasks you should perform as soon as you finish the Windows Setup Out-of-Box Experience (OOBE) and arrive at the Windows 11 Desktop for the first time, and in the order you should perform them if possible.

First, make sure you're online

If you signed in to Windows 11 with a local account, you probably aren't online. If so, click the Network (globe) icon in the system tray in the Taskbar to display Quick settings and then click the Wi-Fi quick setting button to find your Wi-Fi network and sign in. When you do, you may notice that more app shortcuts suddenly appear in Start. And now you can continue with the other initial configuration changes noted below.

Configure OneDrive

If you use OneDrive, you should examine how this app is configured as soon as you get online. Otherwise, it may enable its Folder backup feature automatically, which may not be what you want.

To configure OneDrive immediately, click the OneDrive icon in the tray, sign-in to the app if needed, and then navigate to "Help & Settings" (the gear-shaped button) > Settings. In the OneDrive Settings window, consider making the following two changes:

- **Prevent OneDrive from automatically enabling Folder Backup**. Click Sync & backup and then "Manage backup" next to "Back up important PC folders to OneDrive" to display the "Back up folders on this PC" window. If you see a a yellow info bar at the top of this window with the text "Getting things ready for backup," you can prevent Folder Backup from auto-enabling by clicking the "Cancel" link. If you don't see this info bar but still wish to disable Folder Backup, check back here after OneDrive is fully synced. If it does enable this feature without warning, and it can do that, you can disable it then.
- **Disable the "On this day" notification that OneDrive pops up every single day**. If you find the "On this day" notification annoying, navigate to Notifications and disable that option in the list of notifications that appears.

Learn more: OneDrive

Check that the system time is correct

Windows 11 is supposed to detect your location automatically and then set the time and date accordingly. This *usually* works, but not always. So take a quick look at the time in the time/date display in the far right of the Taskbar. If it's incorrect, right-click the date/time display and select "Adjust date and time" in the context menu that appears to open the Settings app to its Time & date settings page. Make sure the options "Set time zone automatically" and "Set time automatically" are both configured to "On."

Configure your user account securely

If you signed in to Windows 11 with a Microsoft account or Microsoft Work or School account, you were prompted to create a PIN and, depending on your PC, to configure Windows Hello facial or fingerprint recognition during Windows Setup. If you signed in with a local account, however, it's possible you didn't even configure a password. Either way, open the Settings app, navigate to Accounts > Sign-in options, and take the following steps, in this order, to better secure your sign-in account.

> **Keyboard shortcut**: Type Winkey + I to open Settings.

Configure a password. If you signed in with a local account and didn't create a password, do so now by clicking Password and then "Add."

Configure a PIN. If you signed in with a local account and didn't create a PIN, do so next by clicking "PIN" and then "Set up."

Configure facial and/or fingerprint recognition. Depending on the capabilities of your PC, you may have Windows Hello facial recognition and/or fingerprint recognition features available to you (once you've configured a PIN). Enable one or both being sure with facial recognition to "improve recognition" (with and without glasses if you wear them) and enable "Enhance facial recognition protection" (which requires you to reboot the PC).

Consider disabling an annoyance. Windows 11 displays an annoying "second chance out of box experience" series of screens that resembles the Windows Setup Out of Box Experience (OOBE) after you install monthly system updates and reboot. If you find this annoying, as I do, you can prevent those screens from appearing by configuring the option "Use my sign-in info to to automatically finish setting up after an update" to "Off."

Ensure the PC's disk is encrypted

If you signed in to Windows 11 with a Microsoft account or Microsoft Work or School account, then your PC's system disk (typically solid state SSD storage these days) was automatically encrypted to prevent physical theft of your data and the encryption key you need to unlock it was stored in your OneDrive cloud storage. If you signed in with a local account, however, the disk is not encrypted, so you will need to fix that.

Either way, you should check the status of drive encryption now. To do so, open the Settings app and navigate to Privacy & security > Device encryption. If the disk is encrypted, the "Device encryption" option at the top is set to "On" and you have nothing more to do.

If you see a yellow info bar that reads "Sign in with your Microsoft account to finish encrypting this device" then you have some work to do.

What you do next will depend on whether you have Windows 11 Home or Windows 11 Pro. Let's start with the latter because that's faster and simpler.

Enable disk encryption in Windows 11 Pro

To enable disk encryption, click "BitLocker Drive Encryption" under "Related." In the BitLocker Drive Encryption control panel that launches, just click the option "Turn on BitLocker" next to the system disk. You will be prompted to back up your recovery key, with the choices being "Save to your Microsoft account," "Save to a file," and "Print the recovery key." After backing up the recovery key, Windows 11 will begin encrypting the drive.

Enable disk encryption in Windows 11 Home

If you have Windows 11 Home, you have to sign in to Windows 11 with a Microsoft account that has administrator privileges to enable drive encryption. There are two ways to do that.

- Click the "Sign in" button in the yellow info bar and sign in with a Microsoft account, a process that will convert your local account sign-in to a Microsoft account sign-in.
- Create another sign-in account that's a Microsoft account (in Settings > Accounts > Other users), grant it administrator rights, sign in to Windows 11 with that account, navigate through a truncated version of the OOBE, and arrive at the Desktop. Then, sign out, sign in with your normal local account, and delete the Microsoft account you just created.

You could also just upgrade the PC to Windows 11 Pro. Yes, Microsoft charges $99 (in the U.S.) for that upgrade if you do this through the Microsoft Store, but you can find Windows 11 Pro product keys online–in places like the Product Keys website–for as little as $10. That will do the trick nicely, and in addition to the low price, it's perfectly legal and safe.

Learn more: Device encryption

Rename the PC if required

If you didn't provide a name for your PC during the OOBE, Windows Setup will create a unique but nonsensical name–like DESKTOP-TAKKU2G or similar–for you. You should rename it now because you will see your PC's name referenced by OneDrive and other Microsoft services on the web and elsewhere, and it's helpful to know at a glance which PC they're referring to.

To do so, open Settings and locate the "Rename" link at the top of the Home page. Click it, provide a new name–perhaps *Pauls-PC*, *Laptop*, or whatever–in the dialog that appears, and click Next. Reboot the PC as requested to complete the change.

> Sorry, you can't use spaces or most special characters in the PC name.

Check for updates

Windows 11 will keep itself up-to-date via automatic update downloads and installs, but it's a good idea to get this process started and perform a few other related system maintenance tasks whenever you start using a PC or upgrade to the latest version of Windows 11.

You can perform the following steps and let them run while doing other tasks listed in this chapter.

Use Windows Update to install system updates. Open the Settings app, navigate to Windows Update, and click "Check for updates." Once updates begin installing, click "Advanced options" and then "Optional updates." On this page, select any driver-related updates that need to be installed as well and click "Download and install" to add them to the install queue. Reboot when required and repeat this process until there are no more updates.

> **Learn more**: Windows Update

Microsoft Store. Open the Microsoft Store app, navigate to Downloads, and click "Check for updates" to update the in-box apps to the latest versions. You may need to repeat this process a few times before all the in-box apps are updated.

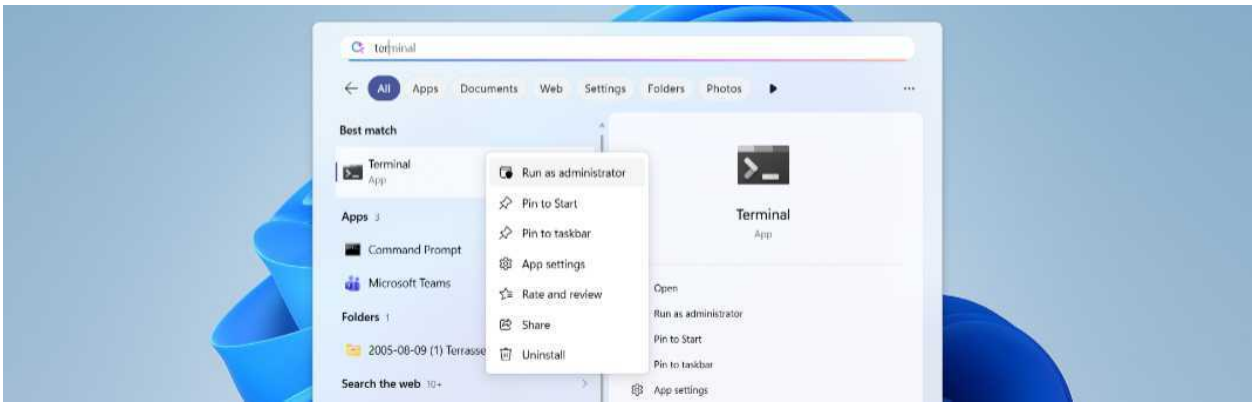
> **Learn more**: You can learn more in the Microsoft Store chapter.

Use a PC maker support/driver update application. If your PC comes with a support or driver management app–like Dell Support Assist, HP Support Assistant, Lenovo Vantage, and others–you should use it to check for software updates as well.

> **Tip**: If your PC uses an Intel microprocessor and your PC maker doesn't supply its own software and driver updater, you may also want to install the Intel Driver & Support Assistant, which provides regular updates for Intel microprocessors and other chipsets.

Windows Package Manager. Once all the system and app updates are all installed, search for Terminal using Search in Start, right-click it in the search results, and choose "Run as administrator." After clearing the User Account Control (UAC) dialog that appears, you can run the following series of Windows Package Manager (winget) commands to see and then install any pending updates.

- winget install
- winget install –all –silent



Once all the updates are complete, you can close the Terminal window.

> **Learn more**: Terminal and Windows Package Manager

Configure Windows Security

Windows 11 includes a Windows Security app that provides a front-end to many of the security capabilities of your PC. And while the system is of course configured securely by default, there

are sometimes additional steps you can take to improve security even further by enabling some optional features that need to share anonymous information with Microsoft to function properly.

To see this, click the Windows Security icon–it's hidden in the system tray's hidden icons flyout–and see whether any of the items in the default Security at a glance view have a yellow "bang" overlay. If so, correct each in turn, which usually just involves clicking an "Enable" button, running a quick virus scan, or some other obvious action. (Or, if you sign in to Windows 11 with a local account, you may have to simply dismiss a few warnings.)

> **Learn more**: Windows Security

Uninstall crapware and other bundled apps you don't want

Windows 11 comes with dozens of bundled, or in-box. apps, many of which are useful, that you can find easily enough in Start. But Start can also include a strange selection of sponsored app shortcuts–"crapware" or "bloatware" apps–supplied by Microsoft and/or your PC maker. Most of these unwanted app shortcuts can be removed from the Pinned section in Start–just right-click each in turn and select "Unpin from Start"–but you can alternatively *uninstall* these app shortcuts for good as well. To do so, right-click the offending shortcut and choose "Uninstall"; if that option is not available, that means only the shortcut is present, so just choose "Unpin from Start."

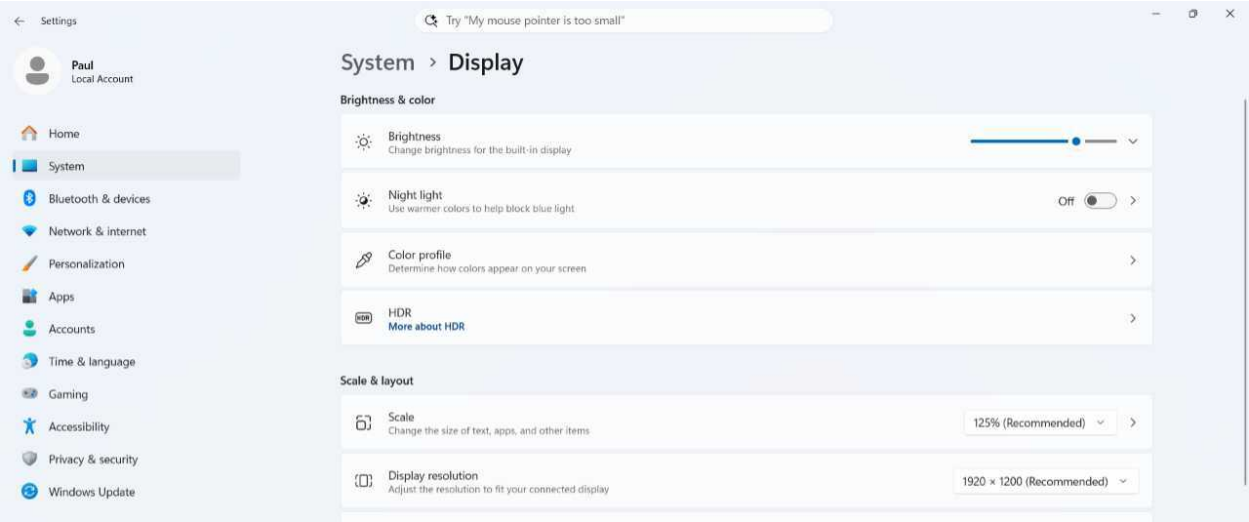
> **Tip**: Some PC makers use an age-old trick to make it harder to remove certain crapware from your PC. If you can't uninstall as described above, try right-clicking its shortcut and choosing "Open file location." Then, just delete the shortcut in the File Explorer window that appears.

> **Learn more**: Start and App Basics

Configure the display

Windows 11 usually does a good job of configuring your PC to use its display at its native resolution and an optimal display scaling value based on its physical size and other factors. But

you should still review these settings and ensure that they and other display-related options are configured to your liking.



To do so, open the Settings app and navigate to System > Display. Then, examine and configure the following options as needed.

Display resolution. Windows 11 should configure your computer to use the native (maximum) resolution of its display. To make sure, click the drop-down control next to "Display resolution" under "Scale & layout."

Scale. Windows 11 picks a default display scaling value–which impacts the size of text, controls, graphics, and other items on-screen–based on its native resolution, physical size, and other characteristics. But you can change this using the drop-down control next to "Scale" under "Scale & layout" if you find a different scale value to be more comfortable for your eyes.

Night Light. Like your smartphones and mobile devices, Windows 11 can be configured to automatically or manually enable a warmer (orange colored) display to lower the blue light output and ease your eye strain. But it's not enabled by default. To enable this feature, click "Night Light" and then either just enable it or choose a schedule. For example, many like to enable this feature automatically between sunset and sunrise.

Adaptive color. If your display supports it, you will see an Adaptive color option that uses sensors to automatically adjust the colors displayed on-screen so that they appear correct to your eyes in different lighting conditions. I find this effect annoying–on most PCs, it makes the display take on a pinkish hue–but it's worth experimenting with. It's just a manual On/Off toggle, so you can just turn it off if you don't like it either.

Refresh rate. While mainstream displays typically utilize a standard 60 Hz refresh rate, many modern displays support high refresh rates (90 Hz, 120 Hz, or higher), which can make gaming, scrolling, and other animations look smoother at the expense of some battery life. Some even support a dynamic or variable refresh rate (VRR), which lets the system switch between standard and high refresh rates on the fly, giving you the benefits of a high refresh rate without impacting

battery life. To see if your PC supports either or both, navigate to Advanced display and see what's available in "Choose a refresh rate" and "Dynamic refresh rate." If you can choose a higher refresh rate *and* enable a dynamic refresh rate, I recommend doing so.

> **Learn more**: Multiple Displays

Configure power management and related settings

You will almost certainly want to configure some power management and related settings because Microsoft aggressively optimizes Windows 11 for battery life, not usability. You do so in the Settings app: Navigate to System > Power & battery and consider the following options:

Power Mode. By default, Windows 11 uses its Balanced power management mode when the PC is plugged in or on battery power. This is the right configuration for PCs powered by Qualcomm Snapdragon X and X2 processors, but AMD and Intel processors aren't as efficient or reliable, so you may want to switch to the "Best Performance" power management mode on these PCs. Experiment first, however, as doing so will reduce battery life on battery and increase fan noise on power.

Screen, sleep, & hibernate timeouts. By default, Windows 11 is configured to turn off the display and put the PC in sleep mode in very short time frames, which can be annoying. To adjust these timeouts while the PC is plugged in and/or on battery power, expand this section. You may also see related *presence sensing* options like "Wake my device when I approach," "Dim my screen when I look away," and others that are worth considering.

> **Learn more**: Presence sensing

Battery percentage. By default, Windows 11 displays the PC's battery life as an often-inscrutable icon in the system tray. If you find this too difficult to understand, you can enable an optional battery percentage that appears in plain text form (like *68%*) next to the battery icon.

Energy saver. Windows 11 puts the PC into a reduced power consumption mode called Energy saver when battery life falls to 30 percent. I find this to be overly aggressive and recommend changing this option to 10 percent (as I do) or 20 percent.

Lid & power button controls. If the power button on your laptop is built into the keyboard, you may find yourself putting it to sleep when you inadvertently tap that button/key. If so, expand the "Lid & power button controls" section and configure the "Pressing the power button will make your PC" option to "Do Nothing" for both "Plugged in" and "On battery."

Configure multitasking and sharing features

Depending on your needs, you may want to change the configuration of specific multitasking and sharing features. The relevant options are found in the Settings app by navigating to System > Multitasking. Here, consider the following settings.

Snap windows. Generally speaking, Snap is a great set of features for managing the layout and positions of your apps and other windows on-screen. But one Snap feature, "Show snap layouts when I drag a window to the top of the screen," can be incredibly annoying if you like to manually move windows across because the Snap layouts pane that appears at the top of the screen can get in the way. If you are also annoyed by this, expand "Snap windows" and disable that feature.

> **Learn more**: Snap

Show tabs from apps when snapping or pressing Alt + Tab. By default, Windows 11 inexplicably includes your three most recent Microsoft Edge tabs in the Alt + Tab display and when you're snapping windows, alongside apps and active windows. If you find this annoying or if you just don't use Edge, disable this setting.

Drop tray. Microsoft recently added a Drop tray feature that works like the Snap layouts pane noted above, but for sharing: It's a pane that appears at the top of the screen when you drag a file with the mouse cursor, and if you drag it up to the pane, you can then access the normal Windows Share features. This is annoying for the same reason the Snap layouts pane is annoying, so you may want to disable it.

Configure Microsoft Edge even if you're not going to use it

Microsoft Edge is problematic for so many reasons, and that's true whether you intend to use this browser or not. So it's important to configure this web browser correctly, even if you will simply use it once to download and install Google Chrome or whichever browser you prefer. The first steps are simple enough, though: When you first run Microsoft Edge, you step through a full-screen experience in which you configure the browser. Choose the following:

- **Welcome to Microsoft Edge, the best- performing browser on Windows**. You will see this screen if you sign in to Windows with a local account. Choose "Start without your data."
- **Stay current with your browsing data**. Uncheck the option "Bring over your data from other browsers regularly. You can manage your preferences any time in Settings."
- **Your Google data and services, now in Edge**. Choose "Continue without Google data."

- **Help us make Microsoft experiences more useful to you**. Uncheck “Make your Microsoft experiences more useful to you.”

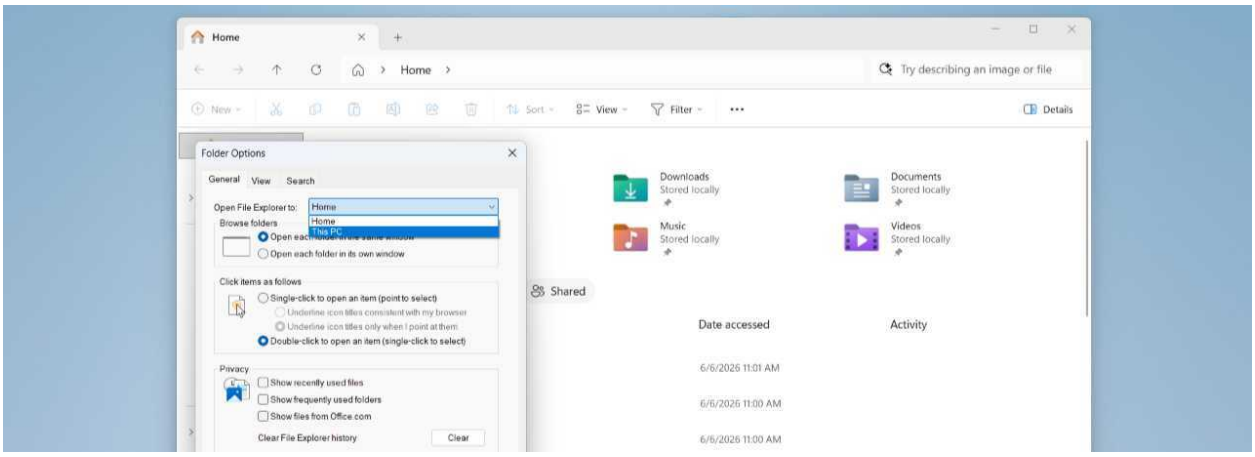
> **Learn more**: Set up Microsoft Edge correctly … whether you use it or not

Configure File Explorer

File Explorer is the Windows 11 file manager app, and while many will find it to work well in its default configuration, it suffers from performance issues you may find annoying. Plus, you might want to make a few other configuration changes depending on how you use File Manager.

To configure File Manager, open the app, click the “See more” (“…”) button in its command bar, and choose “Options” from the menu that appears. In the Folder Options dialog that appears, consider making the following changes:

- Uncheck all the options under “Privacy”—“Show recently used files,” “Show frequently used folders,” and “Show files from Office.com”–to speed up the launch speed of the app. Note that these changes will make File Explorer’s Home view less useful as these items will no longer display.
- Change “Open File Explorer to:” at the top of the window from “Home” to “This PC” so that File Explorer no longer even displays the Home view, which will further improve app launch speeds.



Learn more: File Explorer

Configure the Desktop, Start, the Taskbar, Search, and Widgets

Microsoft puts a superfluous Microsoft Edge shortcut on the Desktop by default, and your PC maker may have added a few app shortcuts of their own too. This isn't rocket science, but take a moment to delete them. It's good for your soul and your well-being.

You should also take the time to configure other basic user interface features tied to the Desktop now.

Taskbar. You can disable and/or configure the Widgets, Search, and Task view items on the Taskbar by opening the Settings app and navigating to Personalization > Taskbar. You can also remove (unpin)–and pin and position–app shortcut icons on the Taskbar directly for fast access.

Tip: The quickest way to get there is to right-click a blank area of the Taskbar and choose "Taskbar settings."

Learn more: Taskbar

Start. In addition to the crapware and unwanted apps you will find in Start (addressed above), this interface also displays tips, recommended apps, and other nonsense in its Recommendations section by default. To disable that, open the Settings app, navigate to Personalization > Start, and configure "Show recommendations for tips, shortcuts, and more" to "Off."

Tip: The quickest way to get there is to right-click a blank area of Start and choose "Start settings."

Learn more: Start

Widgets. By default, Widgets launches if you mouse over its Taskbar icon (including when you do so inadvertently) and displays a terrible, low-quality news feed by default. To change this, open Widgets, click Settings (gear), disable "Open Widgets board on hover," and both options under "Notifications."

Learn more: Widgets

Windows Search. By default, Windows Search displays web results along with your file and app searches and it advertises web-based content in the search pane. To disable that, open the Settings app, navigate to Privacy & security, and configure "Show search highlights" to "Off."

Learn more: Windows Search

Configure a theme

In addition to supporting Dark and light modes, Windows 11 also supports *themes*, which combine a background, an accent color, a sound scheme, and a mouse cursor into a single item you can name, enable, or change.

The default Windows 11 theme displays in Light mode and uses a dynamic background called *Windows spotlight*, a specific accent color, the default sound scheme, and the default mouse cursor. But your PC could be different: PC makers often configure the default theme, and if you restored from a backup during Windows 11 Setup, your configured theme should be in-place.

You can change the theme at any time, but "there's no time like the present if you're not happy with how it looks.

You do so in the Settings app by navigating to Personalization > Themes. This page lets you save the currently configured background, colors, sounds, and mouse cursor as a new theme, switch between any available themes, and get more themes from the Microsoft Store.

A few recommendations

- If you find the default bong sounds that Windows makes to be as annoying as I do, be sure to configure the sound scheme to "No sounds" in the Sound control panel window that appears when you click "Sounds."

- If you have as much trouble finding the mouse cursor on-screen when your work, as I do, select “Mouse cursor” and then choose “Windows inverted” (the third option) in the “Mouse point style” section in Mouse pointer and touch accessibility settings.
- When you’re done configuring the theme, click “Save” and give it a name so you can switch back to it later if something changes.

> **Tip**: Windows 11 doesn’t support automatically switching between Light and Dark modes based on a set schedule (for example, using Dark mode between sunset and sunrise). But you can add this feature by installing Microsoft PowerToys and then enabling and configuring the Light Switch utility.

Install and configure the apps you need

With all the above out of the way, you can finally install the apps you rely on. You can do so in any combination of the following ways (among others):

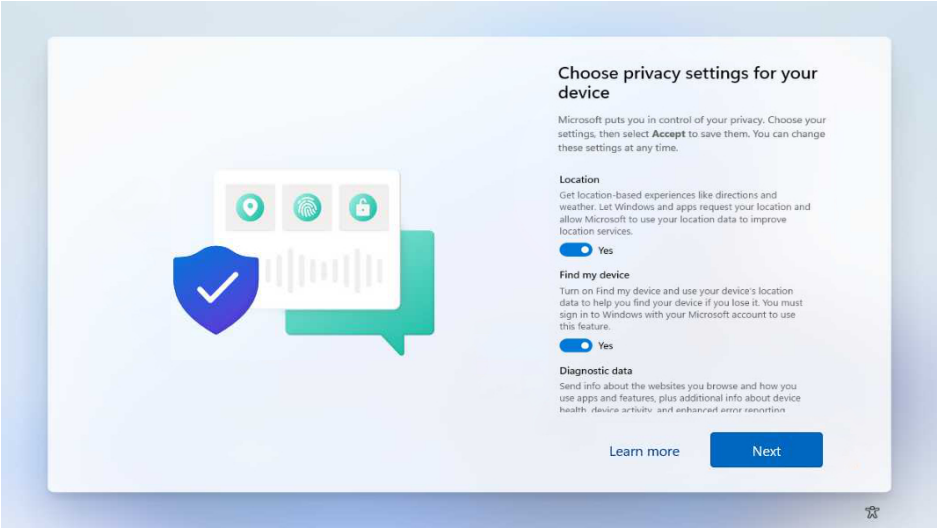
- **With the Microsoft Store**. The Microsoft Store is a high-quality app store with a good variety of apps, and if you install apps this way, the Store will keep most of them up-to-date automatically.
- **From the web**. This is the traditional, pre-Store way to install Windows apps in the 21st century.
- **Using the Windows Package Manager (winget)**. This command line tool may be intimidating, but it’s the best way to install multiple apps all at once, in batch, when you first bring up a new Windows 11 install.

> **Learn more**: Apps and Windows Package Manager

Customize Your Windows 11 Privacy Settings

Windows 11 violates your privacy by default, and it will then go on to badger you to let it do so to an even greater degree repeatedly as you use it. And while Microsoft provides a sea of privacy-related options to configure, it's not possible to fully disable certain behaviors using the interfaces in Windows 11. For example, there's no way to fully prevent Microsoft from collecting *telemetry data*, which it uses to help make the system more reliable for everyone. Instead, all you can do is minimize the amount of data that Windows 11 collects within the confines that Microsoft has established.

Your first chance to configure your Windows 11 privacy settings and the resulting data collection comes during the Windows 11 Setup Out of Box Experience (OOBE), which appears when you first set up a new PC or perform an upgrade or clean install.



In this screen, you are given the chance to disable several privacy settings, all of which are otherwise enabled by default. My advice is to disable all of these settings except for "Location," "Find my device," and, if available and you enjoy this functionality, "Presence," during the OOBE.

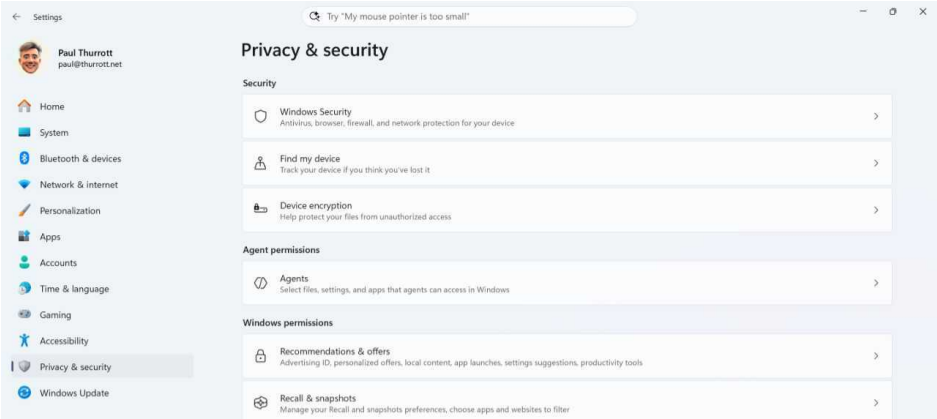
But it's possible if not likely that you might have skipped past this screen during Windows Setup like Microsoft wants or don't remember how you configured these options. So this chapter explains my recommendations further and helps you correct any mistaken privacy settings configurations you may have made during the initial Windows 11 configuration.

If you can't be bothered wading through all this–Microsoft purposefully scatters the most important Windows 11 privacy options throughout the Settings app and, as noted, doesn't even offer a

way to turn off telemetry–then you can skip ahead to Completely disable Windows 11 telemetry and tracking at the end of the chapter. There, I describe a third-party utility that fixes the privacy issues in Windows 11 with just a few clicks.

Manually configure key Windows 11 privacy settings

You review and manage Windows 11 privacy settings by opening the Settings app and navigating to Privacy & security.



Examining all of these options is tedious, and it's unclear which are the most important to consider changing. That's by design: Though Microsoft provides an incredible list of privacy-related options to consider–what I call *privacy theater*–the most obvious and desirable option, for disabling the telemetry data that Windows 11 sends back to Microsoft automatically, is not among them.

Given this, I have repeatedly scoured this mountain of privacy settings to try and determine which are the most deserving of your attention. And I am surprised to report that the several privacy settings that Microsoft presents during the OOBE are, in fact, among the most important. And so the most obvious way you can protect your privacy while using Windows 11 is to configure these settings correctly.

Hopefully, you will make these configuration changes during the OOBE, before you start using Windows 11. But if not, this section explains where you can find these options in Privacy & security settings. Perhaps not surprisingly, they're spread out all over the place.

Location

When *Location services* is enabled, Windows provides your location data to apps and services like Widgets and the Weather app that need this information to provide a custom experience. Windows and Microsoft Store apps can also individually request to use your location data.

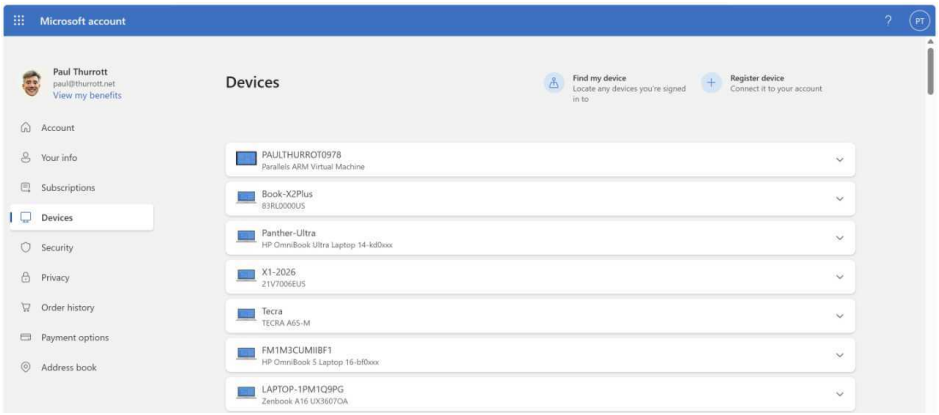
The catch is that Microsoft will also use your location data to improve its location services. But because doing so is mostly innocuous or even desirable, I recommend configuring setting this setting to "On."

To do so, open Privacy & security settings and select "Location" under "App permissions."

Here, you can toggle location services globally, toggle it for all apps, or individually determine which apps can access your location data.

Find my device

Windows 11 supports Microsoft's *Find my device* service, which stores the last known location of the PC you are now using in your Microsoft account. You can view all the PCs and other devices associated with your Microsoft account and access Find my device on the Microsoft account website.



Find my device is an incredibly useful feature. Because it can help you find a lost or stolen PC, I recommend configuring this setting to "On."

To do so, open Privacy & security settings and select "Find my device" under "Security." This one is easy, it's either "On" or it's "Off."

Optional diagnostic data

Microsoft requires that individuals using Windows 11 allow it to collect telemetry data–which it calls *diagnostic data* here and in its Windows privacy report–so that it can detect, diagnose, and fix problems with everyone's PCs as quickly as possible.

> **Tip**: You can find out which data it collects on the Microsoft Learn website, but you cannot disable this data collection as an individual using tools built into Windows 11: Only corporations with thousands of users that pay Microsoft a lot of money each year can do that. But you *can* do

so with a third-party utility. Check out the section Completely disable Windows 11 telemetry and tracking to learn more.

Basic telemetry data is one thing, and one might make an argument that this data improves the Windows 11 experience for everyone and is thus a net positive. But Microsoft would like to collect even more data, including your web browsing history, connectivity and configuration data, inking and speech data, typing data, and more. I strongly recommend configuring this setting to "Off," which will disable this additional, optional, and more dubious data collection.

To do so, open Privacy & security settings, select "Diagnostics & feedback" under "Windows permissions," and ensure that "Send optional diagnostic data" is set to "Off."

Tip: You may wish to delete the diagnostic data that Microsoft has collected on this PC already. You do so by clicking "Delete diagnostic data" on this page and then clicking the "Delete" button that appears. Unsurprisingly, Microsoft doesn't offer a way to automate this so that it happens on a schedule automatically.

Tip: Don't bother with the "View diagnostic data" option: The data you view in the Diagnostic Data Viewer that it mentions is raw XML, an unfriendly markup language that is not in any way useful.

Inking & typing

This setting will send additional and optional data associated with *inking and typing* to Microsoft so that it can improve its language recognition and suggestion capabilities.

Though this is the most innocuous of the privacy settings you can configure during Windows Setup, I recommend configuring this setting to "Off," which will disable this optional data collection.

To do so, open Privacy & security settings, navigate to "Diagnostics & feedback" under "Windows permissions," and locate "Improve inking and typing." You can expand this option to make sure you're not sending too much data to Microsoft.

> **Tip**: There is another inking and typing setting in Privacy & security settings called "Inking and typing personalization," which you can find under "Windows permissions" too. This setting is related to the custom dictionary that Microsoft creates for you as you write with a smart pen and/or keyboard and is generally innocuous and useful and should be left enabled. That said, you may want to review your custom dictionary from time to time here. And, if desired, you can delete the entire dictionary (but not, oddly, individual words).

Personalized offers

When enabled, this setting lets Microsoft use your diagnostic data, including optional diagnostic data (aside from web browsing history) if enabled, so that it can offer you "personalized tips, ads, and recommendations."

This is really just about advertising: There is nothing "tailored" about the experiences that Microsoft offers Windows 11 users. Instead, it spams you with advertisements to use its other products and services. For this reason, I strongly recommend not enabling this feature. Instead, configure it to "Off."

To find this setting, open Privacy & security settings, navigate to "Recommendations & offers" under "Windows permissions," and make sure "Personalized offers" is configured to "Off."

And while you're here, disable the following options too.

- **Show notifications in Settings**. This setting determines how often Settings can notify you when there is a problem related to your Microsoft account or other system-level configuration. As it notes, Settings will still display "required notifications" if you configure this to "Off." Do so, as the non-required notifications are just advertisements for Microsoft apps and services.
- **Recommendations and offers in Settings**. Microsoft peppers Windows 11 with so-called *suggestions*, which are really just advertisements for other Microsoft apps, services, or features. There is no benefit to these intrusions.

Advertising ID

Related to the above setting, Microsoft will assign a unique identifier called an *advertising ID* to your user account on each PC you use so that it and third-party advertisers can track your activities online, see which websites and apps you use, and then offer you customized advertisements based on that data.

For obvious reasons, you should not enable this setting: Instead, configure it to "Off." To do so, open Privacy & security settings, click "Recommendations & offers" under "Windows permissions," and then locate the option "Advertising ID."

> **Tip**: I occasionally hear from readers who believe that targeted advertising is somehow preferable to non-targeted advertising. It's not. Non-targeted ads are just as effective as those that track you online, and there is no benefit to allowing Microsoft and its advertising partners to track your activities.

Presence

On PCs with compatible *proximity sensors*, the OOBE will display this additional setting so that you can globally enable or disable the Windows 11 Presence Sensing feature, which the system uses to physically detect you and automatically wake up the PC when you approach, turn off the display when you leave, and dim the screen when you look away.

Presence Sensing is an incredibly useful set of features. But when you enable it in the OOBE, Windows 11 will by default also allow apps–downloaded from the Microsoft Store and the web–to access Presence Sensing too. This is not mentioned in the OOBE, so I recommend reviewing this later in Privacy & security settings. Unless, of course, you are comfortable with apps using this feature.

To review this setting, open Privacy & security settings, scroll down to "App permissions" and click "Presence Sensing."

Here, you can choose how to configure this set of features. If you toggle "Presence Sensing access" to "On," you can separately consider whether you should enable apps–Store and/or desktop apps specifically–to access these features.

Additional privacy settings to consider changing

In addition to the several big bucket privacy settings that Microsoft presents to you during the Windows Setup OOBE, there are several others hidden away in Privacy & security settings worth examining and, in most cases, configuring differently.

Windows permissions > Recommendations & offers

Allow websites to access my language list. This seemingly innocuous and even useful setting is less useful than it may appear: Your "language list"–which for most people is a single language–is geographically broad and can be used by Microsoft and others to fingerprint you. I disable this option.

> **Tip**: You can find your language settings, including the list of languages configured on this PC, in the Settings app too. Navigate to Time & language > Language & region and review the language(s) listed in the "Language" section.

Improve Start and search results. This easily misunderstood feature has nothing to do with tracking your activities and is instead exactly what Microsoft claims: It can make the results you obtain with Search more accurate *for you*. That is, if you fumble-finger while searching for the Calculator app and mistakenly type *cam* but then select "Calculator" from the search results, the next time you search and type *cam*, "Calculator" will be the top choice in the results (ahead of "Camera," which is technically more accurate). I recommend leaving this setting "On."

Windows permissions > Diagnostics & feedback

Feedback frequency. Windows 11 will prompt you to provide it with feedback from time to time, often after a system or app failure. In a perfect world, Microsoft would respond to this feedback by improving the product and by letting you know that it appreciates your efforts. But this is not a perfect world, and Microsoft appears to ignore most of the feedback it receives about Windows 11. So there is no reason for you to be bothered with prompts to provide it: Configure this option to "Never."

Windows permissions > Search permissions

Search my accounts. By default, Windows Search will personalize the results it provides using your content in Bing, OneDrive, Outlook, and other Microsoft services tied to your Microsoft account (and/or Microsoft Work and School account). If you don't want this, configure the Microsoft account option (and/or the Work or school account option) to "Off."

Search the contents of online files. As per the above option, you can configure this or the OneDrive sub-option to "Off" if you don't use cloud storage services or just want Windows Search to search only your PC's storage.

Show search highlights. You should disable "Show search highlights," as this feature is designed solely to put you in front of Microsoft advertising displayed on Microsoft online services like MSN and Bing.

> **Learn more**: Windows Search

Completely disable Windows 11 telemetry and tracking

While I try to focus on the built-in functionality in Windows 11 in this book, Microsoft makes it difficult or impossible to perform certain tasks, many related to its ongoing enshittification of this platform. And so we must occasionally turn to third-party utilities that let us do what Microsoft does not.

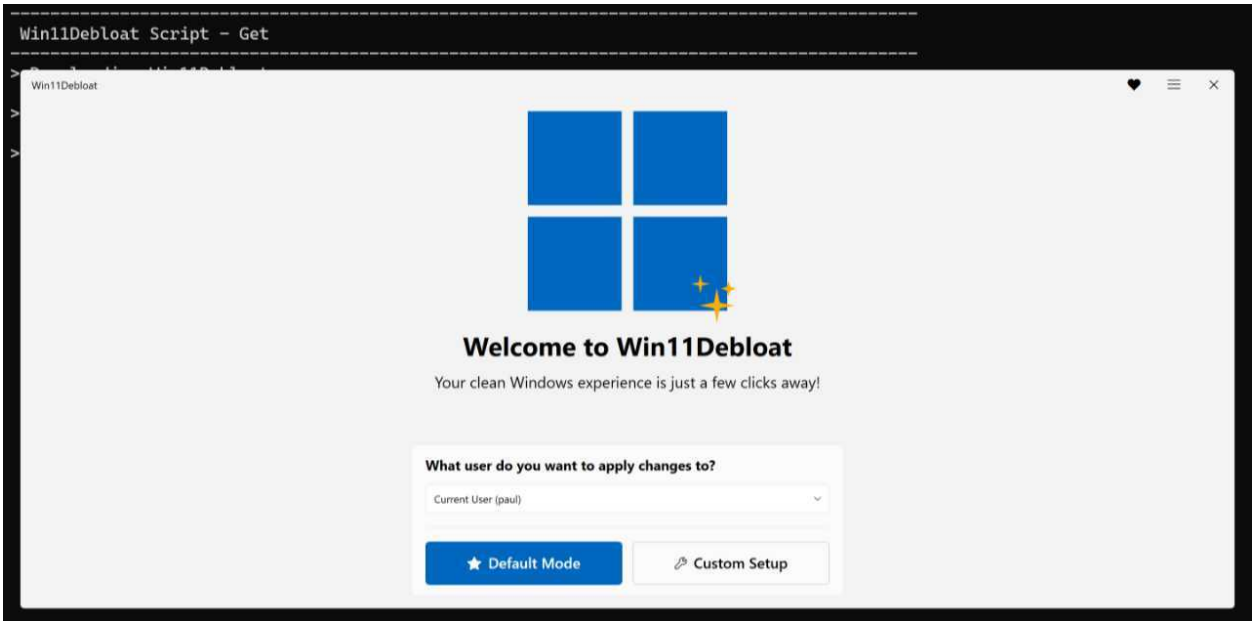
Win11Debloat is among the best of those utilities. It's free and lets any Windows 11 user de-enshittify the system in a myriad of ways. Here, however, I will focus solely on its privacy-protecting capabilities, most notably its ability to completely disable telemetry tracking.

> **But wait, there's more**: I have a separate book, *De-Enshittfy Windows 11*, that goes into far more detail about Win11Debloat and other ways you can make Windows 11 work for you and not against you. You can learn more, and if interested, buy the book, at Leanpub.

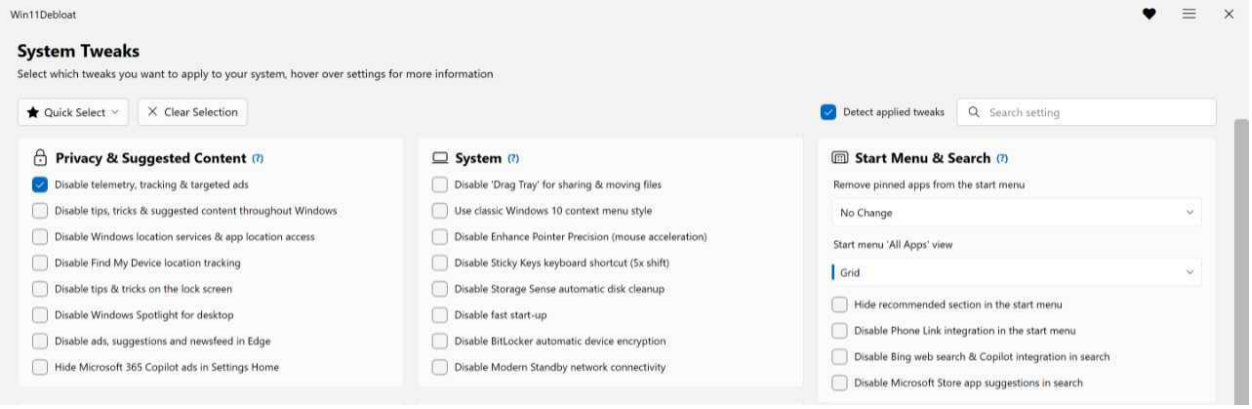
To get started, visit the Win11Debloat page on GitHub. In the Usage section, its author explains how to get started, but the short version is to open Terminal with administrator privileges and run the following command line.

```
& ([scriptblock]::Create((irm "https://debloat.raphi.re/")))
```

This command runs a remote script that downloads and runs the Win11Debloat app.



From here, click “Custom Setup” to navigate to the App Removal stage. We’re not removing any apps, so click “Next” to navigate to the System Tweaks page. This is where things get interesting: The “Privacy & Suggested Content” section in the upper-right contains a “Disable telemetry, tracking & targeted ads” option you will select to turn off telemetry completely.

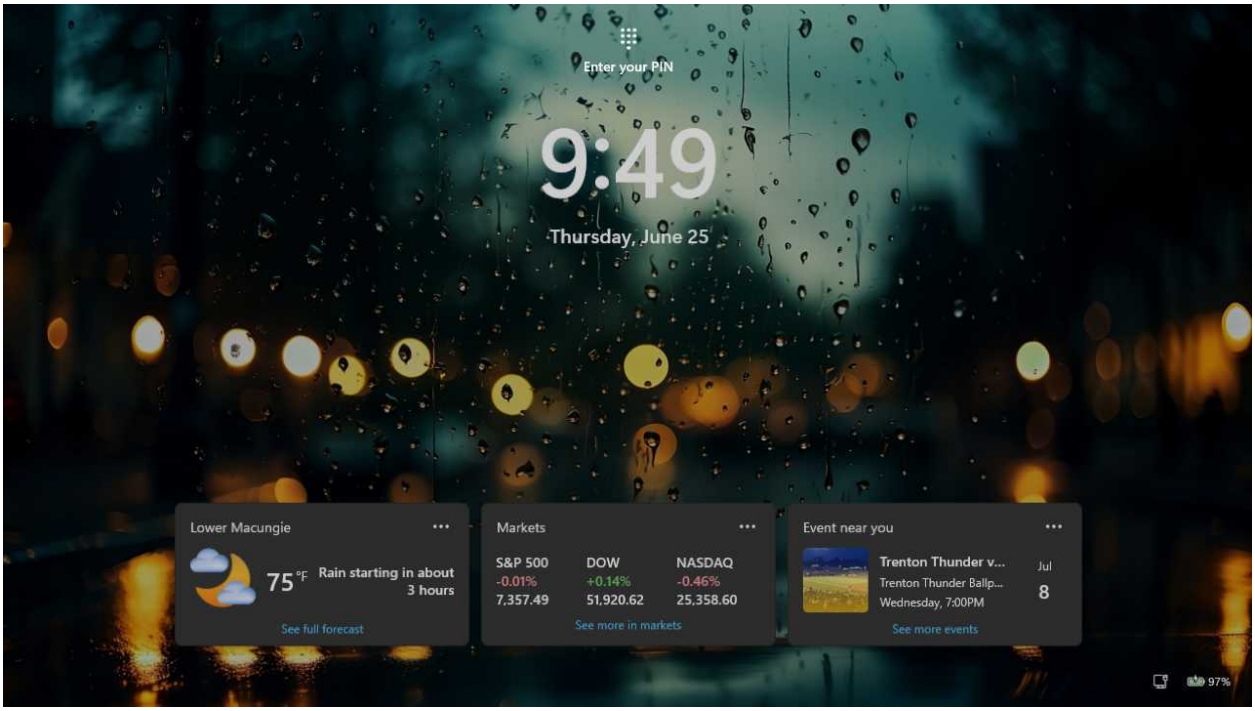


That’s everything you have to do, but since we’re here, you might consider selecting the following options as well:

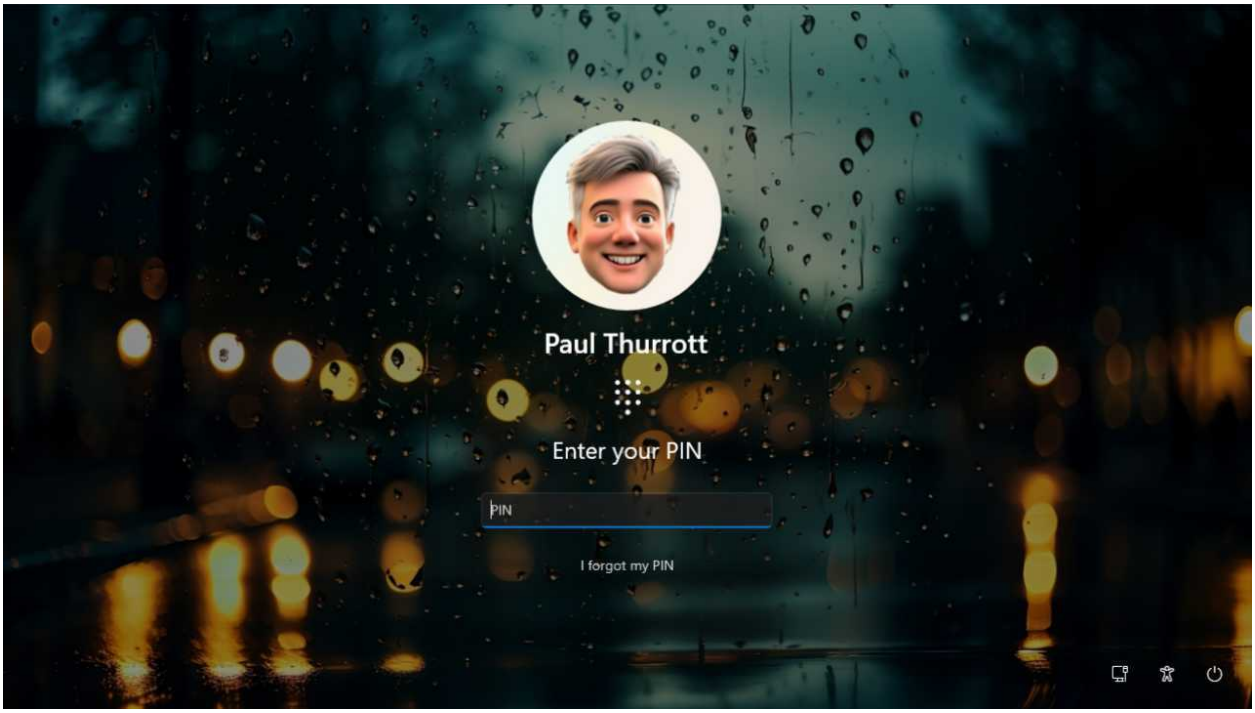
- Disable tips, tricks & suggested content throughout Windows
- Disable tips & tricks on the lock screen
- Disable ads, suggestions and newsfeed in Edge
- Hide Microsoft 365 Copilot ads in Settings Home

Whatever you choose, click “Next” to continue and then “Apply Changes.” When it’s done configuring Windows 11, you can click “Close” to exit the app.

Customize the Lock and Sign-In Screens



The Windows 11 *Lock screen* appears when you wake up, power on, or lock your PC.



When you tap a key, click the mouse, or touch the display, the *Sign-in screen* appears so you can sign-in and get to work.

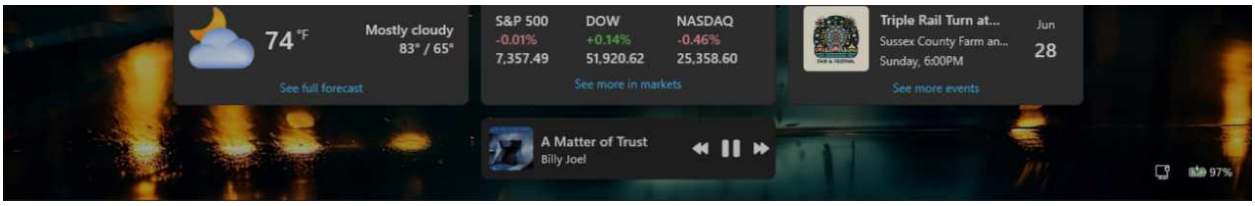
> **Tip**: When configured, features like Presence Sensing and Windows Hello facial recognition work together to sign you in immediately, bypassing the Lock and Sign-in screens.

Defaults

The Lock screen is configured with the following defaults:

- The background is provided by *Windows spotlight*, which displays a new, high-quality photo from Bing every day. These photos are pleasant and of very high quality, and they are accompanied by interactive and informational bubbles that provide you with more details about that day's photo.
- A large, centered time and date display.
- A Network status icon and, for laptops, a battery life status icon with percentage in the bottom right of the display.
- With a new install, you will see a single *widget*, centered on the bottom of the screen, for Weather that displays the weather forecast using the current location and temperature unit.

But it is more likely that your Lock screen displays four widgets aligned horizontally, which is the maximum Windows 11 allows.
- If an app is playing media and your PC's screen is locked, you will also see basic media playback controls below the Weather widget or whatever widgets you've configured to appear on the Lock screen.



The Sign-in screen is configured with these defaults:

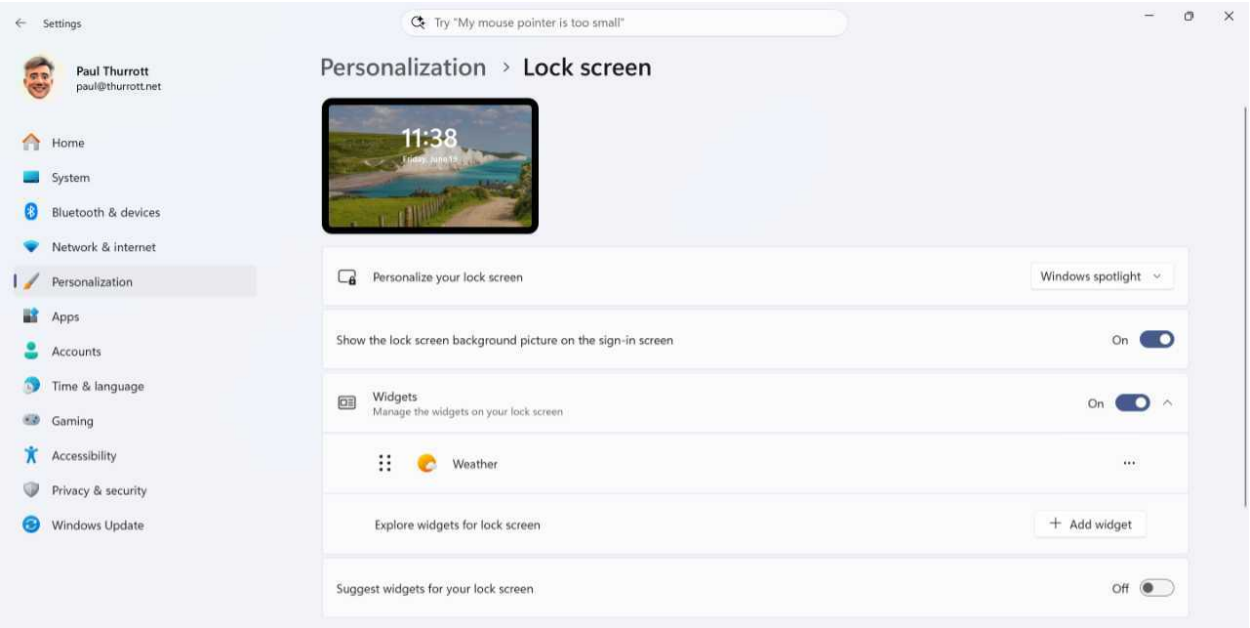
- The background is the same as that used by the Lock screen, so it uses Windows spotlight by default as well.
- The profile picture and username for the most recently signed-in user appears center on-screen with PIN, password, and other sign-in options.
- If there are multiple users configured on this PC, you will see icons for them in the lower left of the screen.

Customize the Lock and Sign-in screens

You can customize the Lock screen and Sign-in screen if desired.

Customize the Lock screen

The Lock screen is surprisingly customizable, though the options fall into two main categories: The background it displays and the widgets it can contain. Each can be configured in the Settings app by navigating to Personalization > Lock screen.



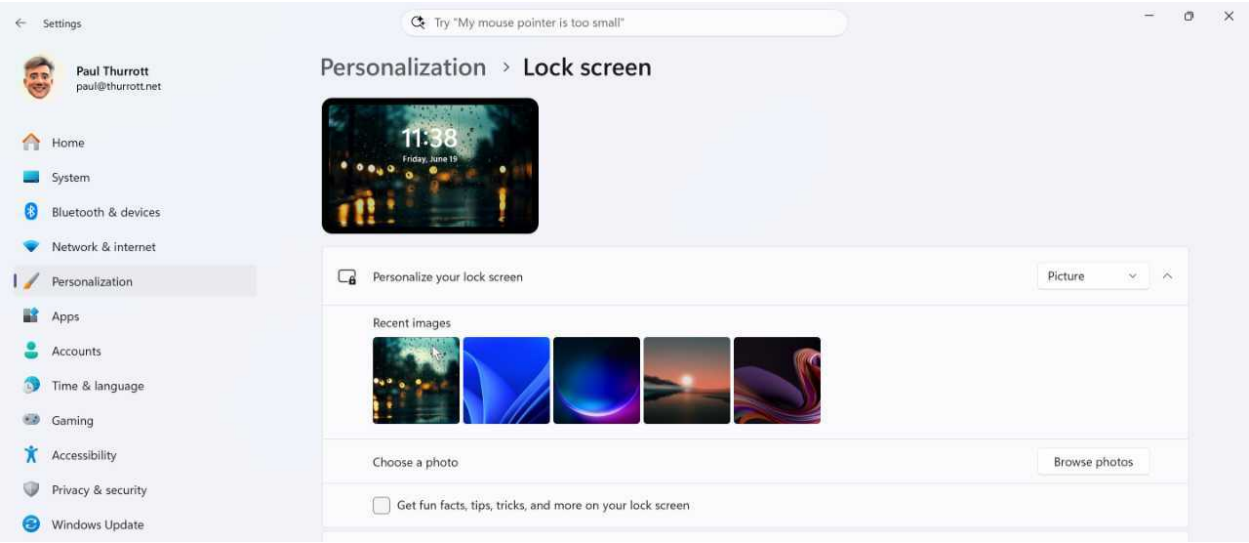
Configure the Lock screen background

The "Personalize your lock screen" option lets you configure the type of background the Lock screen displays.

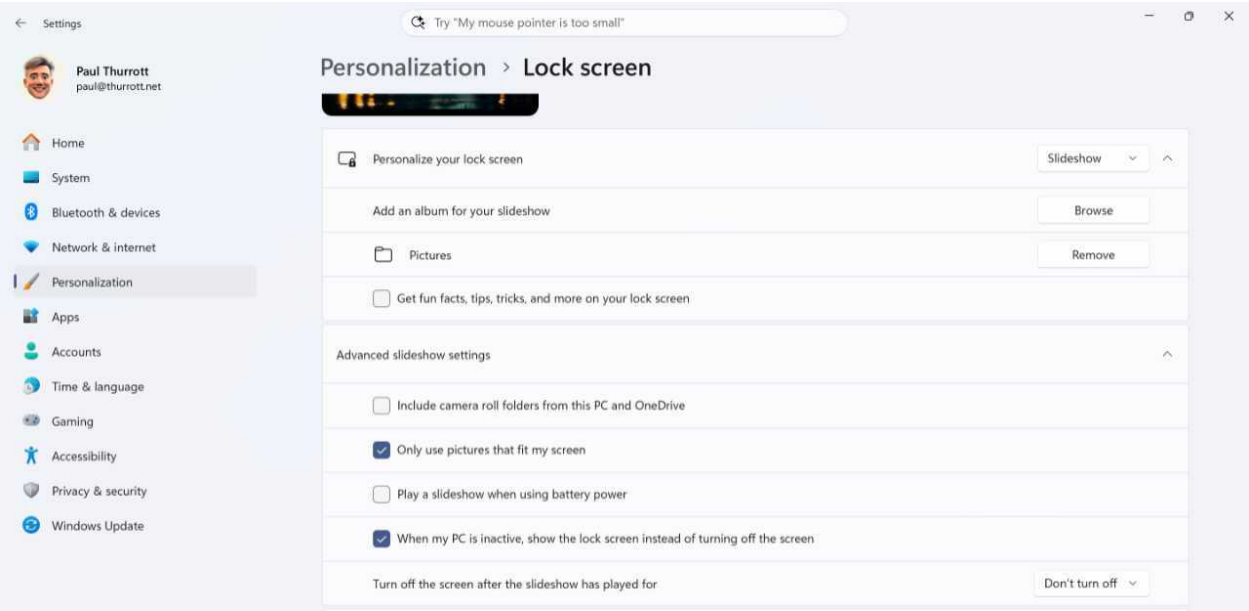
There are three choices.

Windows spotlight. As noted above, this is a different high-quality image each day with accompanying details about the image.

Picture. This lets you choose an image using a grid of recent images or click "Browse photos" to find a specific image.



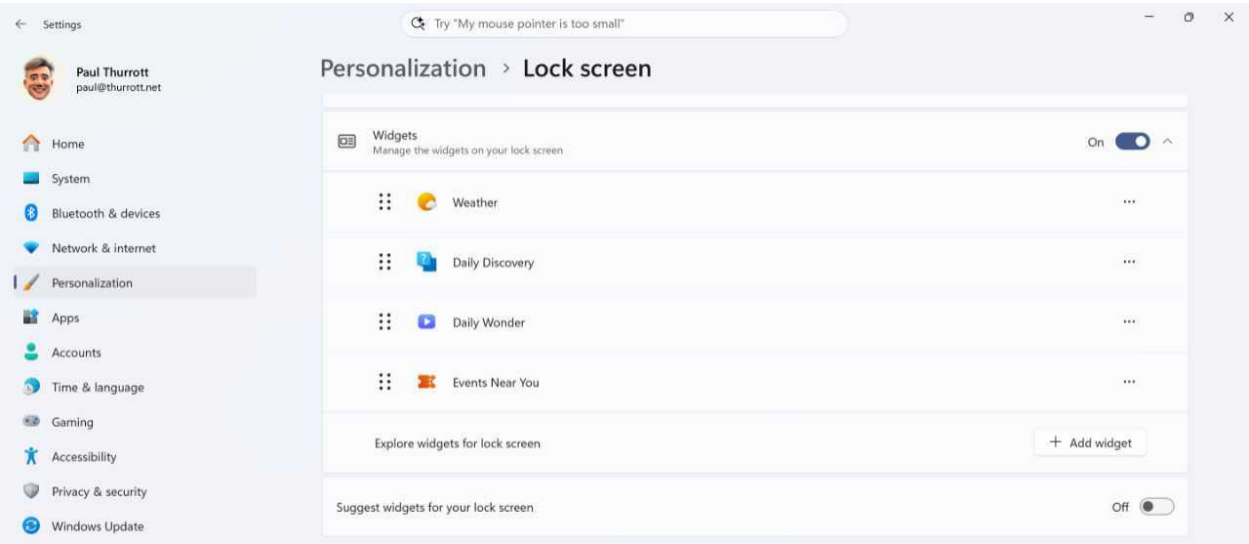
Slideshow. This presents a more complicated set of options with two "albums" (the contents of your Pictures folder and the Public Pictures folder) preselected as the sources for the slideshow, a lame "Get fun facts, tips, tricks, and more on your lock screen" option you can toggle on or off, and a list of advanced slideshow settings.



Configure the widgets on the Lock screen

If you are starting with a new installation of Windows 11 in 2026, the "Widgets" option will be enabled along with a single widget, Weather. But it's more likely that you will see multiple widgets enabled, with Daily Wonder, Daily Discovery, and Events Near You appearing as well. You can display up to four widgets on the Lock screen, and they will appear next to each other

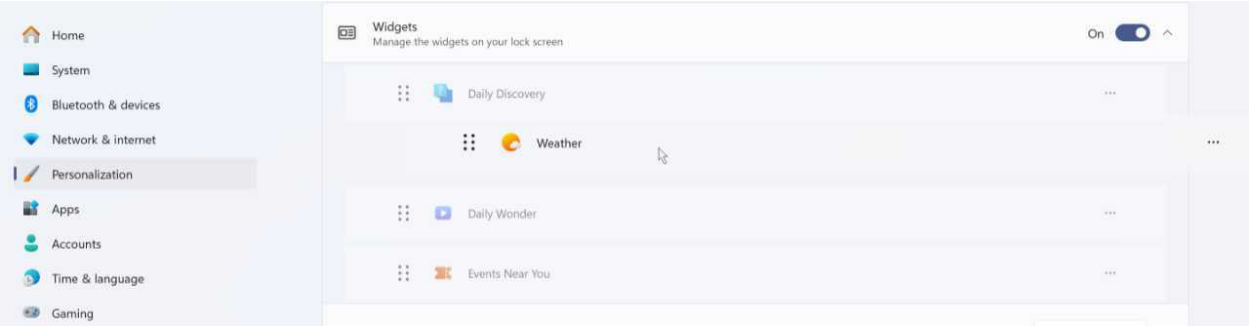
horizontally at the bottom of the display.



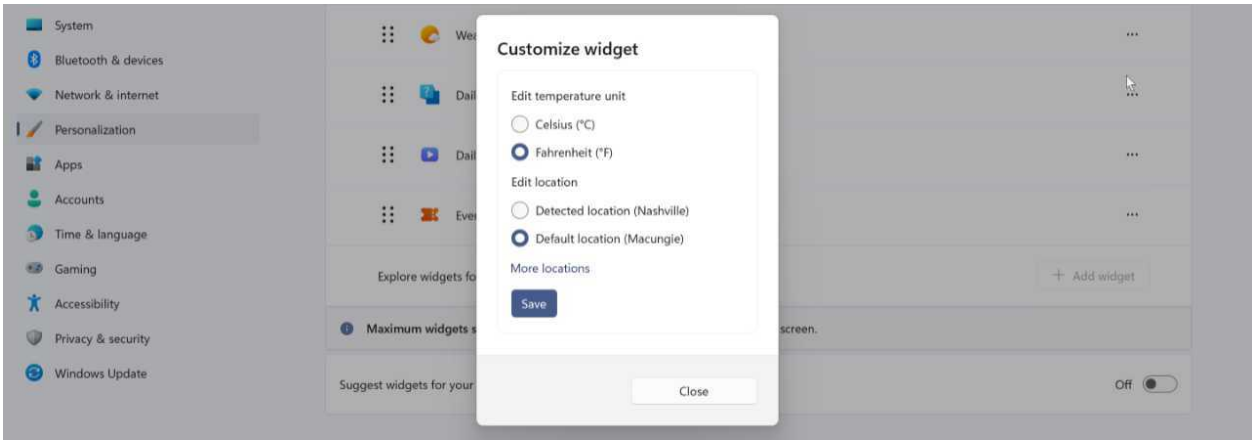
Regardless, you can make the following customizations here.

Disable widgets on the Lock screen. To disable widgets on the Lock screen entirely, configure "Widgets" to "Off."

Reposition a widget. If you have two or more widgets enabled, you can reposition them from left to right on the Lock screen by dragging them up or down, respectively, in the list of widgets that appears under "Widgets." To do so, just grab a widget in the list with the mouse cursor and move it.

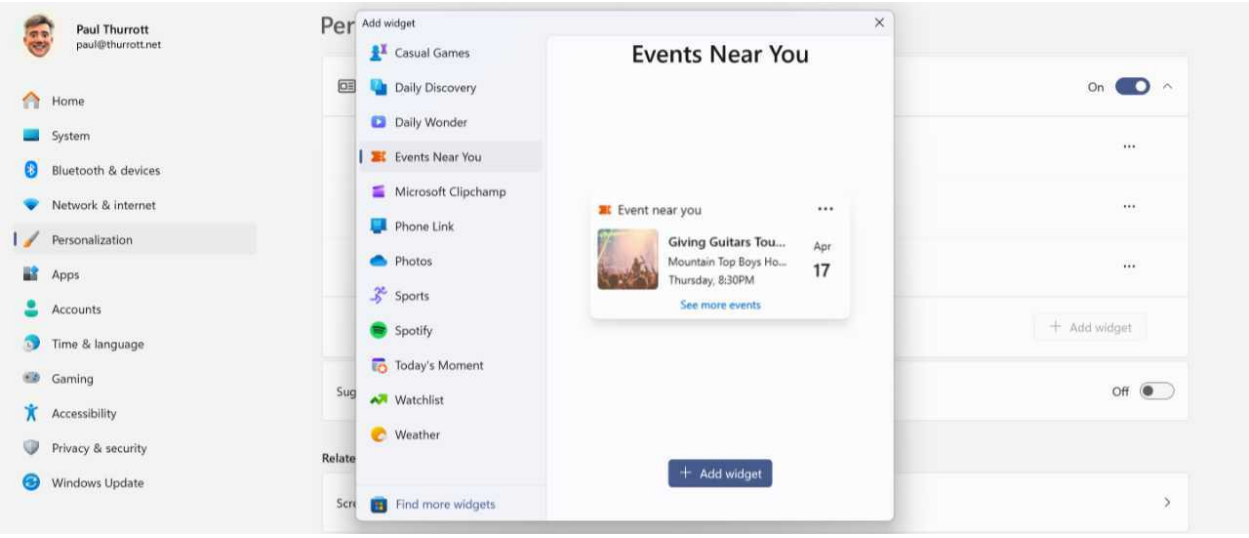


Customize a widget. If you click the "More options" ("...") link to the right of a widget in the list under "Widgets" and see a "Customize widget" item in the pop-up menu that appears, then you can configure it in some way. Only a few widgets support this. Weather is one of them: You can configure its temperature unit to be Celsius or Fahrenheit and its location to be the detected location, your default location, or any other location.



Remove a widget. You can remove any widget in this list by clicking the "More options" ("...") link to its right and selecting "Remove" from the pop-up menu that appears.

Add a widget. If you click the "+ Add Widget" button, you can choose between several widgets or click a "Find more widgets" link to browse the available widgets in the Microsoft Store.



> **Tip**: You can only display four widgets on the Lock screen. If you already have four widgets and add a new widget, it will replace the fourth one in the list. And some widgets will not work on the Lock screen because they don't support the required size.

Let Windows suggest widgets for the Lock screen. The option "Suggest widgets for your lock screen" is a bit misleading. If you enable this option, it won't suggest widgets, it will add three widgets–Daily Wonder, Daily Discovery, and Events Near You–to your Lock screen.

Customize the Sign-in screen

The Sign-in screen has just two options you can customize. Oddly, they are found in different places in the Settings app.

Show the lock screen background picture on the sign-in screen. This option is found in Settings > Personalization > Lock screen and it is enabled by default. If you configure it to "Off," the Sign-in screen will display a plain black background instead of the Lock screen background.

Show account details such as my email address on the sign-in screen. This option is found in Settings > Accounts > Sign-in options in the "Additional settings" section and it is disabled by default. If you enable it, the email address associated with your sign-in account will appear below your name, if available.

Use the Lock screen like an interactive smart display

While the Lock screen isn't necessarily ideal for these use cases, it's possible to use it interactively in certain circumstances. The problem is that the Lock screen is designed to be transient. So even if your PC isn't configured to launch immediately into a Windows Hello-based sign-in, you can very click on-screen with the mouse or tap a key on the keyboard and dismiss the Lock screen purposefully or not.

That said, you can view the Lock screen at any time by opening Start, clicking the "Power" button in its bottom-right, and choosing "Lock" from the pop-up menu that appears. This is called "locking" your PC, and it's a way to keep your current sign-in session active while preventing others from accessing it. But you can also trigger it to use specific Lock screen features.

> **Keyboard shortcut**: You can also lock your PC by typing Windows key + L.

Some key examples include:

Display photo slideshows. If you can figure out the Slideshow interface I glossed over above, you can use the Lock screen to display your personal photos in slideshow form. This may seem nice, but photo slideshows are subject to the finicky nature of the Lock screen. Plus they lack some obvious features you get when you use a slideshow for the Desktop background, like the ability to shuffle or determine how long each photo displays. It's better than nothing. But why these two slideshow interfaces in Windows 11 are so different is unclear.

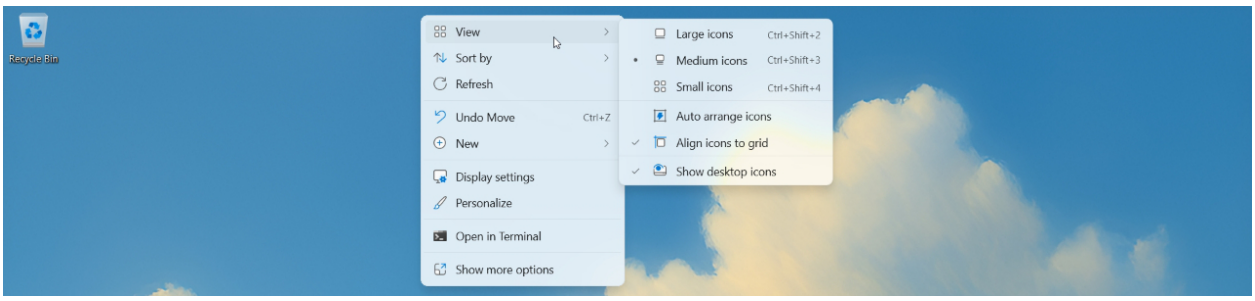
View and interact with widgets. While this isn't the easiest way to do so, you can view and interact with the widgets on your Lock screen while the PC is locked. If you click a widget, Windows 11 will shift to the Sign-in screen or just sign you in with Windows Hello, and then display the widget's underlying webpage or app. For example, if you click the Weather widget,

after you sign-in to Windows, Microsoft Edge will open and display the MSN website with a set of weather displays at the top.

Control media playback. If you're playing a video or music or some other audio in a web browser or other app and lock the screen, the Lock screen displays media playback controls below the widgets. This display identifies the content playing and provides Previous, Play/Pause, and Next buttons.

> **Tip**: You don't have to lock the screen to access these controls outside the browser or other app that's playing content. You can see and use the same interface above Quick settings, too.

Desktop



The Windows 11 Desktop works much as it did in Windows 10, but it has been updated with new iconography, simpler right-click context menus, and a new Windows spotlight background that provides a new high-quality photo every day.

Defaults

By default, Microsoft configures the Desktop to be mostly empty, with the background set to *Windows spotlight*, which displays a new high-quality image every day, usually from Bing. There are also three items on the Desktop by default:

- A Recycle Bin shortcut in the upper left
- A shortcut for the Microsoft Edge web browser
- A "Learn more about this picture" icon in the upper right, shown only if Windows spotlight is configured as the background

> **Tip:** Your PC maker can customize the Desktop, so you may see a different background and possibly some additional app shortcuts.

When you right-click the Desktop, a modern Windows 11-style *context menu* appears, as shown above. If you right-click an icon or other item on the Desktop, it will display using the same options found in File Explorer, and those options will vary depending on what you right-click.

Customize the Desktop background

To customize the Desktop background, open the Settings app and navigate to Personalization > Background. Here, you can choose between Picture, Solid color, Slideshow, and Windows spotlight.

> **Keyboard shortcut**: Type Winkey + I to open Settings.

Picture

You can choose between a grid of recently used images or find a new image by clicking the "Browse photos."

> **Tip**: The "Browse photos" option opens a standard File Open dialog that displays the contents of your Pictures folder. You can find the background images that Microsoft supplies with Windows 11 by navigating to C:WindowsWeb.

Solid color

This option lets you choose a solid color to use for the background.

Slideshow

Choose this to rotate the background between a selection of images you specify.

Windows spotlight

Windows spotlight will automatically display a different high-quality photo as your Desktop background each day.

To learn more about the current background photo, click the "Learn more about this picture" icon, and Microsoft Edge will open and display Bing search results related to the photo.

To switch to a different photo or rate the current photo, right-click the "Learn more about this picture" icon.

Tip: Download a favorite Windows spotlight photo

Some Windows spotlight photos are breathtaking enough that you may wish to save a copy for yourself.

These images are temporarily stored in a hidden location in the file system, but without filename extensions, so it can be tedious finding the one you want. You can copy these files to another location in the file system and then rename them with a *.jpg* extension to view them more easily.

You may find it easier to use a third-party tool to save these images. The Windows Spotlight Images website backs up original-quality versions of these photos and is searchable. And the Dynamic Theme app, which is available from the Microsoft Store, acts as a replacement for Windows spotlight that not only displays the same, high-quality images, but can also be configured to automatically download each photo locally.

Customize which icons appear on the Desktop

Windows 11 only displays a single Desktop icon, Recycle Bin, by default. But you may recall that previous Windows versions offered other Desktop icons like My Computer and My Network Neighborhood. If you miss these icons, you can still display their modern equivalents on the Desktop in Windows 11.

To do so, open the Settings app and navigate to Personalization > Themes. Then, click “Desktop icon settings” (below “Related settings”) to open the Desktop Icon Settings window. Here, you can select the Desktop icons you wish to display, change the icon for each, and determine whether the current theme can customize those icons for you.

Customize the Recycle Bin

Most Windows users know that deleted files and other items are temporarily stored in the *Recycle Bin* by default so that you can recover them later if they were deleted mistakenly. You can open Recycle Bin and view its contents as you do with any file system folder, empty the Recycle Bin to free up disk space, and customize how the Recycle Bin works.

View the contents of the Recycle Bin

You can view the contents of the Recycle Bin just as you would any file system location: Just double-click it, and a File Explorer window opens. Now, you can drag-and-drop items to remove them from the Recycle Bin or right-click one or more items to access a *Restore* command–which will put those items back in their original locations–and other options.

Empty the Recycle Bin

Right-click the Recycle Bin icon on the Desktop and choose "Empty Recycle Bin" from the context menu that appears.

Pin the Recycle Bin to Start or Quick access

If you use the Desktop Icon Settings window described above to hide the Recycle Bin icon from the Desktop, you lose an obvious way to access or empty the Recycle Bin. Before doing that, you may wish to make the Recycle Bin available elsewhere. The right-click context menu offers two options: You can *pin* a Recycle Bin shortcut to the Start menu or Quick access (a File Explorer feature):

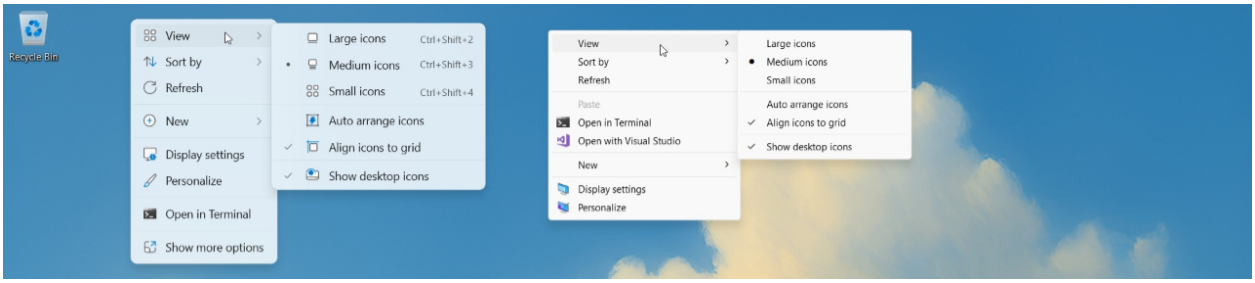
Pin the Recycle Bin to Start. Here, a Recycle Bin icon appears in the "Pinned" section in the top of Start, and you can move it around as you would any other pinned shortcuts.

Pin the Recycle Bin to Quick access. In this case, a Recycle Bin shortcut appears in both places that Quick access appears in File Explorer: The Quick access section at the top of the default Home page in File Explorer and in the navigation pane on the left.

> **Tip**: You can right-click either Quick access shortcut to access an "Empty Recycle Bin" option directly. If you use the Recycle Bin from Start, you must first open Recycle Bin in a File Explorer window and then choose "Empty Recycle Bin" from that app's toolbar to access this feature.

Customize the Desktop (and File Explorer) context menus

The Desktop (and File Explorer) context menus look modern and they are simpler than their predecessors in Windows 10, with fewer options. But Windows 11 lets you access the additional commands in the old Windows 10-style context menus when needed. And you can even revert to the old context menus permanently if that's desirable



Access the commands hidden by the Desktop context menu

If you right-click the Desktop (or an item on the Desktop) and don't see a command you need in the context menu that appears, click the item "Show more options." This will display the older, Windows 10-style context menu with additional choices.

Display all the commands in the Desktop context menu

To display the older, Windows 10-style context menu immediately, hold down the Shift key and then right-click the Desktop (or an item on the Desktop).

Switch back to the older Desktop (and File Explorer) context menu

To permanently switch back to the older, Windows 1-style context menus, you have to edit the Registry.

> **Warning**: This change will impact the context menus you see in File Explorer as well.

To do so:

- Open the Registry Editor app. You can find it by typing *reg* in Start search

- Navigate to HKEY_CURRENT_USERSoftwareClassesCLSID
- Right-click the CLSID key (it resembles a folder) and choose New > Key
- A new key appears with its name selected. Rename it to *{86ca1aa0-34aa-4e8b-a509-50c905bae2a2}* and tap Enter
- Right-click that new key and choose New > Key
- Rename the new key to *InprocServer32*
- The contents of the InprocServer32 key appear on the right-side of the Registry Editor. Double-click the "Default" item to open an "Edit String" dialog. Then, just click "OK": This changes the value of this item from unset to an empty value

With that done, you can close the Registry Editor and restart Explorer to see the change take effect. There are different ways to do that, including just rebooting the PC, but the quickest and simplest, perhaps, is to use Task Manager: Right-click the Taskbar, choose "Task Manager," type *explorer* in the search box at the top, and then right-click "Windows Explorer" in the Processes view and choose "Restart."

> **Tip**: To revert this change and go back to the Windows 11-style context menus, delete the *{86ca1aa0-34aa-4e8b-a509-50c905bae2a2}* Registry key you created using the instructions above. And then restart Explorer.

Customize Show desktop

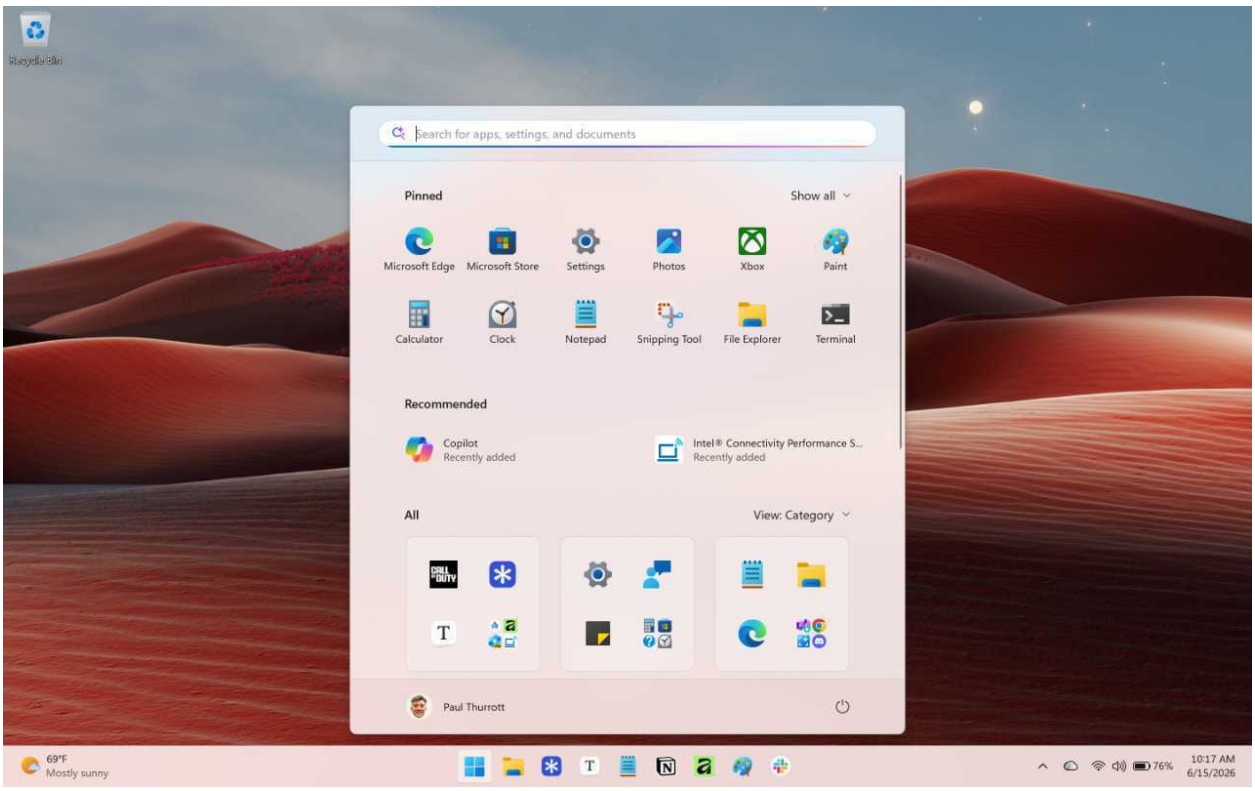
By default, Windows 11 provides a nearly hidden and tiny "Show desktop" button at the far right of the Taskbar, to the right of the time/date display. You can see it delineated if you mouse over this area. And you can click this small button to minimize all open apps and other windows so you can see the Desktop and access any items it contains. You can likewise click this button again to restore all open apps and windows to their previous locations.

> **Keyboard shortcut**: Type Winkey + D to toggle "Show desktop" at any time.

You can configure whether the "Show desktop" button appears in the Taskbar. For example, if you memorize the keyboard shortcut noted above, you may not need the button.

To do so, open the Settings app and navigate to Personalization > Taskbar. Then, expand the "Taskbar behaviors" section and locate the option "Select the far corner of the taskbar to show the desktop." When this option is On, "Show desktop" appears in the Taskbar.

Start



Start is the primary interface for launching apps and recent documents in Windows 11. You open it, as before, by clicking the Start button in the Taskbar. But as with the Taskbar, Start is simplified in Windows 11, and it's now a centered floating window, not a menu or full-screen experience or in previous Windows versions.

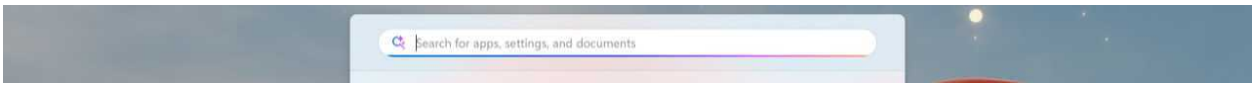
> **Keyboard shortcut**: You can also open Start by tapping WINKEY or by Ctrl + Esc.

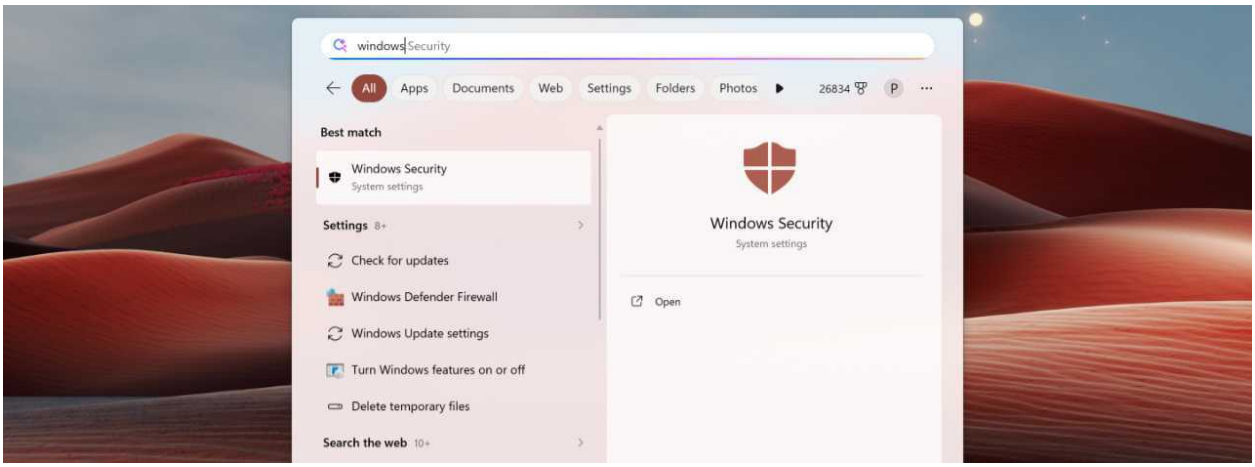
> **Tip**: As with previous Windows versions, you can open Start by clicking the Start button on the Taskbar or by typing WINKEY or CTRL + ESC.

Defaults

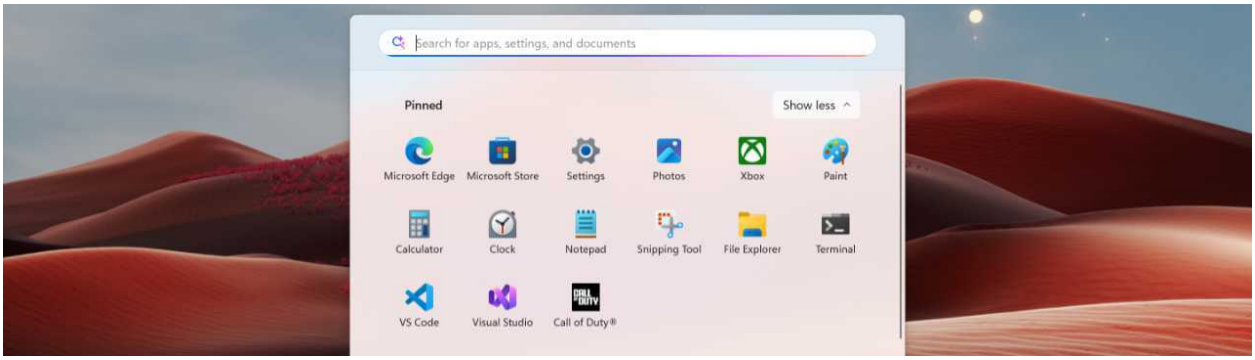
Start now offers a simplified user experience with the following interfaces.

Search. A prominent Search box at the top of Start lets you search for apps, settings, documents, and more, and you don't have to select it to get started. Just open Start and type. As you do, Start transitions into the Windows Search experience and provides filters so you can search only apps, documents, the web, settings, folders, or photos.



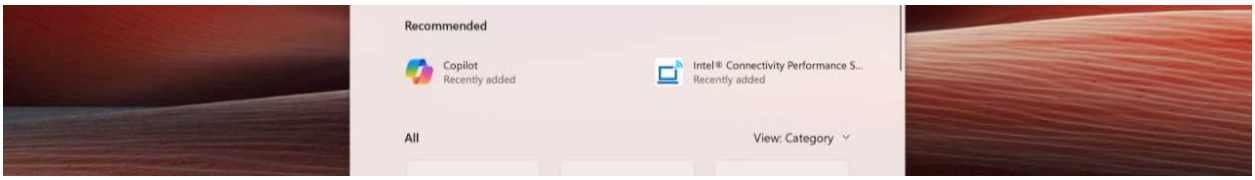


Pinned. This is a fully customizable grid of shortcuts you can access to launch your most frequently-used apps. Microsoft and your PC maker populate this section with shortcuts that you may or may not find useful. But you can delete or relocate pre-pinned shortcuts and add your own. You can also choose between an expanded or contracted view using a "Show all"/"Show less" toggle if there are enough shortcuts.

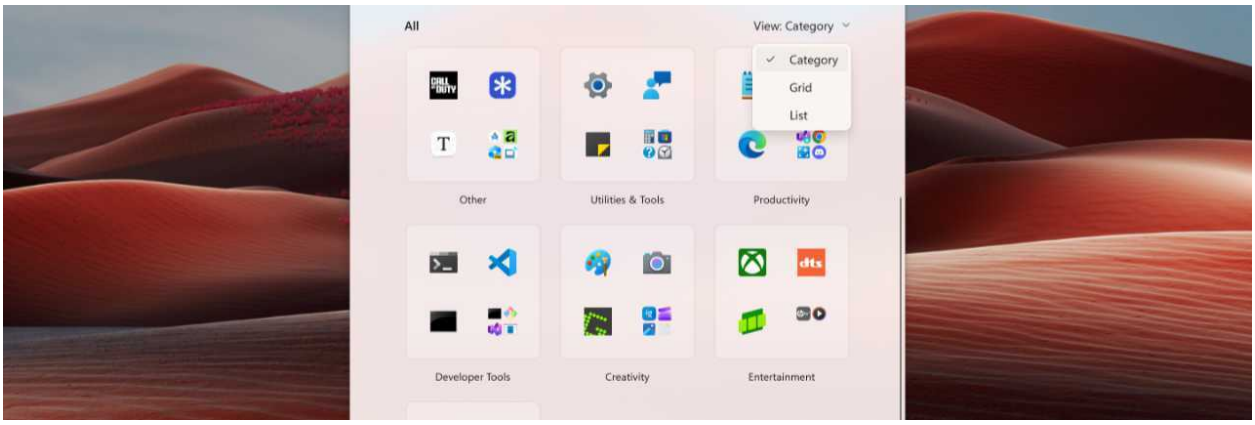


> **Tip**: You can right-click app shortcuts in the Pinned section to access a context menu with additional choices like “Run as administrator” and “App settings.”

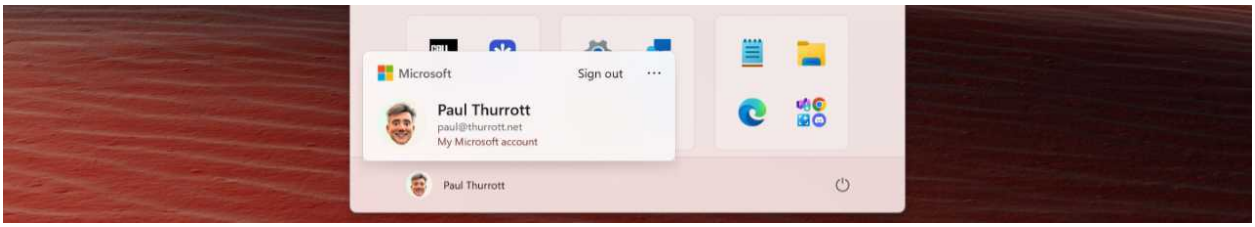
Recommended. This section displays recently installed apps; recently accessed documents, images, and other files, and suggested apps (which will download and install from the Microsoft Store if clicked) by default. You can configure Start to only show some of these recommendations if desired.



All. This section displays shortcuts for all the apps installed on your PC. It is organized using a Category view by default, but you can change it to a more useful and alphabetical Grid or List view.



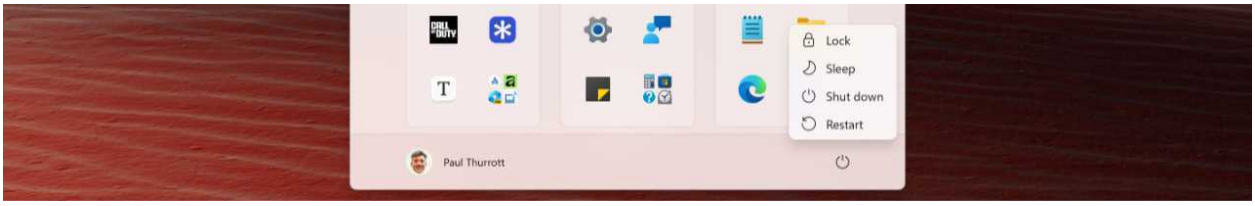
Account manager. At the bottom left of Start, you will find an Account manager button with your user profile picture and name. This displays an Account manager window when clicked with account-related notifications and a “Sign out” button.



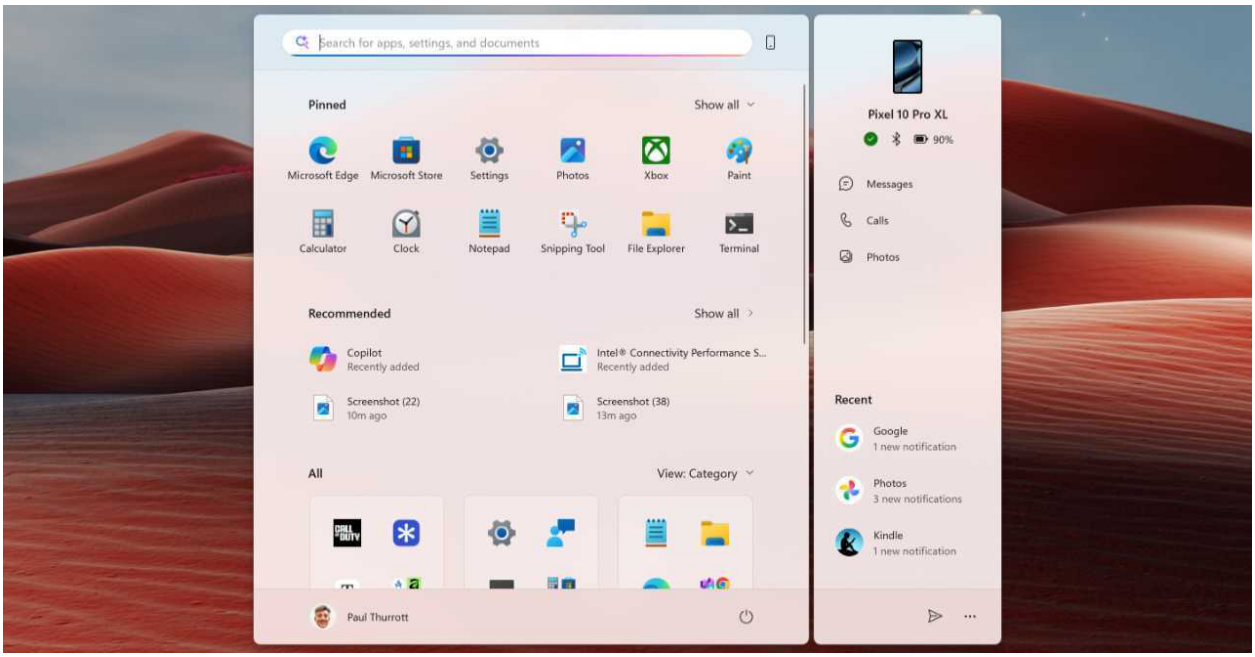
Folder buttons. None are displayed by default, but you can configure Start to display one or more system app and folder buttons–with choices that include Settings, File Explorer, Documents,

Downloads, Music, and others–between the Account manager and Power buttons at the bottom of the window.

Power. This button in the lower right of Start provides quick access to Lock, Sleep, Shutdown, and Restart options.

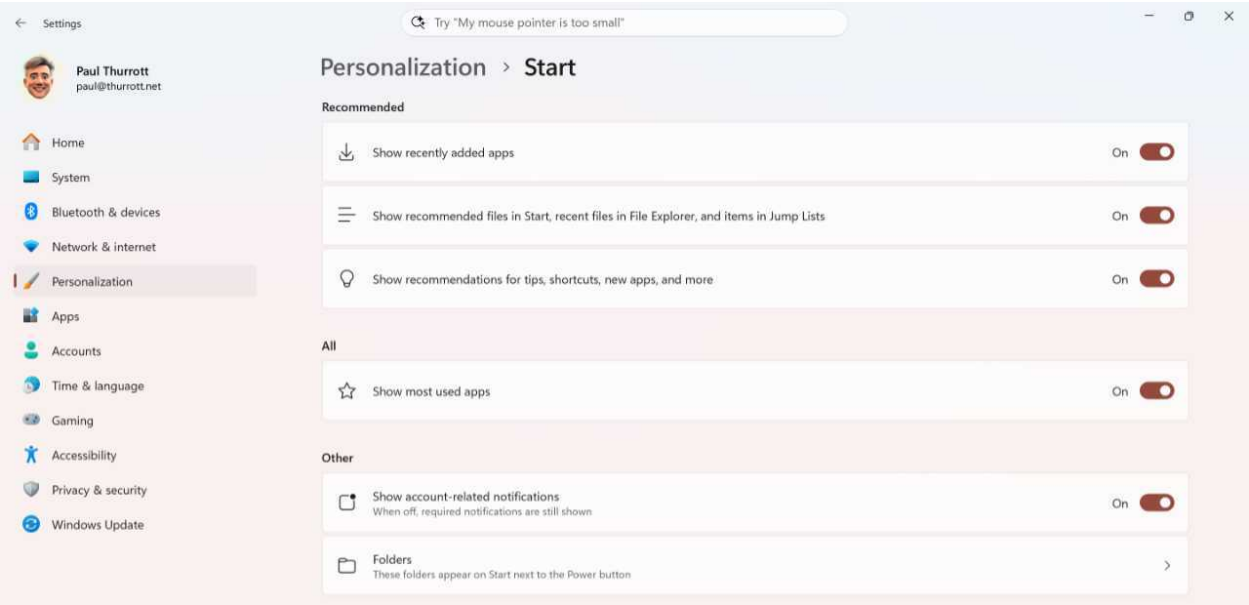


Mobile device. If you configure Windows 11 to access the content and capabilities of your smartphone or other mobile device, you can then access those features using the Phone Link app and, if enabled, a Mobile device *slice* on the right side of Start. There is also a "Hide mobile device/Show mobile device" button to the right of Search so you can toggle the slice on and off.



Customize Start

Some Start features are customized directly from the interface while most others require you to use the Settings app by navigating to Personalization > Start.



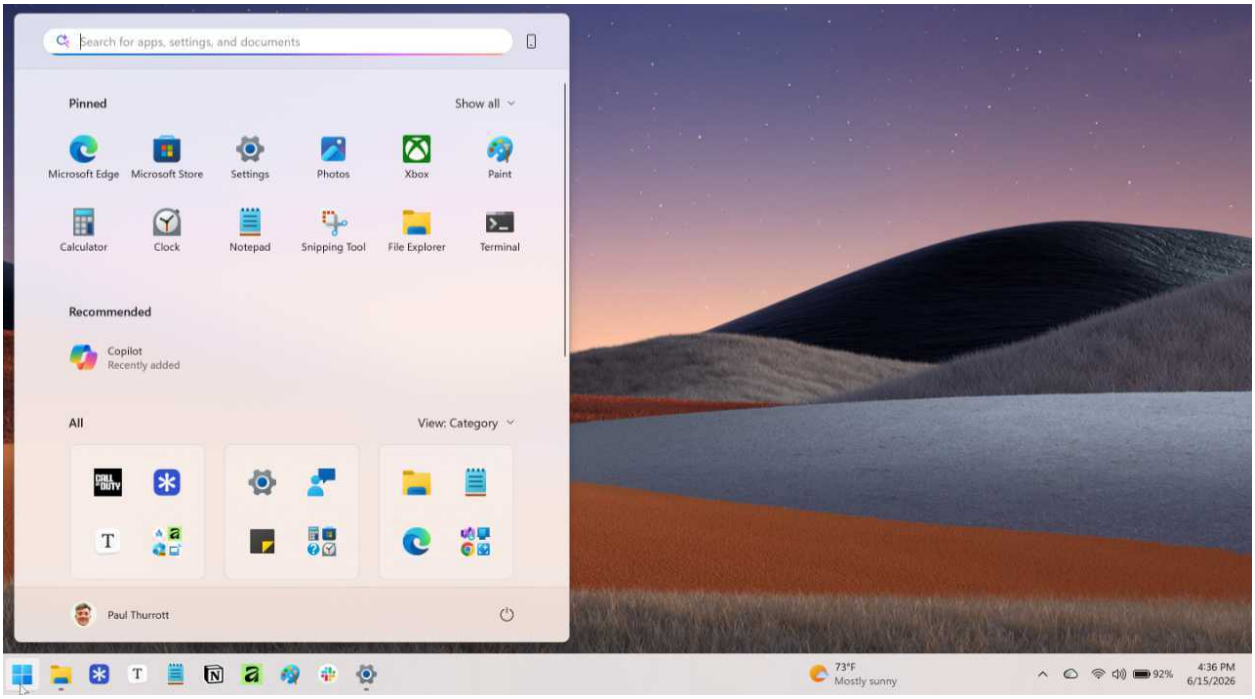
> **Tip:** You can also access this interface more quickly by right-clicking an empty area of Start and selecting "Start settings" (the only option) from the context menu that appears.

There are a few exceptions, however, so let's look at those first.

Move Start (and the Taskbar icons) to the left side of the display

Windows 11 centers Start and the Taskbar items and app shortcuts onscreen by default. But you can optionally left-align these items so that the system resembles the look and feel of previous Windows versions dating back to Windows 95.

To do so, open Settings, navigate to Personalize > Taskbar, expand "Taskbar behaviors," and change the Taskbar alignment option from "Center" to "Left." Note that the Widgets Taskbar item appears to the left of the system tray when you configure this layout.



Customize Search

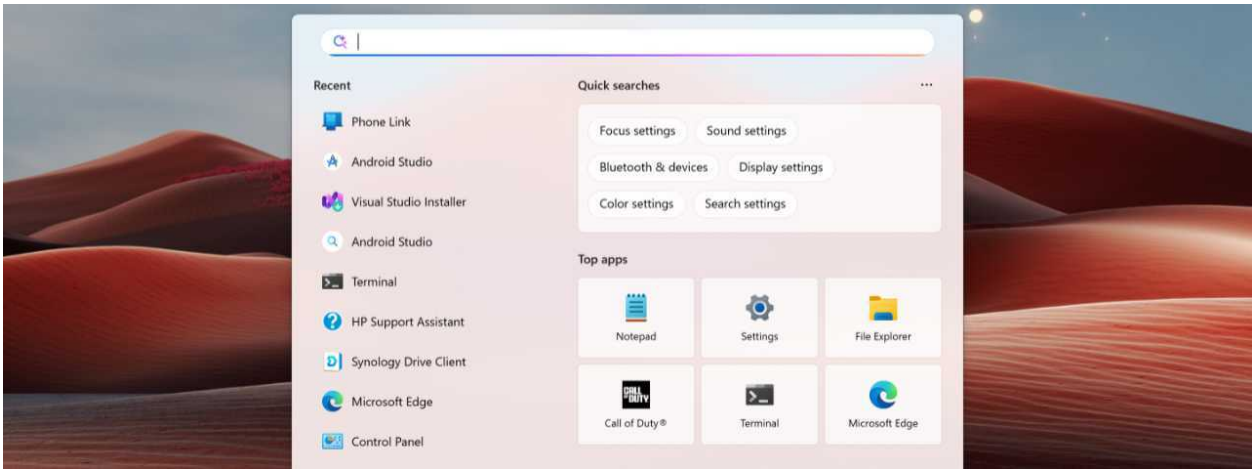
Windows Search is available in Start, but also via the Search Taskbar item and File Explorer. You can customize how Windows Search works in the Settings app by navigating to Privacy & security > Search.

> **Tip:** You can also get to this interface a bit more quickly by opening Start, clicking the Search box, clicking "Options" ("...") in the Search pane that appears, and then clicking "Search settings."

Windows Search options you should consider customizing

Some options to consider customizing include:

Show search highlights. Disable this option to hide the content suggestions that Microsoft makes in the Search box results and the Search pane. They're just there to get you to visit Microsoft sites online so you can be tracked and put in front of advertising, and they distract you from the task at hand. Windows Search is much cleaner without Search highlights.



Search my accounts. Windows Search will search content in your Microsoft account (and/or your Microsoft Work and School account) by default. You can disable that behavior here.

Search the contents of online files. Windows Search will search content in your OneDrive and, if configured, other compatible cloud storage services by default. If you use OneDrive, this is useful. But you can disable it otherwise.

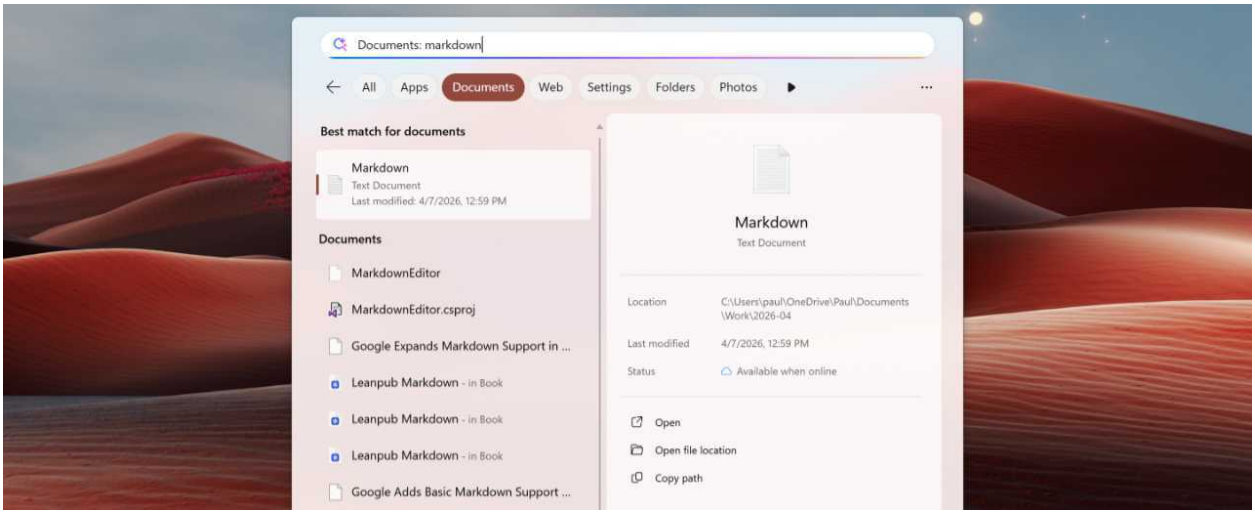
Find my files. By default, Windows Search will only *index* and search your Desktop, Documents, Pictures, and Music folders for local file searches. You can customize that by clicking "Customize search locations." But if you wish it to index and search your entire drive, you can choose "Enhanced" here and, optionally, add or remove specific folders from a list of locations that are excluded by local file searches.

> **Tip**: Search indexing improves the speed of file searches by creating a database of the files on your PC. This can be a lengthy and resource intensive task, but Windows 11 will only index the drive when you're not actively using the computer.

Configure Windows Search to only search files on your computer

Windows Search displays app, documents (files), and other results by default, and only documents and other files when you select the Documents filter above search results. If you want these interfaces to *only* display local files–meaning files on the PC you're using–disable the following in Search settings:

- Show search highlights
- Search my accounts
- Search the contents of online files

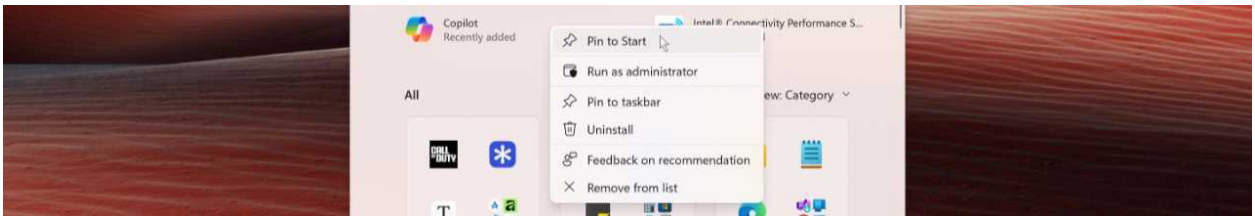


Learn more: Windows Search

Customize the Pinned section

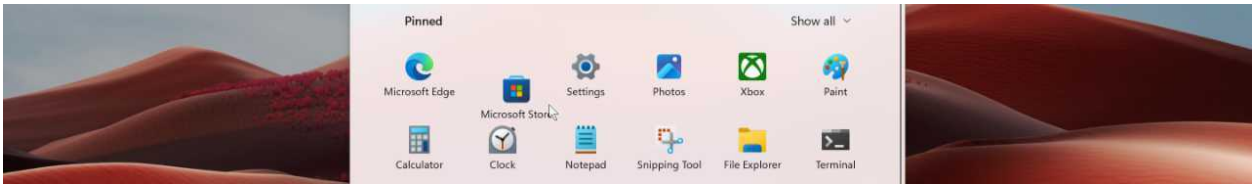
The Pinned section is customized directly in Start. You can perform the following customizations:

Pin an app shortcut. To add or "pin" an app shortcut to Start, select it anywhere in the system–including the Recommended and All sections in Start–and choose "Pin to Start."



Tip: Shortcuts pinned to Start appear at the bottom of the Pinned section, which will expand automatically if needed so you can see it immediately.

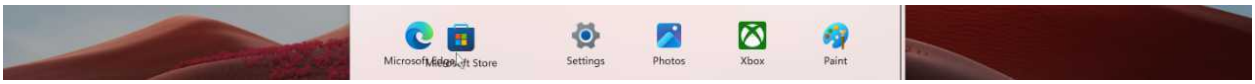
Arbitrarily move an app shortcut. You can arbitrarily change the location of any item in the Pinned section by dragging it with the mouse cursor to a new location.

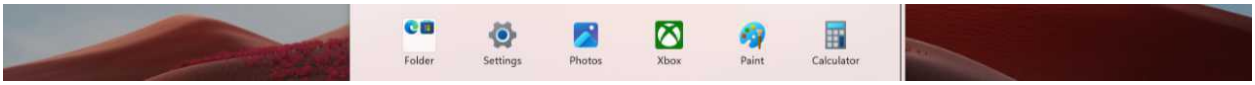


Move an app shortcut to the top or to the left or right of its current location. Depending on its current location, you can right-click a pinned app shortcut and choose "Move to front," "Move left," or "Move right" to move it to a specific location.

Unpin an app shortcut. To remove or "unpin" any app shortcut, right-click it and choose "Unpin from Start."

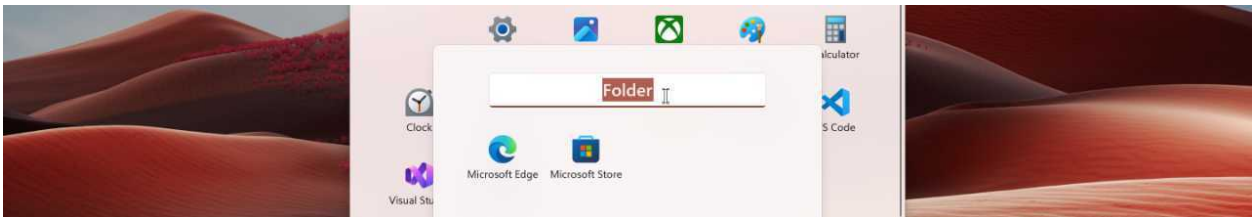
Create a folder. Start lets you create folders that you can then fill with app shortcuts. To do so, right-click the Pinned section and choose "Create a new app folder." Or, just drag one app shortcut onto another. Then, you can drag other app shortcuts into the newly created folder as needed too.





> **Tip**: You can move app shortcuts to new locations in a folder just as you do with the Pinned section in Start. You can also drag shortcuts out of a folder to remove them from the folder.

Rename a folder. To rename a folder in Pinned, click it to open it in place, click the folder's name, and type the name you prefer.



> **Tip**: To remove a folder, you have to manually delete each app shortcut it contains or drag/move them out of the folder and back to Pinned, one by one.

Customize the Recommended section and remove recommendations

You customize the Recommended section in Start settings in the Settings app, though you can also remove individual recommendations directly in Start.

Customize Recommended

To customize what appears in Recommended, open Settings and navigate to Start settings. The following settings are available in the top section of this page.

- **Show recently added apps**. Most will want to leave this enabled, as it provides an obvious place to find the most recent couple of apps you installed. If you pin an app shortcut here to Start or the Taskbar–both options are available when you right-click a shortcut–it will be removed from Recommended.
- **Show recommended files in Start, recent files in File Explorer, and items in Jump Lists**. This option is enabled by default. It's unfortunate you can't individually configure this across the three locations because many might want to disable recommended files in Start but make them available in File Explorer and Jump lists.
- **Show recommendations for tips, shortcuts, new apps, and more**. This is an avenue for advertising and you should disable this immediately.

Remove individual recommendations

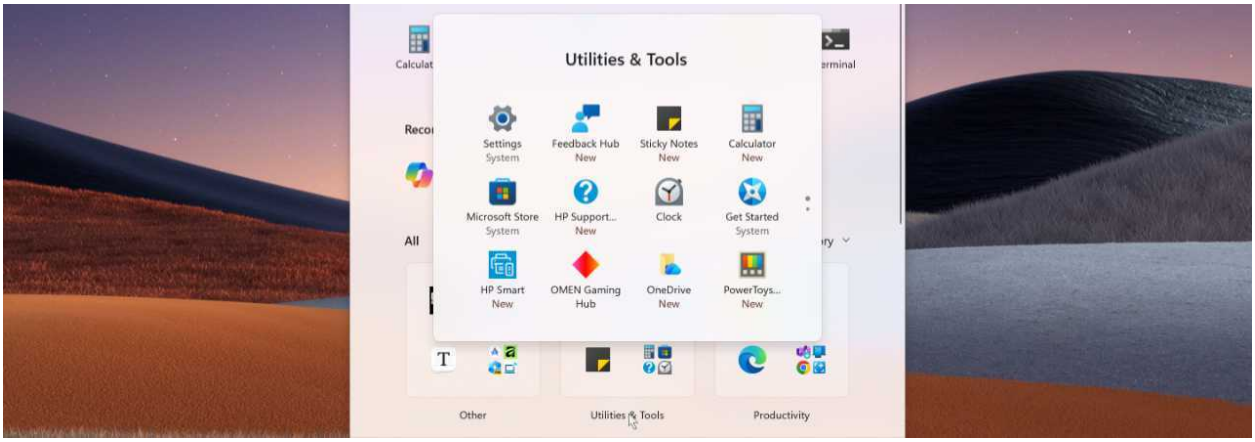
As you use Windows 11, items will appear in the Recommended section in Start. Depending on how you configured Recommended, those items can include things you do not want to see as they are taking up valuable space. Fortunately, you can remove them on a case-by-case basis: Just right-click any item in Recommended and select "Remove from list" from the context menu that appears.

Customize the All section

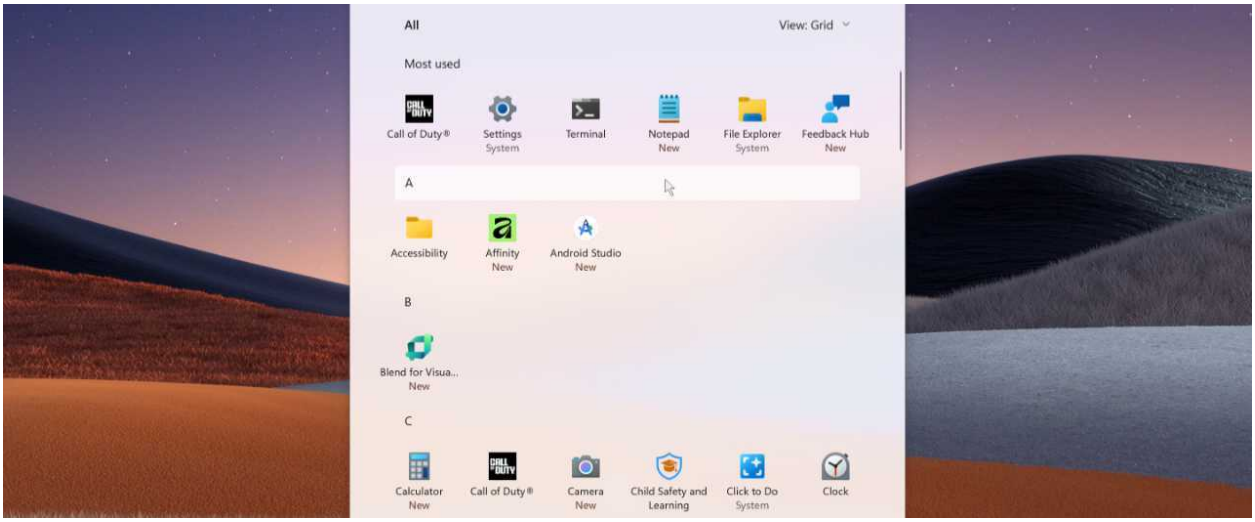
The All section displays all the apps installed on your PC and it provides a selection three layout choices. In Start settings, you can toggle the "Show most used apps" option to display a "Most used" group that appears only in the Grid and List views. But you can otherwise customize this section directly in Start by click the "View" drop-down to the right of the "All" header. I

Available views include:

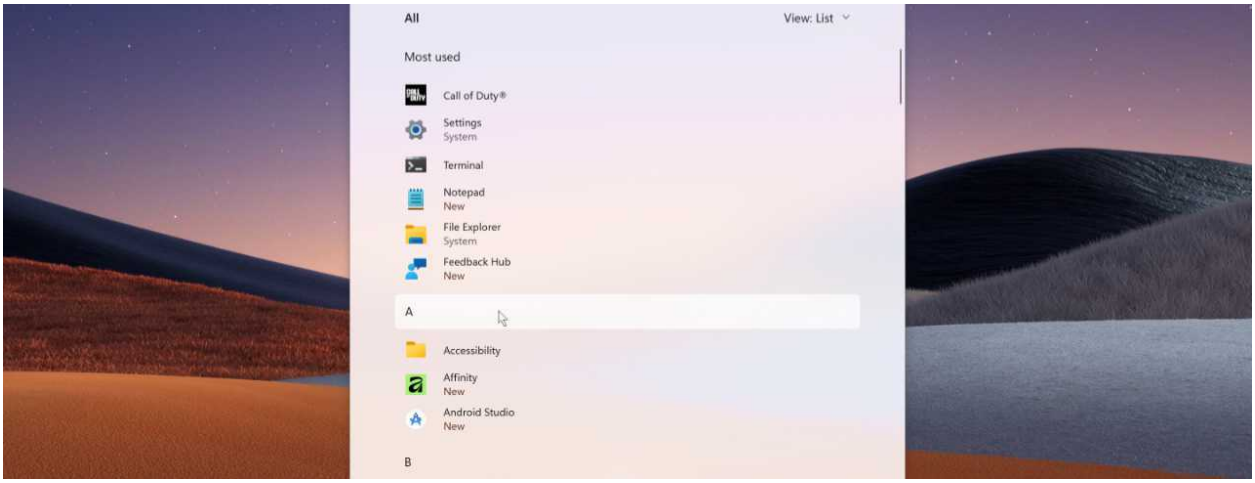
Category. The default view provides a categorized grid of app types–Utilities & Tools, Productivity, Developer Tools, Creativity, and so on–each of which opens up into a folder-like display when you click its title.



Grid. This view works like List view, below, but it displays each app that starts with the same letter in a horizontal layout to maximize screen space. You will see a "Most used" group at the top if you leave that option enabled in Start settings. And you can click the headers ("Most used," "&," "#," "A," "B," "C," and so on) to display a semantic zoom view of the headers for faster navigation.



List. This view is similar to Grid view, above, but it displays each app that starts with the same letter in a vertical layout. You will see a "Most used" group at the top if you leave that option enabled in Start settings. And you can click the headers to display a semantic zoom view of the headers for faster navigation.

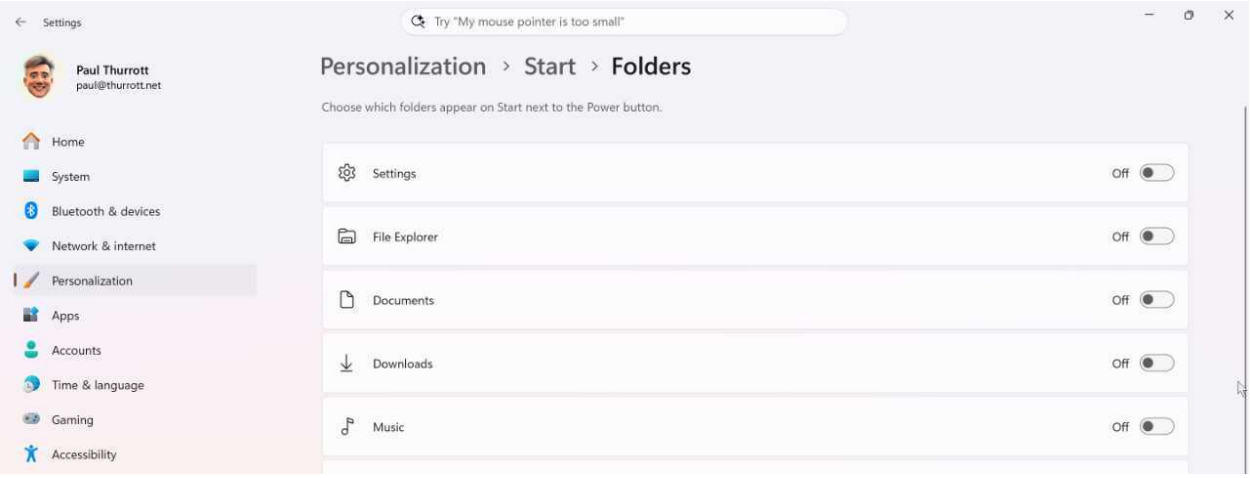


Customize the Account manager

There's not much to it, but you customize Account manager in Start settings in the Settings app. There, you will find a single option, "Show account-related notifications," in the Other group that is enabled by default. Because these notifications are usually more annoying than useful–I've even seen Microsoft 365 upsell ads in there–I recommend disabling it.

Add folders to Start

You can add a selection of folders and system apps to the bottom of Start using the Start settings interface in the Settings app. To do so, open Start settings in the Settings app and click the "Folder" item under "Other." The Folders page that displays lists all the links to system apps and folders you can add to Start.

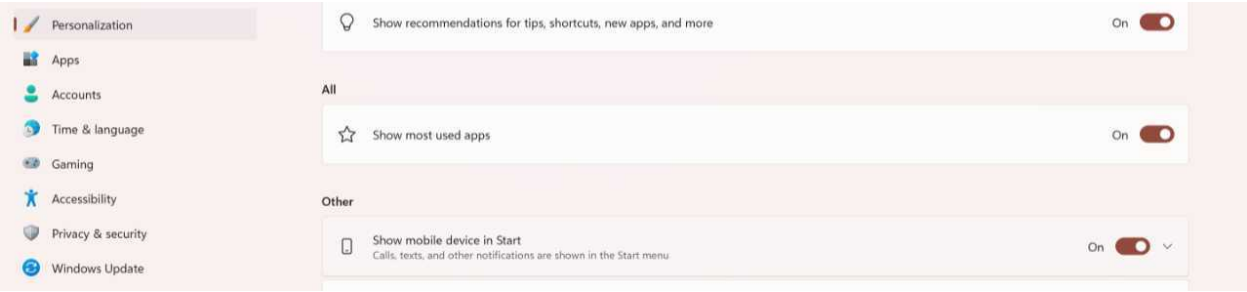


Here, you can see how the bottom of Start looks with the Settings and File Explorer apps and Downloads folder enabled.

Add the Mobile device slice to Start and configure how it works

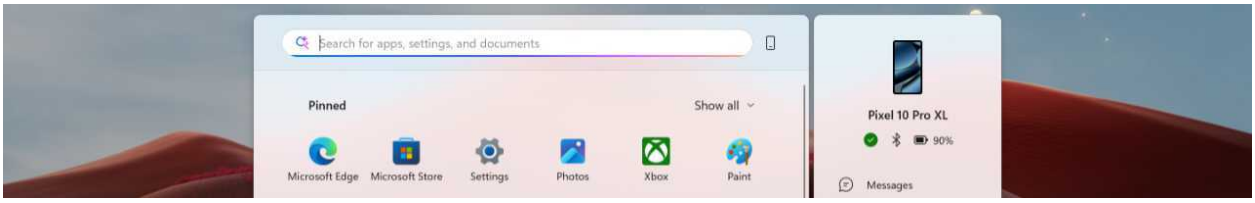
To use the Mobile device slice, you have to perform the following tasks:

- Open Settings, navigate to Bluetooth & devices > Mobile devices and enable the option "Allow this PC to access content and capabilities from your mobile devices."
- After this feature is downloaded to the PC, click "Add device" to add a smartphone or other mobile device to you Microsoft account or access a previously configured mobile device.
- If there is more than one mobile device connected to your Microsoft account, select the one you wish to use with this PC.
- Open the Phone Link app. If this is the first time you've done so, it will download an app update.
- Configure your mobile device, if necessary, in Phone Link.
- Open the Settings app and navigate to Personalization > Start. You will now see a new "Show mobile device in Start" option under the "Other" section. Make sure this option is enabled.

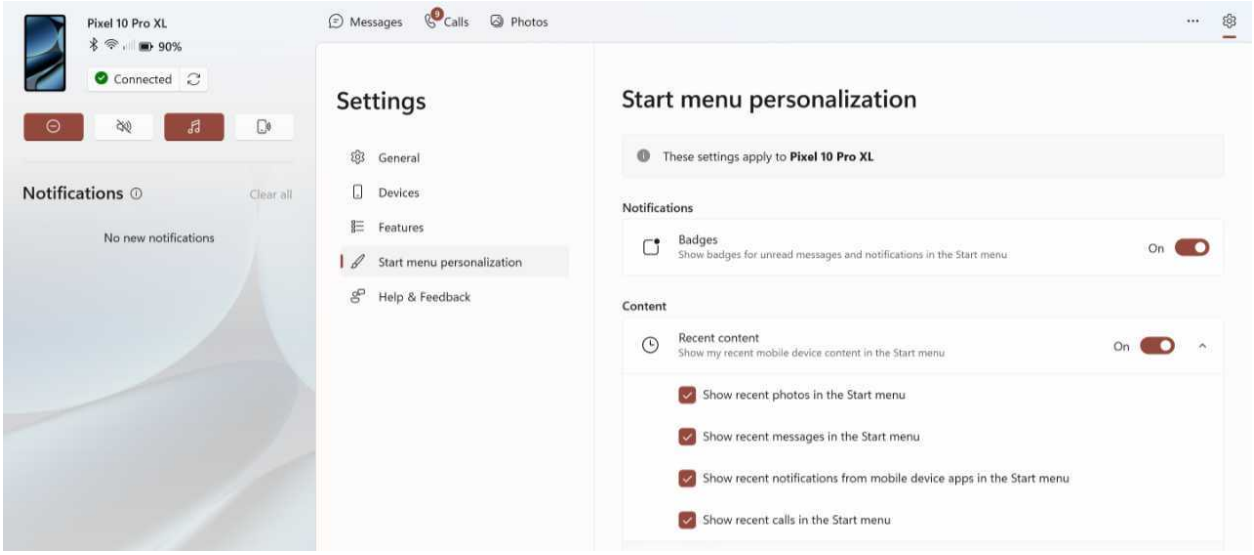


Learn more: Phone Link

If the stars are aligned, you will now see the Mobile devices slice when you open Start, plus the "Hide mobile device/Show mobile device" toggle to the right of Start.



Once this interface is available, you can customize it in the Phone Link app by clicking the Settings (gear) icon and navigating to Start menu personalization.

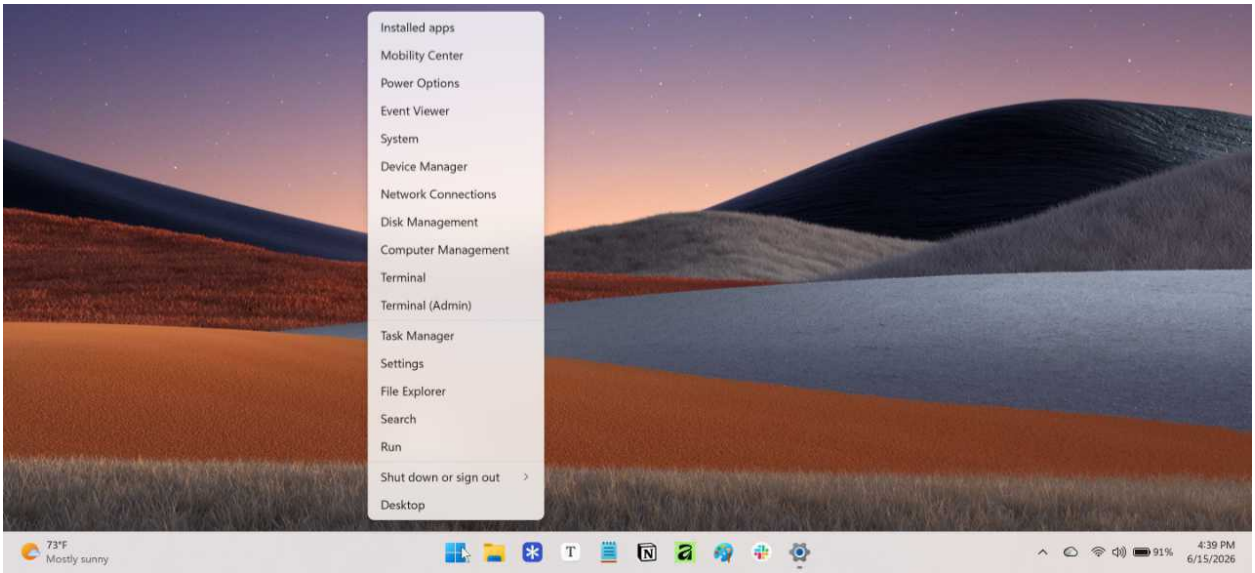


> **Tip**: You can also get there more quickly directly from Start: Click the "More" ("...") icon at the bottom right of the Mobile devices slice and choose "Personalization" in the pop-up menu that appears.

Here, you can customize whether the Messages, Calls, and Photos items in the Mobile devices slice display badges, which are little overlay notifications, and whether it shows recent photos, messages, phone notifications, and recent calls.

Use the Quick link menu

If you right-click the Start button on the Taskbar, the *Quick link* menu–which some mistakenly call the "power user menu"–appears, as was the case with previous and recent Windows versions.



Like Start, the Quick link menu is somewhat streamlined compared to its predecessor, but it still works as before by providing quick access to legacy management interfaces like Device Manager and Computer Management as well as more updated system tools like Task Manager, Settings, File Explorer, Search, Run, and so on.

> **Keyboard shortcut:** You can also open the Quick link menu by typing WINKEY + X.

Taskbar

The Taskbar is centered by default and simplified in Windows 11, but it looks and works much like those in previous Windows versions, and it remains a key way to launch frequently-used apps.

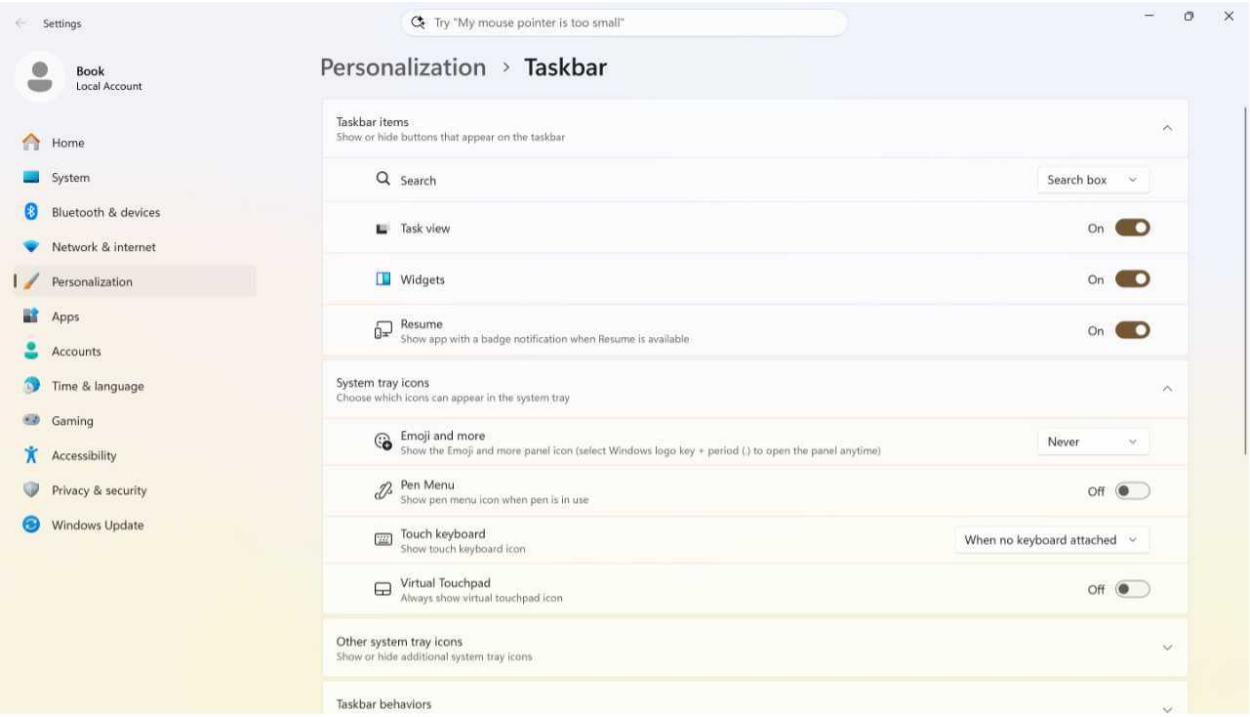
Defaults

The Windows 11 Taskbar is confined to the bottom edge of the screen, and though you can resize the icons it displays, the Taskbar has a fixed size. Microsoft configures the Taskbar with a default set of buttons and other controls that span the width of this interface along the bottom of the screen, below the Desktop. These include:

- Widgets, a *Taskbar item* found at the far left (unless you change the Taskbar alignment)
- Start button, to open Start
- Search and Task view Taskbar items
- File Explorer, Microsoft Edge, Microsoft Store, Microsoft Copilot or Microsoft 365 Copilot, and Microsoft Outlook app icon *shortcuts*
- Up to three optional shortcuts provided by your PC maker
- Click to Do shortcut (Copilot+ PC only)
- System tray area with *status notification icons*, Network, Volume, and Power quick setting icons, time/date display, and a (well-hidden) Show desktop button

Customize the Taskbar

The Taskbar is customizable, with its configuration capabilities split between two places: Taskbar settings–in the Settings app at Personalization > Taskbar–and through the Taskbar itself with certain items that support direct manipulation.



> **Tip**: You can also access Taskbar settings by right-clicking an empty area on the Taskbar and choosing "Taskbar settings" from the small context menu that appears.

Determine which items appear in the Taskbar

You can customize almost all the items appear in the Taskbar. Oddly, some Taskbar items are configured in Taskbar settings, while others can be directly added (pinned) or removed (unpinned).

> **Tip**: The Start button is unique in that it can't be disabled, moved, or changed in any way.

Widgets

The Widgets item appears at the far-left side of the Taskbar and opens the Widgets board when you hover over it with the mouse cursor (by default) or click it.

> **Tip**: If you left align the Taskbar as described below, the Widgets item appears to the left of the system tray area.

The Widgets item can display a weather forecast, notifications, and other information. You can customize Widgets to not open on hover or to not display notifications, in which case it will only display the weather forecast. If you don't need this display, you can hide the Widgets item from the Taskbar and use its keyboard shortcut, noted below, to display the Widgets board instead. To do so, open Taskbar settings and configure the "Widgets" setting under "Taskbar Items" to "Off."

> **Keyboard shortcut**: Type Windows key + W to display Widgets.

> **Learn more**: Widgets

Start button

The Start button is used to open the Windows 11 Start menu, and it cannot be removed from the Taskbar or modified in any way.

> **Keyboard shortcut**: You can also display Start by tapping the Windows key on your keyboard or by typing Windows key + X.

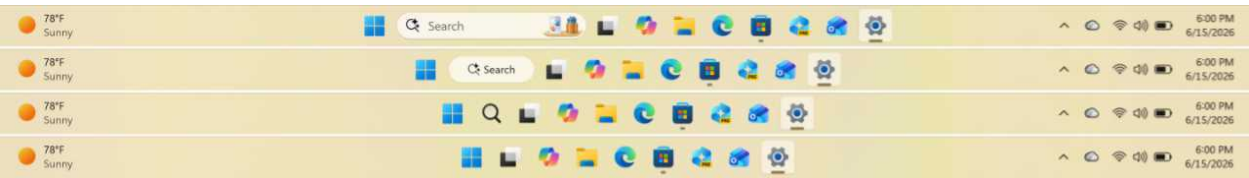
If you right-click the Start button, the *Quick link* menu will appear, providing access to a handy list of technical and legacy Windows utilities. This feature cannot be customized.

> **Learn more**: Start

Search

The Search item on the Taskbar displays as a Search box by default, but you can configure it to display as a Search icon with a label or a Search icon, or you can simply hide it. Here is how each

configuration looks.



To configure this item, open Taskbar settings and click the drop-down next to “Search” in the “Taskbar items” section.

Keyboard shortcut: Type Windows key + S to display Search.

Learn more: Search

Task view

The Task view item in the Taskbar can be accessed via an easily-remembered keyboard shortcut, so I recommend hiding it. You do so in the “Taskbar items” section in Taskbar settings.

Keyboard shortcut: Type Windows key + Tab to display Search.

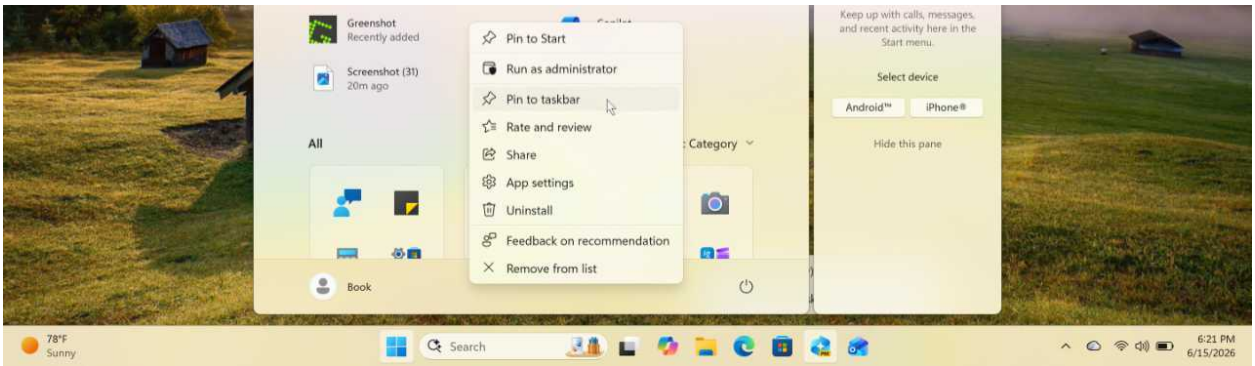
Learn more: Task view

App shortcuts

You can add (pin) shortcuts for the apps you use the most to the Taskbar, remove (unpin) app shortcuts that Microsoft or your PC maker placed in the Taskbar, and arbitrarily change the location of any app shortcut by dragging and dropping with the mouse cursor. This all happens directly on the Taskbar itself.

Remove (unpin) an app shortcut from the Taskbar. To unpin a Taskbar app shortcut, right-click it and choose "Unpin from taskbar" from the context menu that appears. It will be removed without a confirmation.

Add (pin) an app shortcut to the Taskbar. To pin a shortcut for an app to the Taskbar, locate a shortcut for it in Start's Pinned or All section, right-click it, and choose "Pin to taskbar" from the context menu that appears.



Change the location of an app shortcut on the Taskbar. To change the location of a Taskbar app shortcut, just grab it with the mouse cursor and drag it left or right to the desired location.

> **Tip**: Oddly, you cannot drag an app shortcut up off the Taskbar to unpin it.

System tray

The *system tray* area of the Taskbar–sometimes still called the notification area or system notification area–displays various *status notification icons*, some of which can be hidden in an overflow pop-up accessed by clicking the chevron icon at the far left of the system tray, three quick settings

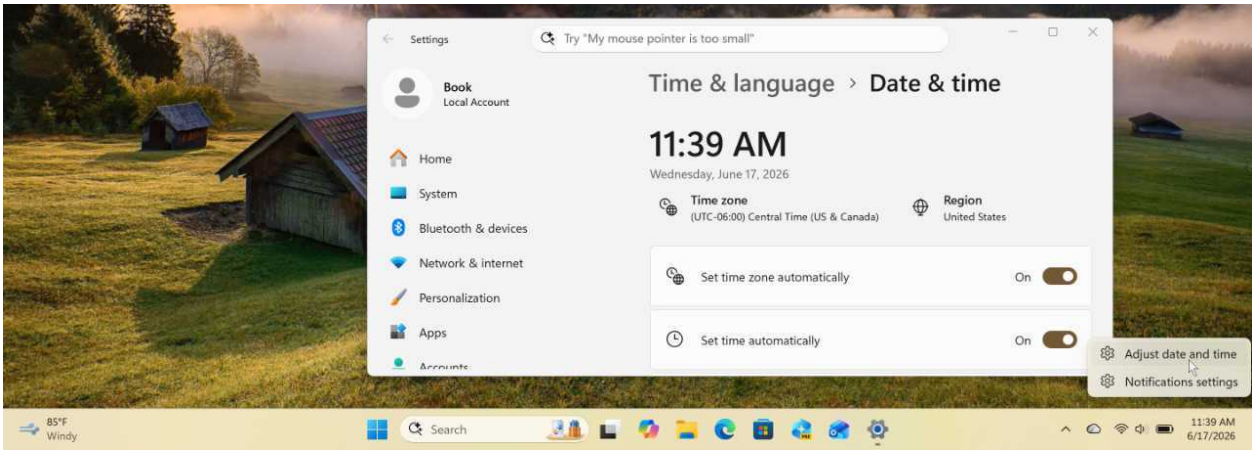
icons–“Network,” “Volume,” and “Power”–a time/date display, and, much less obviously, a tiny “Show desktop” button. Most of these items can be hidden or changed in some way.

Status notification icons. You can drag and drop individual status notification icons within the overflow pop-up to rearrange them if you’d like. More interestingly, you can drag and drop icons out of the overflow pop-up and place them to the left of the quick settings icons so you can always see them right on the Taskbar. And you can customize which icons appear here in Taskbar settings > Other system tray icons.

Quick settings buttons. You can’t customize the “Network,” “Volume,” and “Power” quick settings icons in any way. If you click any of these icons, the Quick settings panel will appear. If you right-click one, it will display a list of options specific to that feature.

> **Learn more**: Quick Settings

Time/date. The date/time display opens the Notification center panes when clicked. But it's also surprisingly customizable, and you can even hide it if desired. You configure this interface and related date and time settings in the Settings app by navigating to Time & language > Date & time. The "Show time and date in the system tray" option can be used to hide the time/date display. Or you can expand it and enable "Show seconds in the system tray clock (uses more power)" and find options to display additional clocks.



A: **Tip**: You can open Date & time settings even more quickly by right-clicking the date/time display in the Taskbar and choosing "Adjust date and time" from the context menu that appears.

> **Keyboard shortcut**: You can also display the Notification center by typing Windows key + N.

> **Learn more**: Notifications

Show desktop. It's well hidden and difficult to see, but there is a small "Show desktop" button at the far right of the Taskbar, to the right of the date and time display. You can click it to toggle the display state of all of your open apps and other windows; when you do so, all open apps and windows will immediately minimize, displaying the Desktop. And when you click "Show desktop" again and all of those same apps and windows will be restored to their previous open state, location, and size. You can hide the "Show desktop" buttons in Taskbar settings using the "Select the far corner of the taskbar to show the desktop" option under "Taskbar behaviors."

Customize key Taskbar behaviors

The Windows 11 Taskbar offers several useful settings you can configure in Taskbar settings > Taskbar behaviors.

Taskbar alignment. By default, Taskbar alignment is set to "Center," but you can change it to "Left" if you want the Taskbar and Start menu to be aligned on the left.

Automatically hide the taskbar. By default, the Taskbar remains fixed to the bottom of the screen, but you can use this option to hide the Taskbar when you're not interacting with it. To access a hidden Taskbar, just mouse down to the bottom edge of the screen and it will slide up and become visible.

> **Keyboard shortcut**: You can also display the Taskbar when it's hidden by pressing Windows key + T.

Show badges on taskbar apps. The Taskbar shortcuts for some Windows apps can display an overlay called a *badge* that acts as a notification that something in the app requires your attention. You might have an unread email message, for example, as seen by the badge on the Microsoft Outlook icon below.

Show flashing on taskbar apps. Some Windows apps flash their Taskbar shortcut icon when something happens, like a notification. This feature is enabled by default, but you can disable it if desired.

Share any window from my taskbar. This feature only works with the Work or School version of Microsoft Teams, and not the version that comes with Windows 11. It lets you mouse over the app's Taskbar button during a meeting and access a "Share this window" button in its thumbnail pop-up. You can ignore or disable this option if you don't use that app.

Combine Taskbar buttons and hide labels. By default, the Taskbar displays a single shortcut for each pinned app pinned it contains, and these shortcuts do not include a text label. But you can configure the Taskbar to display a separate shortcut for each app window, each with its own text

label that's displayed when that app is open. To do so, configure "Combine taskbar buttons and hide labels" to "When taskbar is full" or "Never."

Show smaller taskbar buttons. Perhaps the strangest Taskbar behavior settings, this will make the Taskbar items and pinned app shortcut icons smaller, though the height of the Taskbar remains unchanged.

Customize the Taskbar for multiple displays

If you have two or more displays connected to your PC, you can configure how the Taskbar works across them. There are three relevant options in Settings > Personalization Taskbar > Taskbar behaviors that become available when you're using two or more displays. You should consider each.

Show my taskbar on all displays. This works like "Automatically hide the taskbar" but for secondary displays. It's enabled by default, but if you disable it, the Taskbar will disappear on secondary displays.

When using multiple displays, show my taskbar apps on. By default, this is set to "All taskbars," so the Taskbar layout will be identical on each display. But you can change this to "Main taskbar and taskbar where window is open" or "Taskbar where window is open" if you prefer. I happen to like that latter setting.

Combine taskbar buttons and hide labels on other taskbars. This is obviously related to the "Combine Taskbar buttons and hide labels" option noted above, but it gives you a way to configure the Taskbar differently on the primary and secondary displays. For example, you may wish to configure "Combine Taskbar buttons and hide labels" to "Always" on the primary display but to change this option to "Never" or "When the taskbar is full" so that it works differently on the other displays.

> **Learn more:** Displays

Understand the Windows 11 Taskbar

Microsoft rewrote the Taskbar for Windows 11, so it is more modern than the Taskbar in previous versions, but also simpler and missing a few features that many came to rely on. As bad, customizing the Taskbar can be inconsistent as noted earlier in the chapter. For example, you can unpin or

move app shortcuts directly on the Taskbar, but you can't reposition the Widgets, Start, Search, or Task view items, and if you want to remove any of them (except for Start), you must do so in Taskbar settings in the Settings app.

There are other differences.

The Windows 11 Taskbar cannot be moved to the other screen sides. You can hide it, but it will always appear on the bottom of the screen.

If you right-click and empty area of the Taskbar, a small context menu with just two choices–"Task Manager" and "Taskbar settings"–appears, whereas the Taskbar in previous Windows versions displayed a long list of options with sub-menus.

Finally, if the Taskbar isn't wide enough to display all its contained items, it will display a "Taskbar overflow menu item ("...") you can click to display the hidden items.

> **Tip**: This is more likely to happen if you configure the option "Combine taskbar buttons and hide labels" to "Never."

Access the Taskbar with the keyboard

Windows 11 provides some useful keyboard shortcuts for those who like to keep their fingers on the keyboard.

To select the first pinned app shortcut in the Taskbar, type Windows key + T. When you do so, a selection box appears around the shortcut.

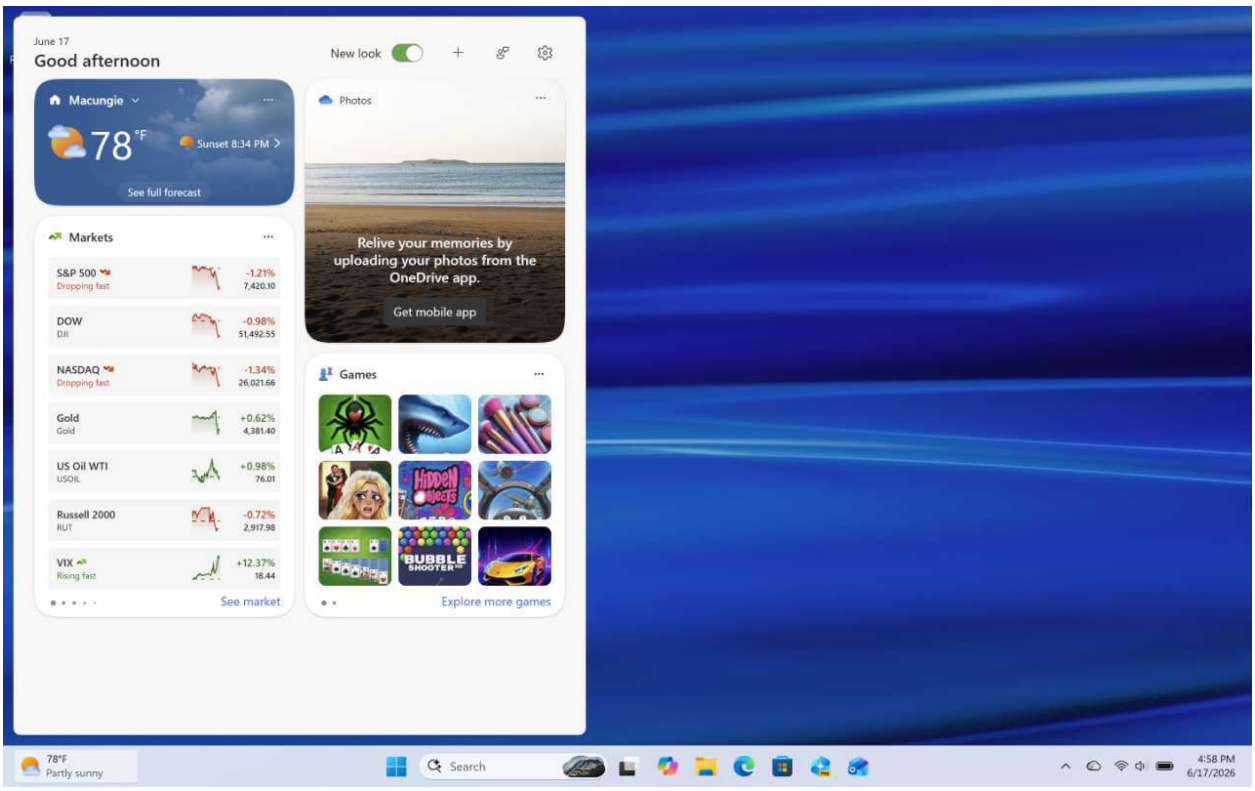
Then, you can move the selection box right or left by tapping the RIGHT ARROW or LEFT ARROW keys, respectively.

To launch the selected app, tap the ENTER or SPACE keys.

Finally, you can also move that selection box to the first pinned app shortcut by tapping the HOME key. Or move it to the last shortcut by tapping the END key.

You can *also* directly launch any pinned app by typing Windows key + *number*, where *number* represents that app's shortcut's position in the Taskbar. For example, to launch the third pinned application, type Windows key + 3. Note that this doesn't apply to built-in Taskbar items, like Start, Search, Task view, and Widgets, though each has its own keyboard shortcut as noted elsewhere in this chapter.

Widgets



Windows 11 includes a focused *Widgets* experience on the Taskbar. This interface can display one or more *widgets* that are adaptive user interface cards that display dynamic, interactive, at-a-glance information from websites or apps installed on your PC.

Windows 11 can also display up to four widgets on the Windows 11 Lock screen.

> **Learn more**: Lock screen.

Defaults

The Widgets button appears on the far left of the Taskbar and displays the local weather forecast by default.

> **Tip**: If you configure the Taskbar to be left-aligned instead of its default central alignment, the Widgets button appears to the left of the system tray on the Taskbar.

When you click the Widgets button, a pop-up *Widgets board* appears in a floating window with a Widgets view displaying some selection of widgets. You can interact with most widgets in some way and access the underlying website or app to learn more.

> **Keyboard shortcut**: You can also open Widgets by typing Windows key + W.

If you've used Windows 11 for some time, you may also see a second view, called Discover, which is accessible via the navigation pane on the left. When selected, this view displays the the Microsoft Start Feed, a dashboard of *info cards* for things like weather plus a bottomless pit of news and general information headlines in widget-like tiles that are usually of low quality. If you click a tile, the underlying web-based article will open in Microsoft Edge.

Widgets is a pop-up, glanceable interface. If you click outside of it, tap "Esc," or type the Windows key + W keyboard shortcut, the Widgets board disappears.

Customize Widgets

Widgets is highly customizable. You can determine whether to display its Taskbar button in the Settings app by navigating to Personalization > Taskbar > Taskbar items.

> **Tip**: You can navigate to Taskbar settings more quickly by right-clicking an empty area on the Taskbar and choosing "Taskbar settings" from the context menu that appears.

Most other Widgets settings are customized directly in Widgets using a settings page. To access this interface, open Widgets and click the "Settings" (gear) icon.

Customize the Widgets button on the Taskbar

There are several options specifically tied to the Widgets button on the Taskbar.

Display Widgets more easily. The Widgets board appears when you click the Widgets button on the Taskbar by default. But you can also configure Widgets to display this interface more easily, simply by mousing over over the Widgets button. To do so, open Widgets, click the "Settings" (gear) icon, and enable the option "Open Widgets board on hover."

Display more notifications on the Widgets button. The Widgets button on the Taskbar typically displays a weather forecast, though it will occasionally display a notification badge for important weather-related or news events. I don't recommend this, but if you would like to see more notifications for some reason, Widgets can accommodate that need: Open Widgets, click the "Settings" (gear) icon and navigate to Notifications. Then, make sure both options in the Notification page are enabled.

Hide the Widgets button. If you don't want to use Widgets and don't like seeing its weather forecast on your Taskbar, you can hide the Widgets button. To do so, open the Settings app, navigate to Personalization > Taskbar > Taskbar items, and configure "Widgets" to "Off."

> **Keyboard shortcut**: You can still open Widgets by typing Windows key + W even if you hide the Widgets button.

Customize the Widgets board

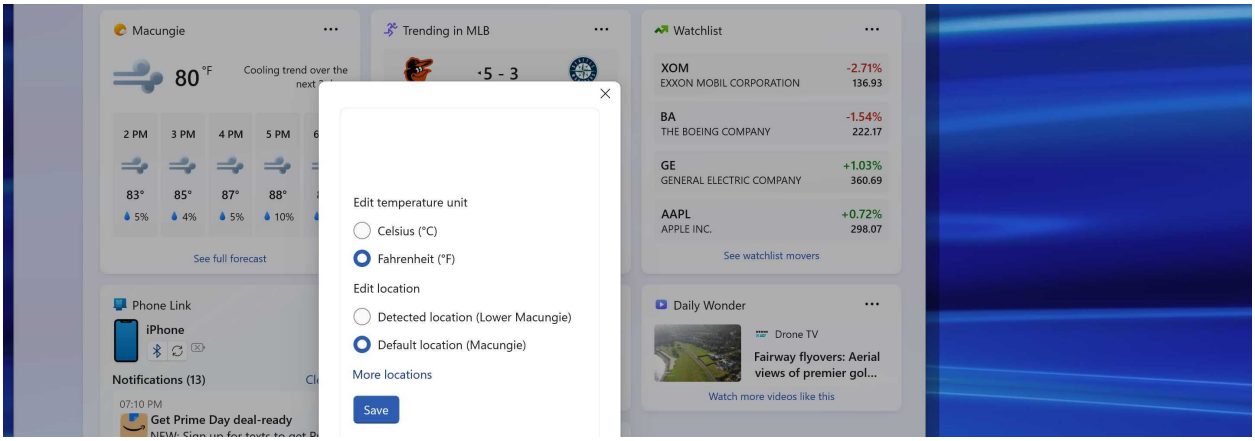
The Widgets board supports also several useful customization capabilities. Key among them:

Resize a widget on the Widgets board. While some widgets come in a single rectangular size (called Small), many support size options like Large, Medium, and Small. To resize a widget, click its "More options" ("...") button and select the size you want (if available).

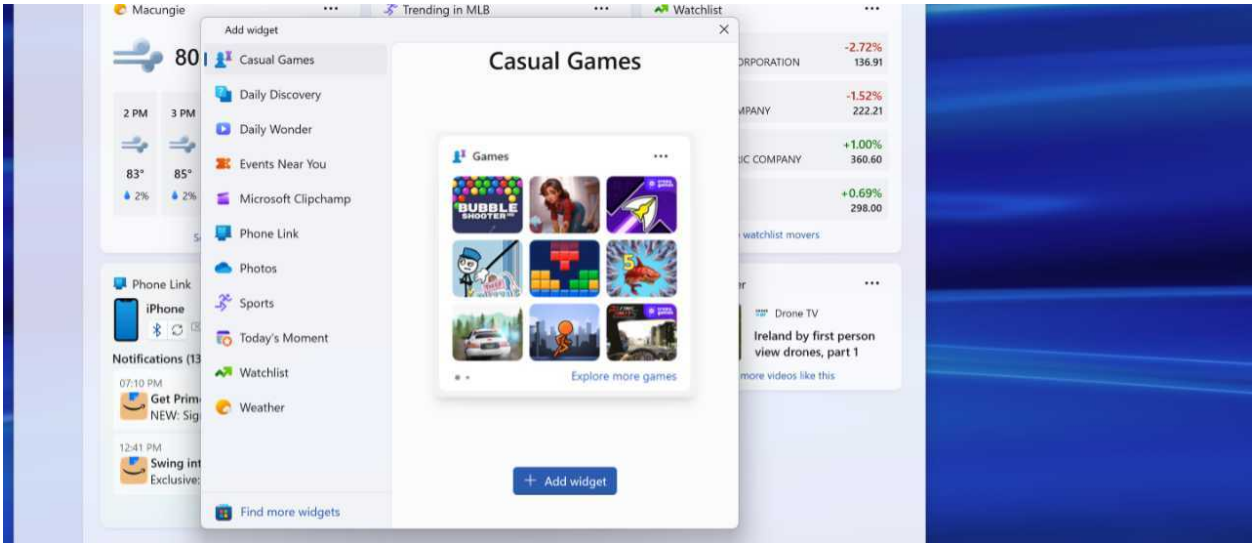
Reposition a widget on the Widgets board. You can reposition any widget on the Widgets board. But you can't use drag and drop. Instead, click its "More options" ("...") button, "Move widget," and the direction you prefer. Yes, it's tedious.

Remove a widget from the Widgets board. To remove a widget you don't want, click its "More options" ("...") button and choose "Remove."

Customize a widget. Some widgets–most notably, Weather–can be customized to some degree. To do so, click its "More options" ("...") button and choose "Customize Widget" to see which options are available.



Add a widget to the Widgets board. To add a new widget to the Widgets board, click the large "+" ("Add widgets") button in its upper-right, select the widget you want, and click "+ Add widget." You can also browse for more widgets in the Microsoft store by clicking "Find more widgets."

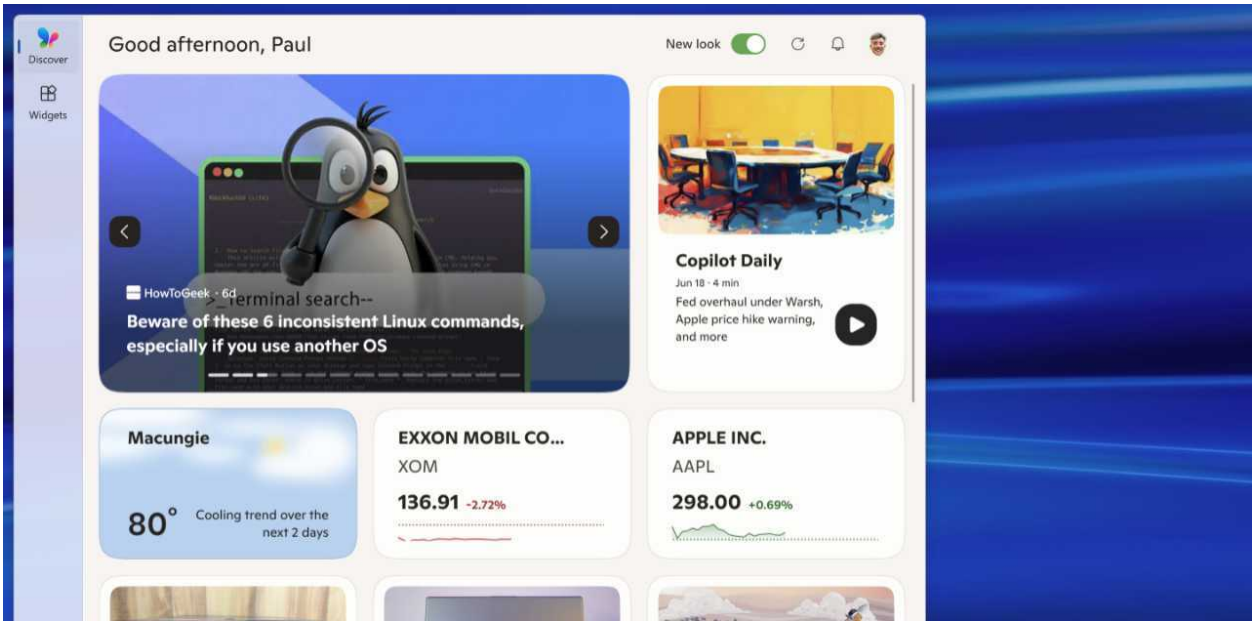


Customize the Microsoft Start Feed

In addition to the Widget board, Widgets can display additional dashboards, one of which, the Microsoft Start Feed, is preinstalled but disabled by default.

> **Tip**: Though the Widgets settings page says you can get more dashboards from the Microsoft Store, no one has ever bothered to create one. You can see this yourself by clicking the "Browse dashboards" button: This opens the Microsoft Store app to its Feed Providers for Widgets Board, which includes just a single item called Start Experiences App; that's the app that provides the Widget board and the Microsoft Start Feed.

When enabled, the Microsoft Start Feed looks a lot like the Widgets board, but it works and is configured a bit differently. Each item it displays links to an article on the web, and if you click one, Microsoft Edge will open and navigate to that page in a new tab. This happens even if you configured another web browser as the default.



Learn more: Fix the biggest problem with Widgets.

It's hardly worth discussing how one might customize this interface since most of this is futile. But here we go.

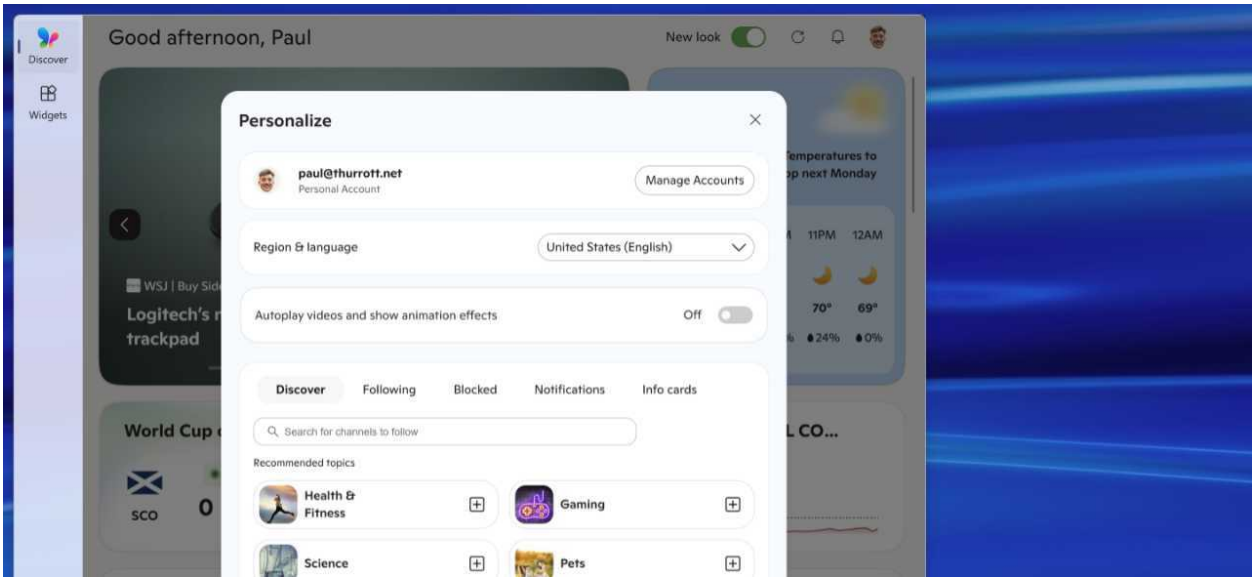
Enable the Microsoft Start Feed. I strongly recommend *not* enabling the Microsoft Start Feed as it of low quality and more distraction than useful. But if you just have to see it for yourself, open Widget settings and enable the very first option, "Discover." When you do, a new "Discover" item appears at the top of the Widgets navigation bar. You can select that to view the Microsoft Start Feed. There are info cards at the top and then that bottomless pit of clickbait terribleness.

See more of the content you like. If you see a story you like, you can try to tilt the algorithm in your favor by clicking the "I like this" (thumbs up) icon in the top right of a content like. (This is not available for info cards.)

See less of the content you don't like. If you see a story you don't like, you can likewise click "See more" ("…") in its tile and then choose "Not interested." Info cards support a water-downed "Not interested option" instead.

Block a content source you never want to see again. If you see something truly objectionable, and you will, you can block a content source by clicking "See more" ("…") in its tile and then choosing the "Block *publisher*" link that appears.

Personalize the feed further. To personalize the feed with the news and information topics and publishers you prefer and, more usefully, the info cards you want to see, click the "Personalize your feed" button that uses your profile picture if available.



Or don't. The Microsoft Start Feed is terrible. But it's also not the biggest problem here …

Fix the biggest problem with Widgets

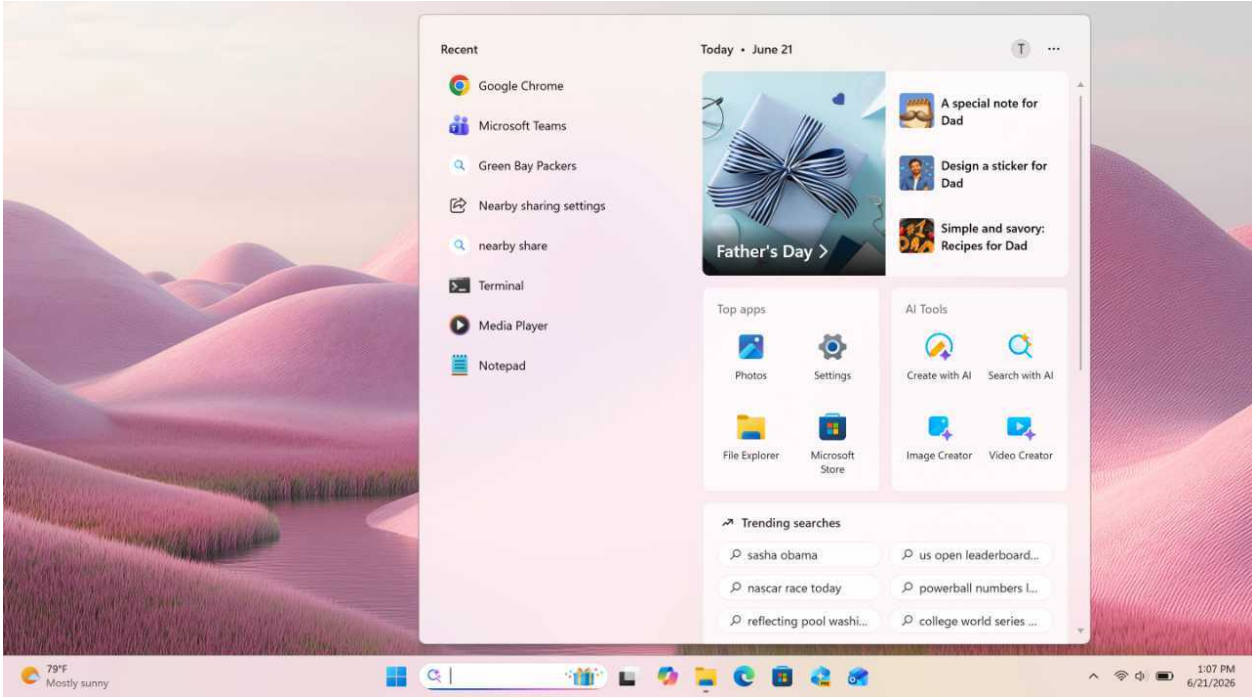
In its new default configuration, Widgets is mostly innocuous. But if you enable the Microsoft Start Feed and click a news or information story tile, it forces you to use Microsoft Edge, even if you've configured another web browser as the default.

There is no option in Windows 11 to configure it to behave otherwise. Instead, you can use a third-party utility to undermine this terribleness. I recommend a free utility called MSEdgeRedirect.

When you install and run this useful app and are prompted to choose between three modes, select "Active Mode." In the next admittedly confusing screen, just click "Install". Then, click "Finish" to complete the installation.

Now, Windows 11 will respect your default web browser choice, even when you click a link in the Microsoft Start Feed in Widgets. It also works similarly with Search highlights, Copilot, the Get Help app, and other interfaces in Windows 11.

Windows Search



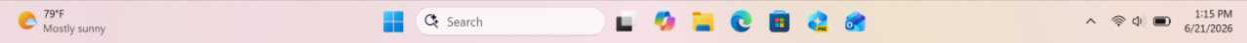
Windows Search helps you search for documents and other files on your Windows 11 PC and in your cloud storage services, quickly find apps and settings on your PC, and search the web, all from a single interface. Windows Search is integrated into the Taskbar and Start, but it also powers file and folder search in File Explorer and settings search in the Settings app. And all these interfaces are enhanced with new capabilities powered by local AI models if you have a Copilot+ PC.

Defaults

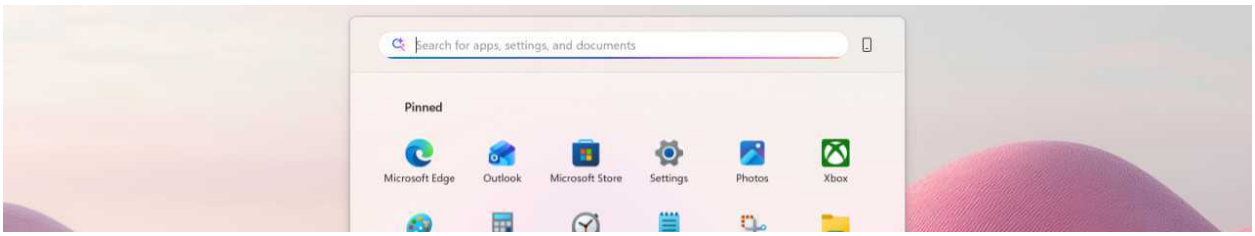
Windows Search and Search in File Explorer and Settings are mostly straightforward. But there are less obvious features in each, too.

Windows Search defaults

When you first sign in to Windows 11, you will see a Search box on the Taskbar to the right of the Start button.



Start also displays a Search box at the top of its window, but this interface can't be hidden, moved, or configured in any way.



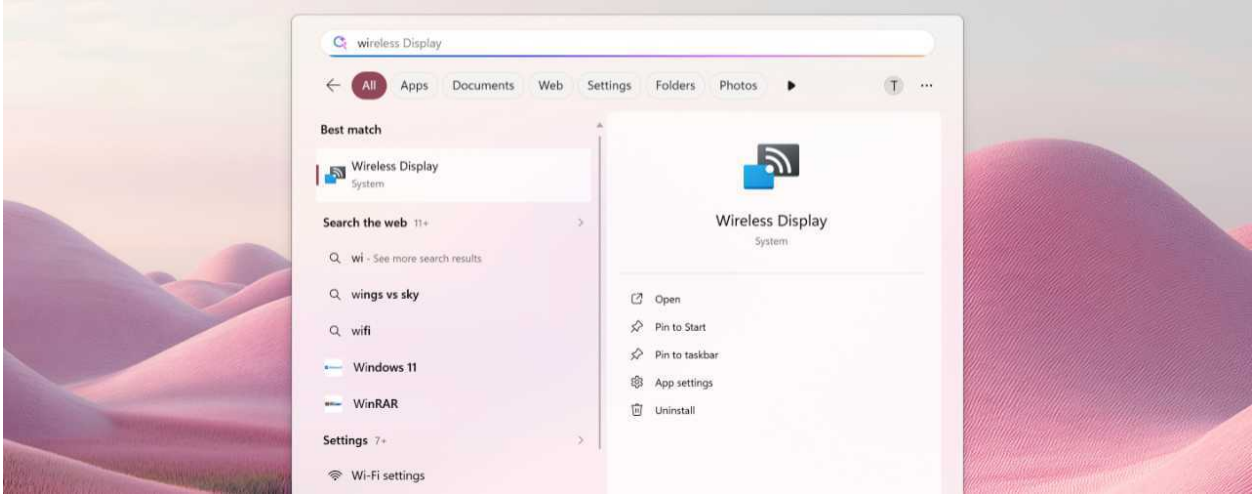
To display Windows Search, select the Search item in the Taskbar, open Start and select the Search box, or open the Quick link menu and select "Search."

> **Tip**: If you click the Search box in the Taskbar, you will type your search query there. But if you open Windows Search any other way, you will type the search query in the Search box in that window.

> **Keyboard shortcut**: You can open Windows Search more quickly. Just tap the Windows key on your keyboard and start typing your search. Or, just type Windows key + S to display Windows Search.

> **Tip**: Using Search to search for files, settings, and other things is often called *Start Search*.

Windows Search displays suggested apps and settings, Search highlights, and other information if you just open it directly. Once you begin typing, you will see buttons for filtering the results to Apps, Documents, Settings, and more at the top, a list of filtered search results with the best match at its top, and options related to the currently selected search result.

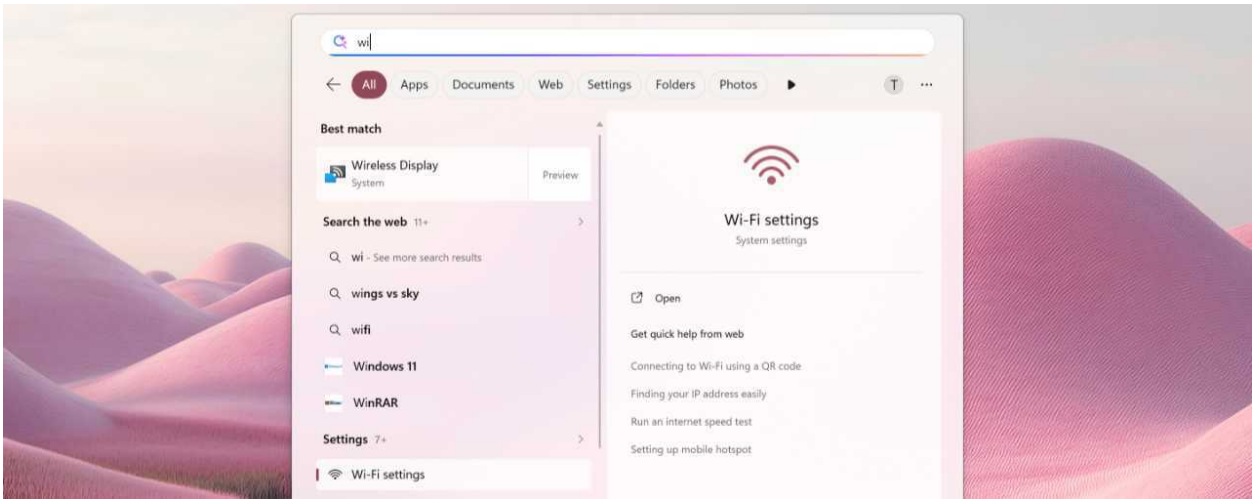


Windows Search lets you do the following:

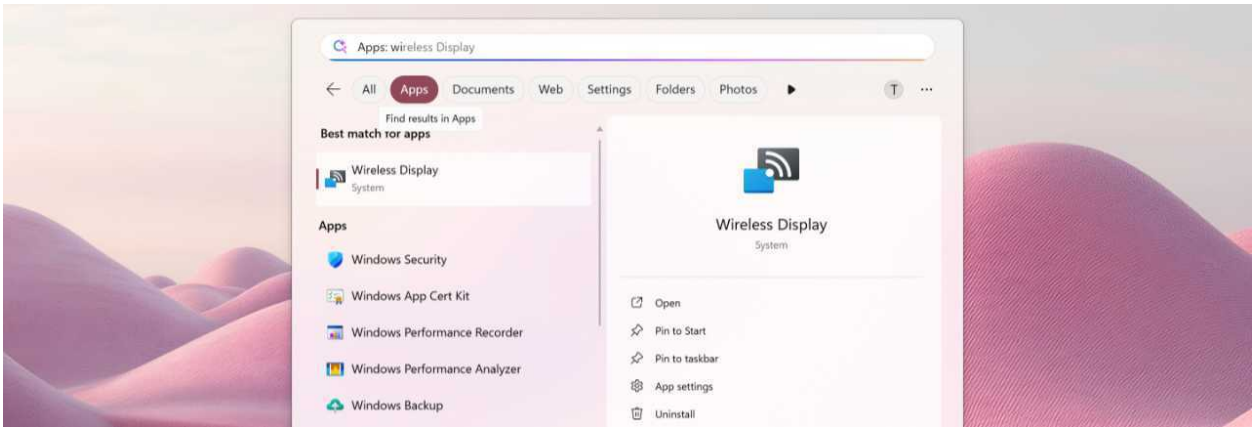
Access recent searches. If you open Windows Search directly and don't start typing, it will display your recent searches in the results pane. You can remove any item from this list by mousing over it and clicking the "Close" ("X") button next to it in the list.

Open a search result. When you click a search result, the underlying app, file, setting (in the Settings app), or webpage (in Microsoft Edge) will open. For example, if you search for *windows* and select Windows Security in the search results under Apps, the Windows Security app opens.

Do more with a search result or recent search. You can see and access additional options related to a search result by mousing-over it and clicking the "Preview" link that appears. When you do, options like "Run as administrator," "Open file location," "Pin to Start," "Pin to taskbar," "Uninstall" (for apps), and others will appear in the preview pane on the right. You can also access these options by navigating through the results list with the Up and Down arrow keys or by right-clicking a search result.



Filter the search results. When you begin typing a query, a group of buttons–"All," "Apps," "Documents," "Web Settings," "Folders,and "Photos"–appear at the top of Windows Search so you can filter the results to a specific category. Otherwise, results will appear in categorized groups.

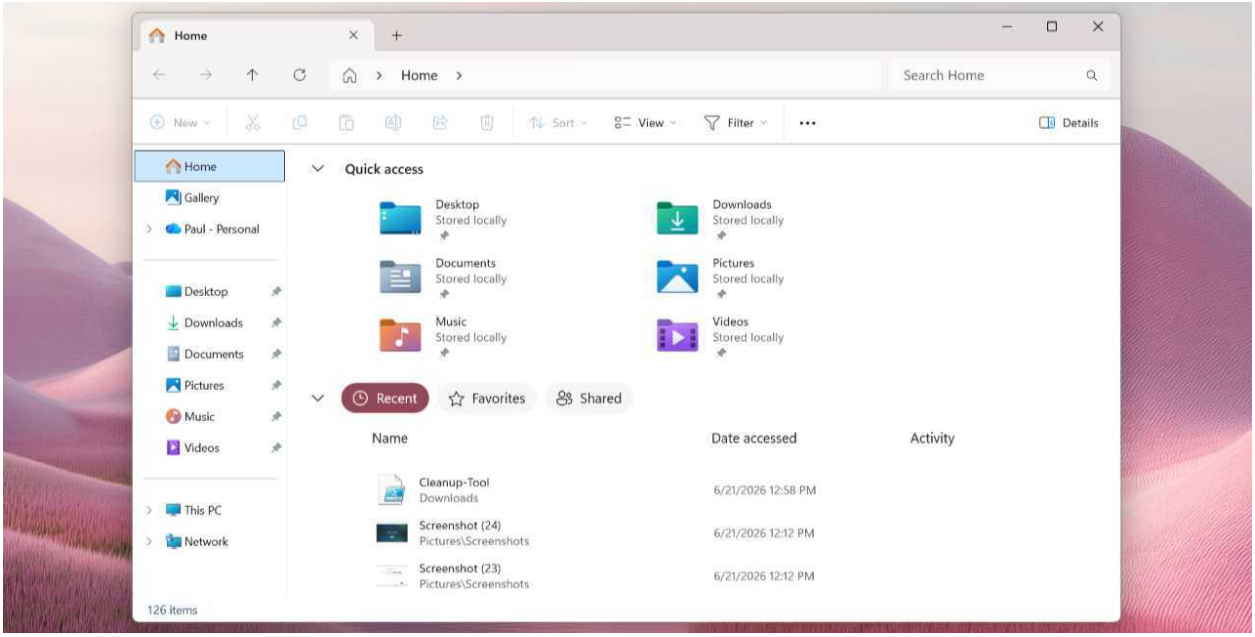


Manage your accounts. You can click your profile picture in the top right of Windows Search to switch between available Microsoft and Microsoft Work or School accounts, if available, or use the "Manage accounts" link to open Settings at Accounts > Your accounts, where you manage those accounts.

Open Search settings. The "Options" ("…") button reveals a single option, "Search settings," which opens Search settings (Settings > Privacy & security > Search) when clicked.

File Explorer defaults

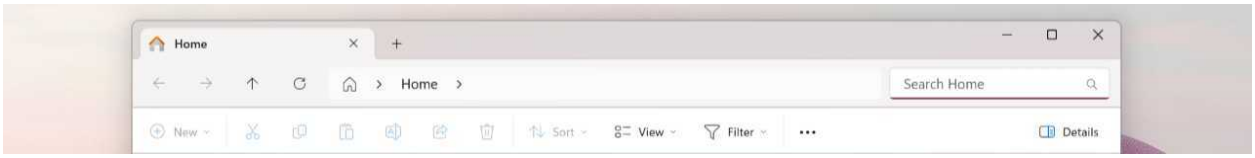
The File Explorer app has a prominent Search box in its upper-right with preview text that hints at what you can do. In most views, including the default Home view, the preview text will read *Search [this location]* on many PCs, or *Try describing an image or file* if you have a Copilot+ PC because those PCs also support *natural language search* using an local AI model.



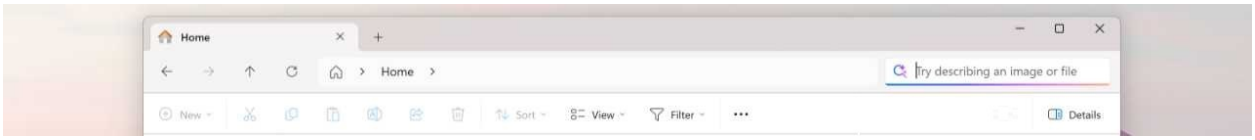
Tip: The preview text can change depending on the view. For example, if you select This PC in the navigation pane, the Search box will read *Search This PC*.

Keyboard shortcut: You can open File Explorer more quickly by typing Windows key + E.

When you select the Search box, it visibly confirms the selection with an accent color-based highlight on its bottom.

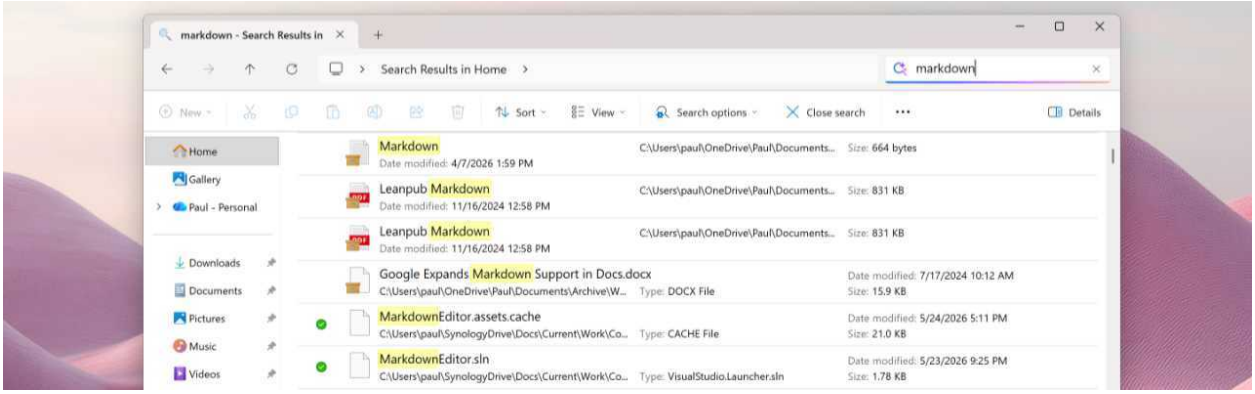


But if you have a Copilot+ PC, the Search box lights up with a colored "AI glow" to indicate that it's ready to find files in more dramatic ways.



Keyboard shortcut: You can also select the Search box in File Explorer by typing Ctrl + F.

As you type, File Explorer displays a Search Results view with files filtered to the current file system location, sorted by relevance, and displayed in a "Content" layout. The search term you are typing is highlighted in each result, and the app displays "Search options" and "Close search" command bar buttons that are unique to this feature.



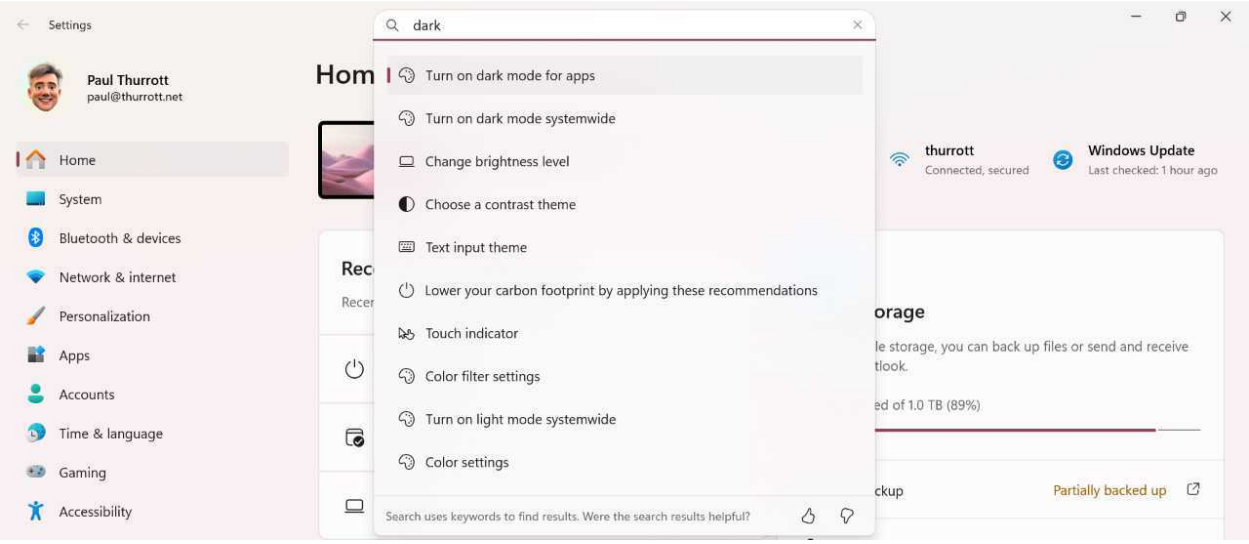
Learn more: Search for files with File Explorer and File Explorer

Settings defaults

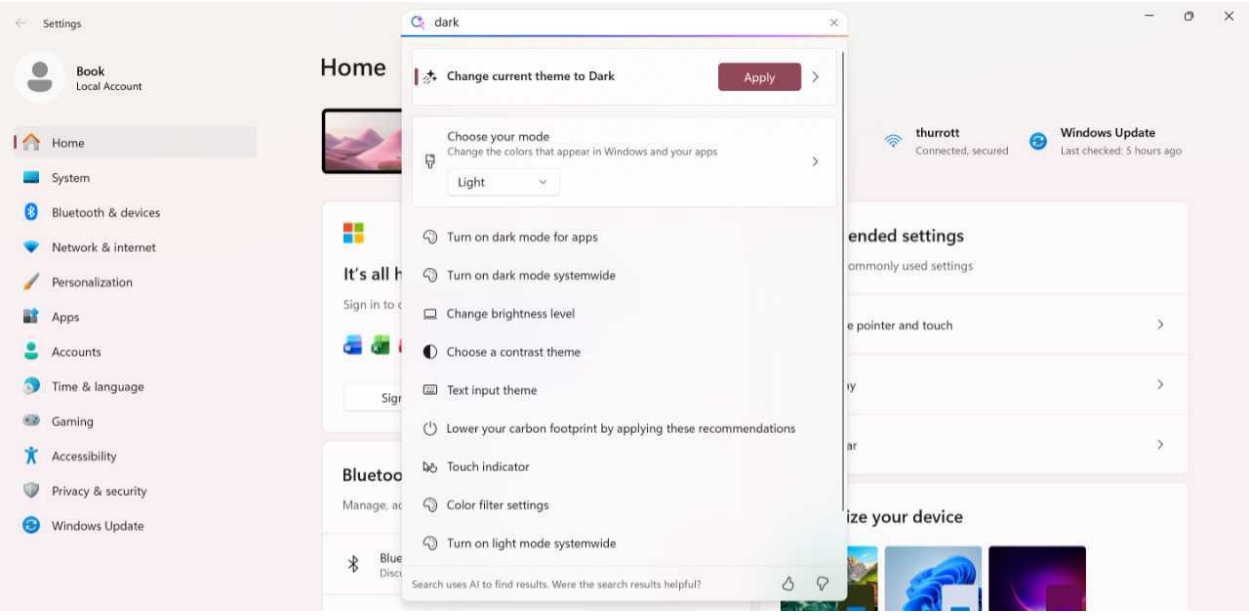
The Settings app has long offered basic search capabilities, but this functionality has been significantly enhanced in recent Windows 11 versions, and there is now a prominent Search box centered in the top of the Settings app window for easy access.

On many Windows 11 PCs, this Search box displays "Find a setting" preview text to indicate its use. But if you have a Copilot+ PC, the Search box will display a dynamic hint as its preview text, like "Try 'My mouse pointer is too small'" to hint at the additional capabilities it provides.

You can of course search for settings using the Search box in the Settings app. As you type, results appear in a drop-down list box, arranged by relevance, and you can click any result to navigate to the appropriate page.

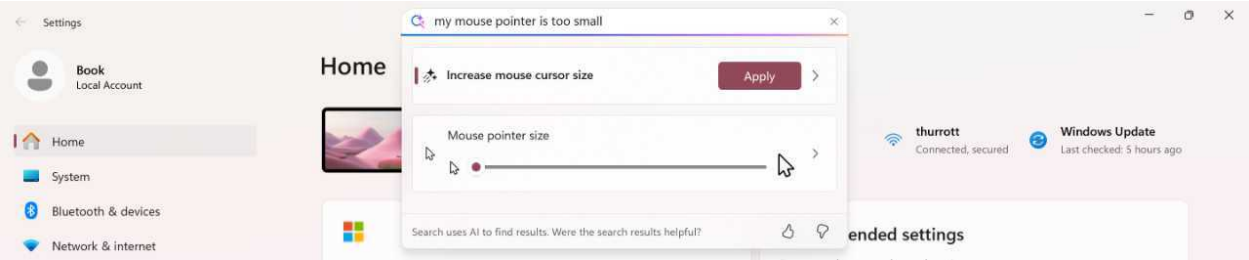


With a Copilot+ PC, however, you will see additional capabilities. For example, you can change many settings directly inline in the search results as shown here.



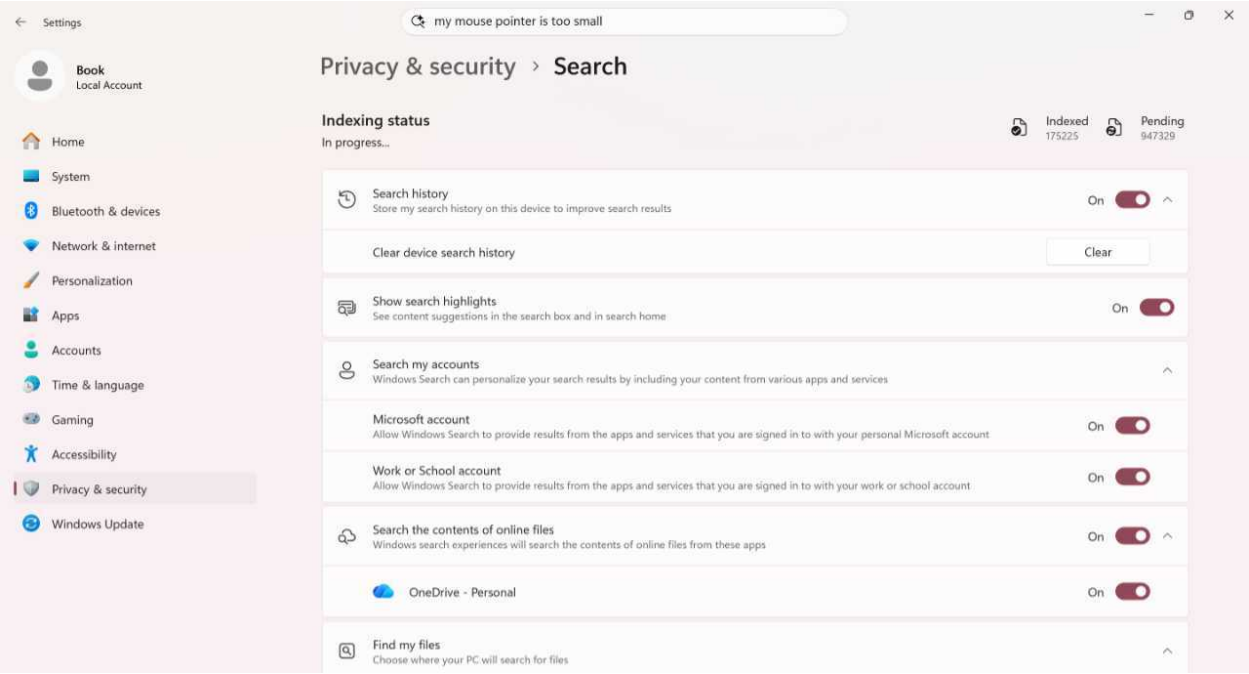
You can also use natural language search, which works with a local AI model on your PC, to

find settings when you don't know the name of the setting. The hint noted above, "My mouse pointer is too small," is a good example. You could search for *small*, but no mouse pointer results would appear. You could also search for *mouse pointer*, but then you would have to locate "Mouse pointer size" in the results. But searching for *My mouse pointer is too small* provides exactly the options you need, and you can make the change inline without having to navigate to another page in the app.



Customize Windows Search

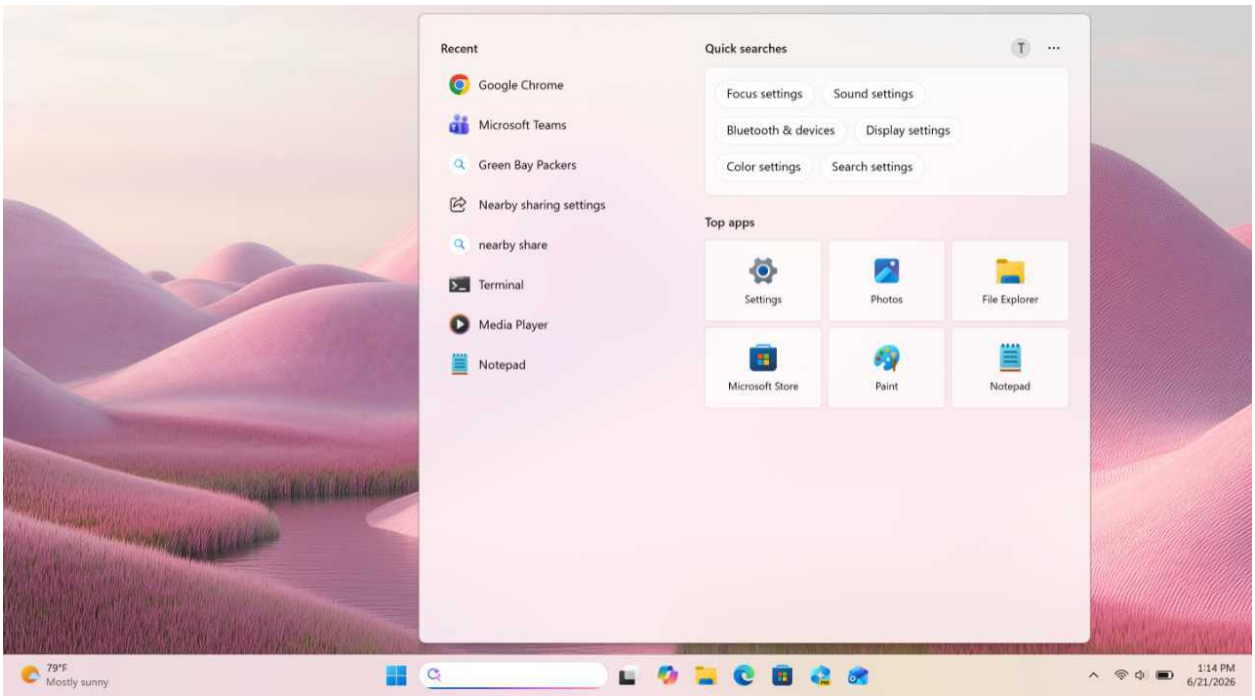
Windows Search is configured in the Settings app at Privacy & security > Search.



Key options to consider here include:

Show search highlights. Much of the Windows Search interface is taken up by a feature called *Search highlights* that exists solely to distract you into clicking on one of its links, which forces you to use Microsoft Edge even if you chose a different default web browser and access Microsoft websites like Bing or MSN that are monetized using Microsoft's advertising services. You can

disable this waste of space by toggling this option to “Off.” When you do so, Windows Search presents a much cleaner interface. Eventually: It sometimes takes a few minutes for this change to take effect.



> **Tip**: If the Search box is visible on the Taskbar, hiding Search highlights also removes the graphical “content suggestion” that it typically displays, too.

> **Tip**: I recommend hiding Search highlights.

**Search my account This curious option lets Windows Search surface results from apps and services you sign into with your Microsoft account (and/or Microsoft Work or School account) in addition to its other result types. This can include Outlook, Bing, and any other offerings that integrate with Windows Search.

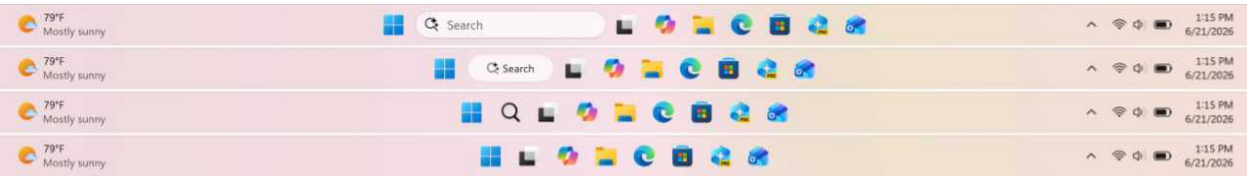
> **Tip**: If you use Microsoft Outlook, you may want to leave this enabled so you can see results from your email or schedule. Otherwise, I recommended disabling this feature.

Search the contents of online files. By default, Windows Search will look for files stored in OneDrive or other compatible apps tied to cloud storage services that you installed in Windows and then surface those files in its search results. This helps Windows Search find files you've not synced locally to your PC using OneDrive's Files on Demand feature (or the equivalent in other services).

Find my files. By default, Windows Search will look for files stored locally on your PC in your Desktop, Documents, Music, and Pictures folders only. This is the right configuration for most people, and you click the small "Customize search locations" link to modify the search locations using the old-school Indexing Options control panel if needed. Or, you can click "Enhanced," which I do not recommend, and force Windows Search to *index* and then search your PC's entire storage, minus the customizable list of excluded folders shown below that.

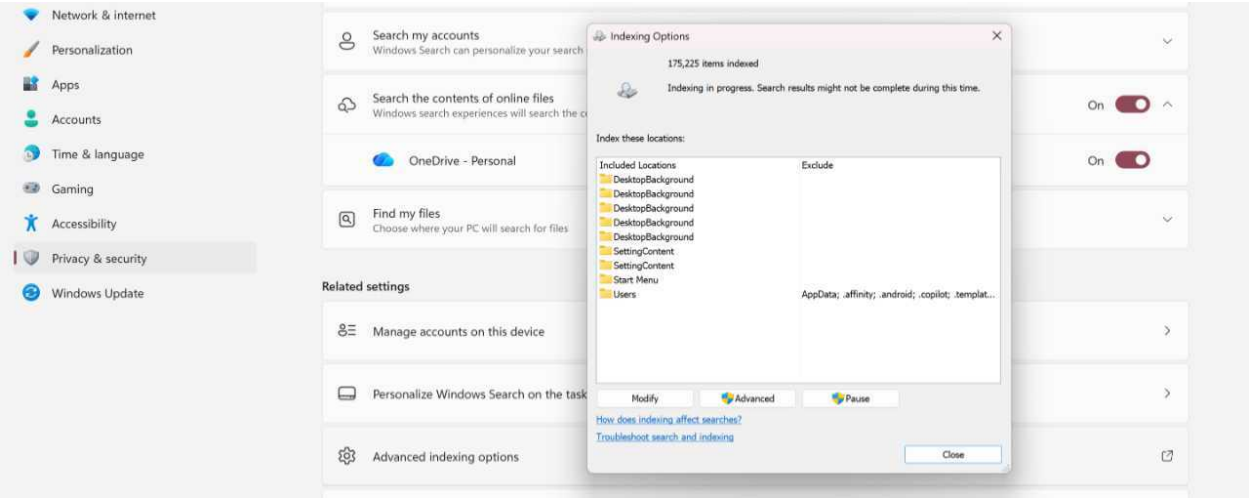
> **Tip**: Remember that the "Search my accounts" and "Search the contents of online files" options described above let Windows Search also find files and other content elsewhere, including locations (like those in OneDrive) that may be visible and accessible on your PC as well.

Personalize Windows Search on the taskbar. Windows 11 displays a Search box on the Taskbar by default, but you can configure this to be a Search icon with a label, a Search icon, or to be hidden entirely. If you click this link, Settings will navigate to Personalization > Taskbar, where you can configure this item.



> **Tip**: I strongly recommend just hiding the Search item on the Taskbar because it's just taking up space and you can easily access Windows Search with its Windows key + S keyboard shortcut any time time.

Advanced indexing options. Windows Search uses an on-disk database called an *index* to provide search results more quickly. When you first sign in to Windows 11, it begins *indexing* the configured file locations, and it will run in the background as needed to keep the index up-to-date. There's little reason to micromanage this, but you can click this option to launch the Indexing Options control panel and arbitrarily add, remove, or otherwise customize which file locations Windows Search indexes and searches.



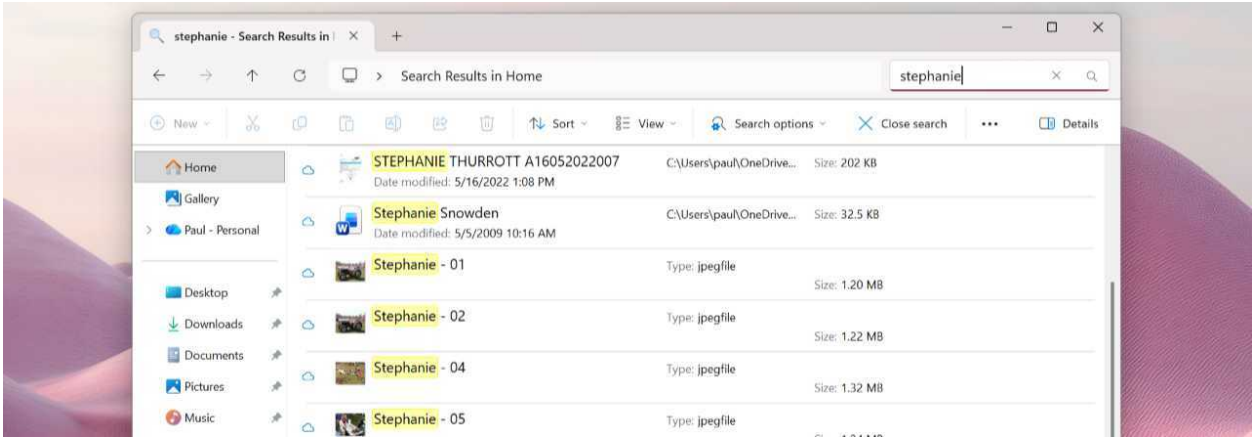
Tip: I do not recommend doing this. Windows Search handles local file searches correctly for most people, and it's optimized for performance and battery life.

More info: The Search settings page displays the indexing status (which will be either "In progress" or "Done"), the number of files it has indexed, and the number of files remaining to be indexed at the top. It will only index the disk when you're not using it.

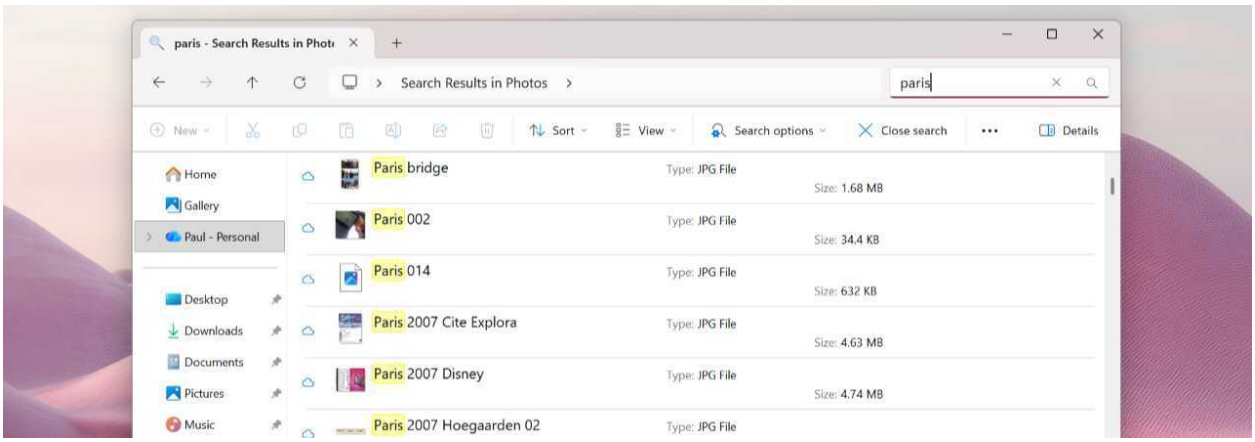
Search for files with File Explorer

Though you can search for files with Windows Search directly or from Start or the Taskbar, this type of search is better handled by File Explorer, the Windows 11 file management app. There, you can click the Search box in the top right of the app and start typing to search for folders and files on your PC.

Each search is scoped to the current view. If you search from the default Home view, it will search all the locations configured in Search settings, so the results will come from your Desktop, Documents, Music, and Pictures folders, plus OneDrive.



But if you navigate to a specific folder location in the local file system, it will search there and in any subfolders within.



> **Tip**: File Explorer begins searching as you type, and its performance is dramatically better when the drive is fully indexed.

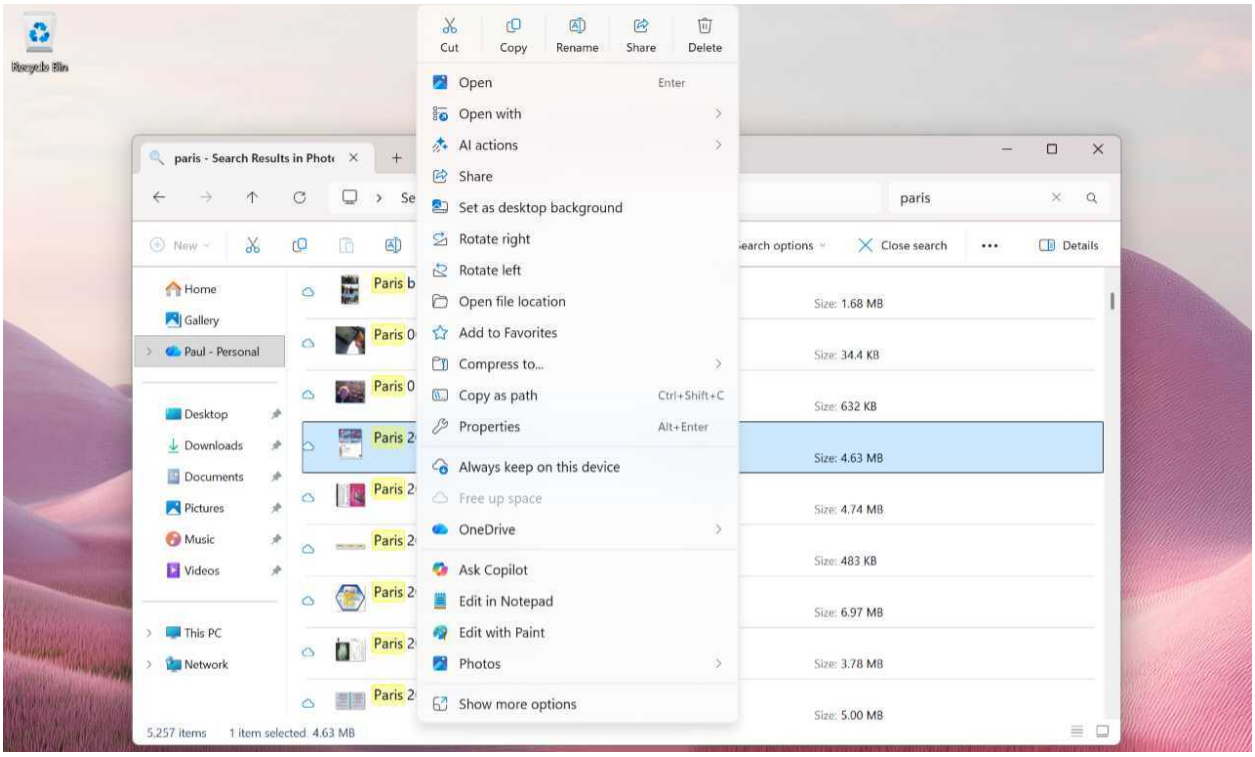
Some useful options here include:

Open a file or folder. If you double-click a file, it will open using the default app for that file type. If you double-click a folder, File Explorer will navigate to that location. You can return to the search results view by clicking "Back" ("<") in the File Explorer command bar.

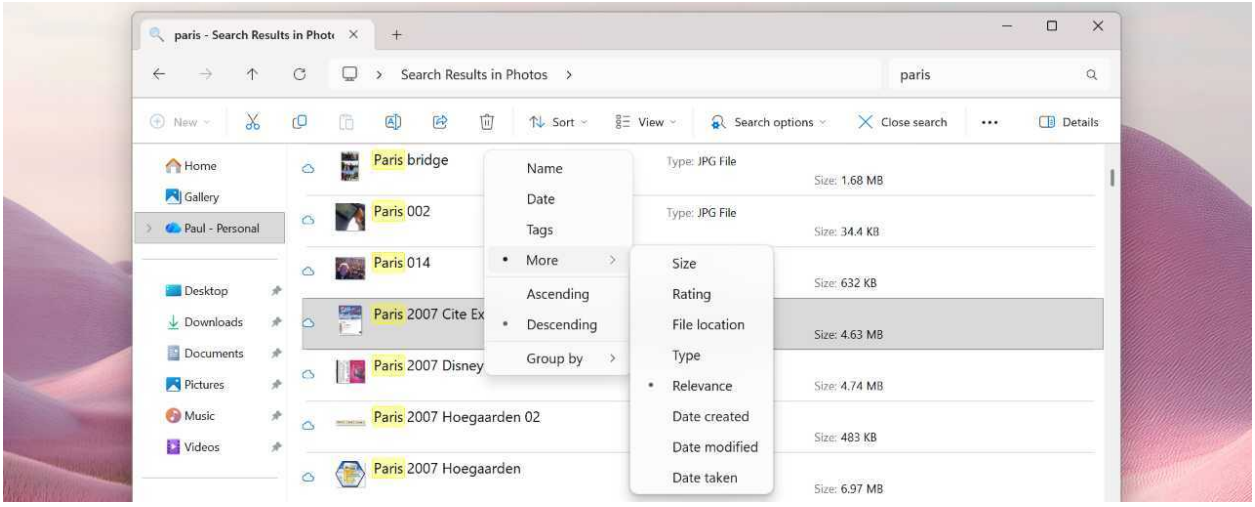
> **Keyboard shortcut**: You can also type Alt + Left arrow to navigate Back in File Explorer.

See additional options for a result. Right-click any file or folder in the results to see options like

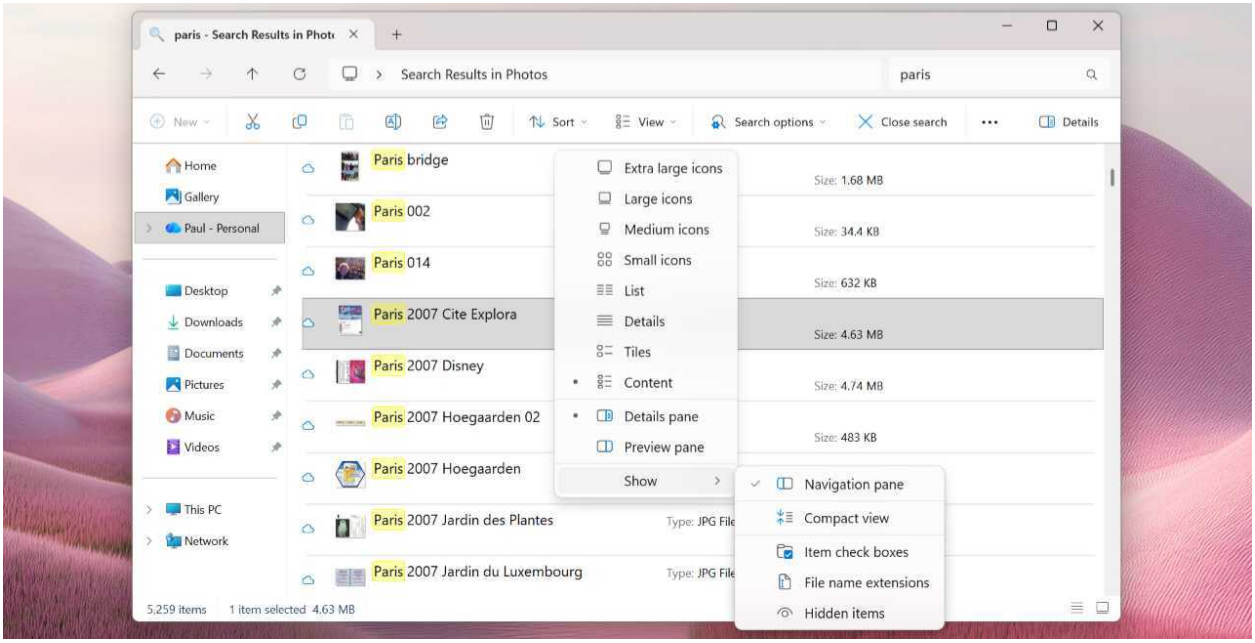
"Cut," "Copy," "Rename," "Share," "Delete," "Open in new tab" and "Open in new window" for folders, "Open folder location," "Pin to Quick access" (for folders), "Pin to Start," "Compress to…", "Properties," and many others.



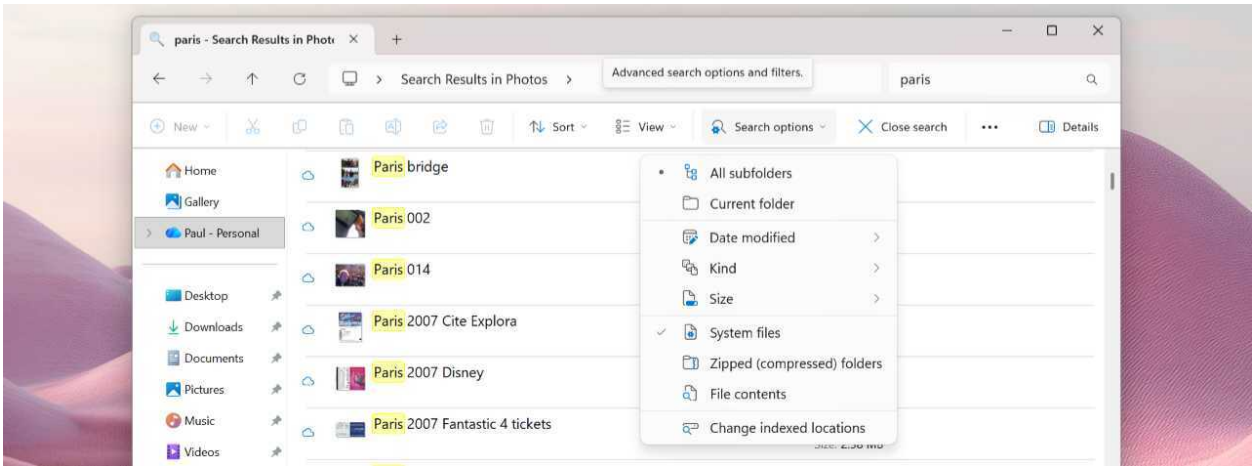
Sort the results. File Explorer sorts search results by Relevance by default, but you can use the "Sort" command bar button to sort by Name, Date modified, Type, and other criteria, toggle between Ascending and Descending sorting orders (which can be alphabetical, numerical, chronological, location, or their reverses), and optionally group the results by criteria as desired.



Change the view. File Explorer displays search results in a Content view that displays meta-data associated with each results alongside its filename. (Folders display meta-data like Date modified and Location while files display Location, Type, and Size). But you can use the "View" command bar button to change the view to any that File Explorer supports, including Extra large icons, Large icons, Medium icons, Small icons, List, Details, and Tiles. And there are options for toggling on the File Explorer Preview pane for previewing selected results inline, and showing the results in Compact view, with selection check boxes, and more.



Access search options. By default, File Explorer search results include all files in all subfolders. But the "Search options" command bar provides lets you customize what appears. You can limit the results to the current folder, specify a range for Data modified, limit the results to a specific Kind of result (essentially file type but with additional choices like Calendar, E-mail, and others), and more.



Natural language search. File Explorer uses Windows Search to locate files and folders based on their filenames, contents (for support file types), and other meta-data like type, size, location, and more. But if you have a Copilot+ PC, File Explorer's search capabilities are dramatically enhanced with language search capabilities that let you *describe* the content in files so that Search can *infer* what you mean. For example, you might search for *green sweater* in the Pictures folder to find photos that contain a green sweater, even if that term isn't in the file's filename or other meta-data.

Quick Settings

Quick settings appears when you click the "Network," "Volume," or "Power" icons in the Taskbar's system tray. As its name suggests, Quick settings provides quick access to commonly needed system settings like Wi-Fi, Bluetooth, Airplane mode, Battery saver, and more.

> **Keyboard shortcut**: You can also open Quick settings by typing Windows key + A.

That the

The "Network," "Volume," and "Power" icons working as one is unique. But they behave more typically when you right-click them. Each displays a different context menu that is relevant only to the icon you right-clicked.

Defaults

Quick settings is non-resizable interface with few settings you can customize. It displays a scrollable grid of *quick settings* buttons, six of which are visible at a time, Brightness and Volume

sliders, a “Sound output” button, a Battery life icon that opens the Settings app to System > Power & battery, and an “All settings” (gear) button that launches the Settings app to its Home page when clicked.

> **Tip**: Quick settings is sometimes customized by your PC maker to include a custom icon that launches its support app when clicked. This icon will appear to the left of “All settings” if present.

To close Quick settings, click anywhere else on-screen.

> **Keyboard shortcut**: You can also close Quick settings by tapping Esc.

Customize

Quick settings supports just a single customization capability: You can reposition any quick setting button by dragging and dropping it with your mouse.

There is no way to remove quick settings buttons you don’t want. The best you can do is reposition them at the bottom of the last page of quick settings buttons.

Also, it’s likely that your PC won’t have every possible quick setting button because some are tied to specific hardware configurations. Cellular quick settings requires a cellular data connection, for example, which is unusual in PCs.

Understand Quick settings

Quick settings is a simple, useful, and mostly obvious interface for accessing key system settings without needing to open the Settings app and search or click around to find what you need. But there's a lot of functionality in there.

Quick settings buttons

Quick settings displays six quick settings buttons in a grid at its top, but there are more pages of buttons you can't see unless you scroll down. So it provides a *pips pager* control on its right for navigating between the available pages of buttons. To do so, click a specific *pip* (circular dot) on the control, click the "Next Page" pip to scroll down one page, or, if you have a touchpad or mouse with a scroll wheel, you can use that to scroll while the mouse cursor is over the grid. When you scroll down, a "Previous Page" pip appears at the top of the control for navigating in the opposite direction

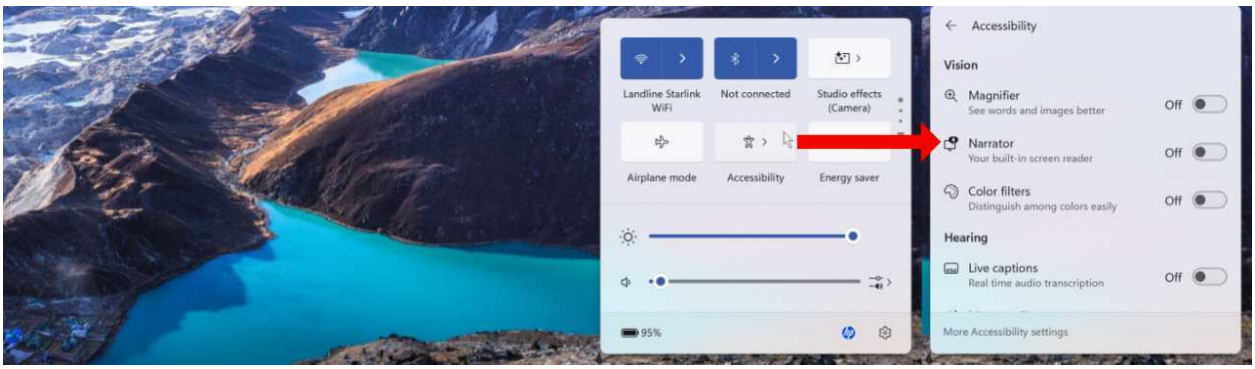
Most active quick setting buttons display using the accent color you configure (in Settings > Personalization > Colors), while most inactive buttons use the background color. Either way, it indicates whether the underlying feature is enable or not.

Each quick setting button also displays an icon and, below the button, a label to help you identify its use. But there are three types of quick settings buttons:

- **Split button**. This type of button has two halves, a left half with the quick setting icon you can click to toggle the underlying function on or off and a right half you can click to navigate to a management page that takes over the Quick setting window. The "Wi-Fi" quick setting button is perhaps the most commonly used example.

- **Toggle button**. This type of button acts as a toggle between multiple states. Most have two states, enabled/active and disabled/inactive, with Airplane mode being a typical example. But one quick setting button, Color profile, can support many states (in this case, dependent on how many color profiles you have on your PC). And this one doesn't use your accent color at all.

- **Page navigation button**. This button type looks like a toggle button but when you click it, the normal Quick settings page is replaced with a new interface displaying options for the underlying feature. The Accessibility quick setting button works this way.



You can access the underlying features of any quick setting button by right-clicking it and choosing "Go to Settings."

Wi-Fi

This quick setting is used to toggle *Wi-Fi* on or off and to manage available Wi-Fi networks. If Wi-Fi is enabled but you are not connected to a network, the button's label with read "Available." And when you are connected to a Wi-Fi network, the name of that network will appear as the button's label.

> **Tip**: If Wi-Fi is disabled, the button will be titled "Wi-Fi." And if Wi-Fi is enabled but you are not connected to a network, it will be titled "Available."

To see available Wi-Fi networks and access other Wi-Fi settings, click the right half of the button.

Here, you can toggle Wi-Fi on or off, see a list of available Wi-Fi networks and click one to connect, disconnect from or view the properties of a network you are connected to, click a "More Wi-Fi settings" button to open the Settings app open to the Wi-Fi settings page, trigger a web-based Internet speed test using your default web browser, or refresh the list of available Wi-Fi networks.

Less obviously, you can right-click a Wi-Fi network and access options like "Connect," (if not connected), "Disconnect," "Properties," and "Forget."

Learn more: Wi-Fi

Bluetooth

This button is used to toggle Bluetooth on or off and to manage available Bluetooth devices. When you are connected to a Bluetooth device, the button's label will display as the name of that device, and if Bluetooth is enabled but you are not connected to a device, it will be titled "Not connected."

To see connected and available Bluetooth devices, click the right half of the button.

Here, you can toggle Bluetooth on or off, see a list of available Bluetooth devices nearby and click one to connect, and click a "More Bluetooth settings" button to open the Settings app open to the Bluetooth settings page.

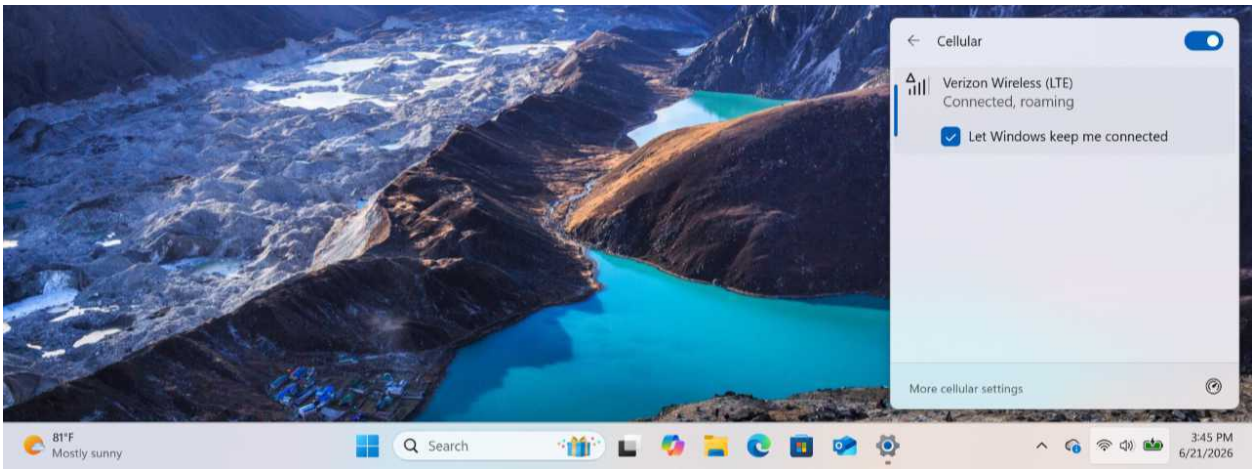
What you can't do here is remove a paired device–you cand do that via Bluetooth settings–and there are no additional right-click options.

Learn more: Bluetooth

Cellular

This button appears in Quick settings if your computer is equipped with a *cellular modem* that lets it access the Internet using a *cellular data connection* provided by a mobile carrier. When you are connected to this type of network, the button's label displays as the name of the cellular network to which you are connected. Otherwise, it may read "Connect with eSIM."

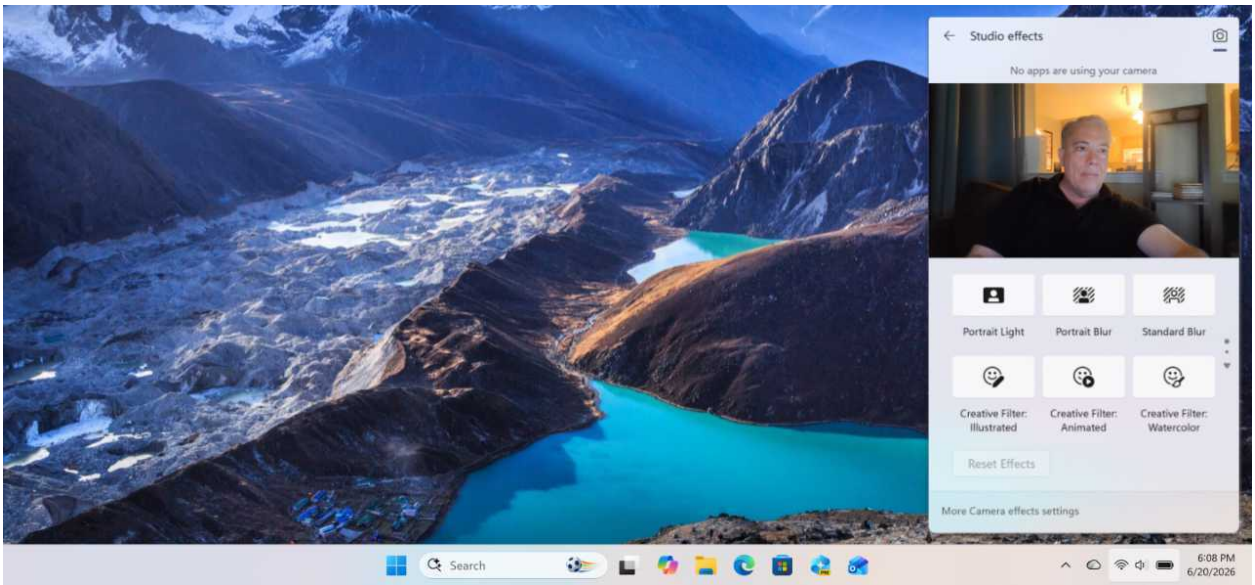
You click the left side of the Cellular split button to toggle cellular connectivity on and off. And you click the right side to access a few options related to this unique type of connection.



Learn more: Cellular Data

Studio effects

This button appears if your PC supports any of the *Windows Studio Effects* set of local AI-based camera and audio enhancements. When you click it, it displays a unique Studio effects page with camera controls, a camera preview, a scrollable grid of the available effects (which uses the same pips control as the quick access button area in the main Quick settings interface) that you can enable on the fly, and a "More Camera effects settings" link that opens the Settings app navigated to Bluetooth & devices > Cameras > *the default camera*.



Learn more: Windows Studio Effects

Airplane mode

This button acts as a toggle: When enabled, it will disable any wireless radios in your PC, including Wi-Fi, Bluetooth, and, if available, cellular broadband.

It's not all or nothing. While your PC is in *Airplane mode*, you can individually enable any or all of the wireless radios in your PC. For example, you may still wish to use Bluetooth headphones while in Airplane mode while leaving Wi-Fi disabled. However you configure it, Airplane mode

will remember, so the next time you toggle it on, it will leave whichever wireless radios you previously used in Airplane mode enabled going forward.

> **Learn more**: Airplane Mode

Energy saver

This button toggles the Windows 11 feature *Energy saver* on and off. When enabled, Windows 11 will limit background activities and notifications while dimming the screen to extend battery life.

> **Tip**: By default, Energy saver is configured to turn on automatically when the PC's battery life reaches 30 percent. This seems aggressive to me, so I usually configure it to come on when the battery reaches 10 percent instead. You can view this feature and change the configuration if desired by right-clicking the Energy saver quick setting button and choosing "Go to Settings." The Settings app will open and navigate to System > Power & battery page, where you will find an "Energy saver" section.

Accessibility

When clicked, this button displays an Accessibility page that lists several accessibility features organized by Vision, Hearing, and Motor and Mobility categories. You can toggle any of these features on or off directly from this page without having to access Accessibility settings in the Settings app. The "More Accessibility settings" link at the bottom of the page will open Accessibility settings so you can access and configure these and other accessibility features.

Live captions

This button toggles *Live captions* on and off so you can get on-screen captions and, if enabled, live language translations, on the fly for any audio or video content playing on your PC.

> **Tip**: Live captions appears as a pane at the top of the screen by default, but you can configure this feature directly from the pane and in the Settings app by navigating to Accessibility > Captions.

Night light

This button toggles *Night light* on and off. When enabled, *Night light* reduces the amount of cold blue light emitted by your PC's display while amping up the warmer colors, which reduces eye strain.

> **Learn more**: Night light can be configured in Settings > System > Display> Night light. There, you can customize its warmth and configure this feature to turn on and off automatically on a schedule, for example between sunset and sunrise. It's not a bad idea.

Mobile hotspot

This button toggles the Windows 11 *Mobile hotspot* feature on and of. Mobile hotspots lets lets you share your Wi-Fi connection with up to 8 other devices. When it's enabled, the Mobile hotspot button's label displays the number of connections (like *1/8*) and the name of your Wi-Fi network.

You should configure Mobile hotspot before you enable it here.

> **Learn more**: Mobile Hotspot

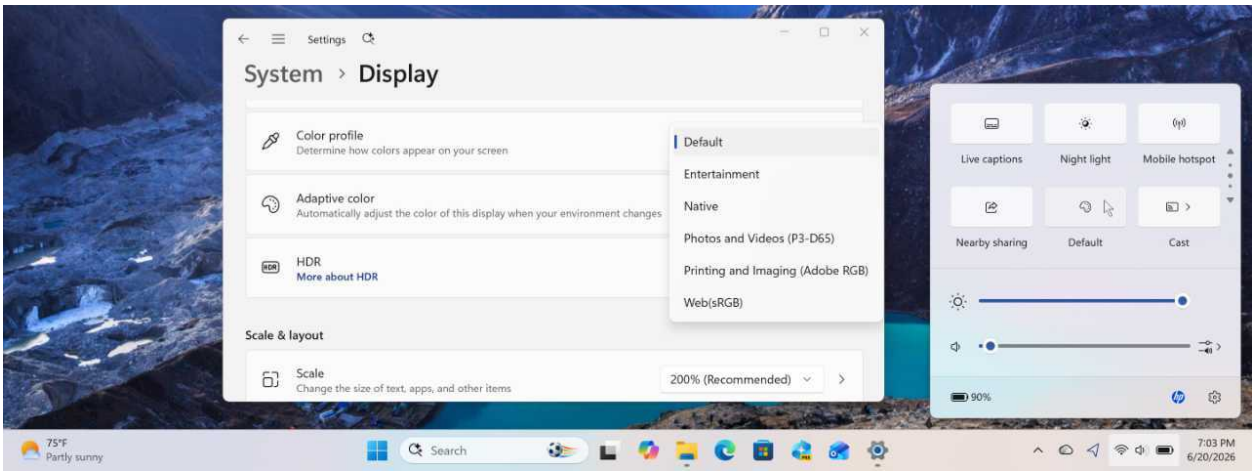
Nearby sharing

This button toggles the *Nearby sharing* feature in Windows 11 on and off. When enabled, you can share share documents, photos, and other files with other Windows 11-based PCs on the same network using File Explorer.

> **Learn more**: Nearby Sharing

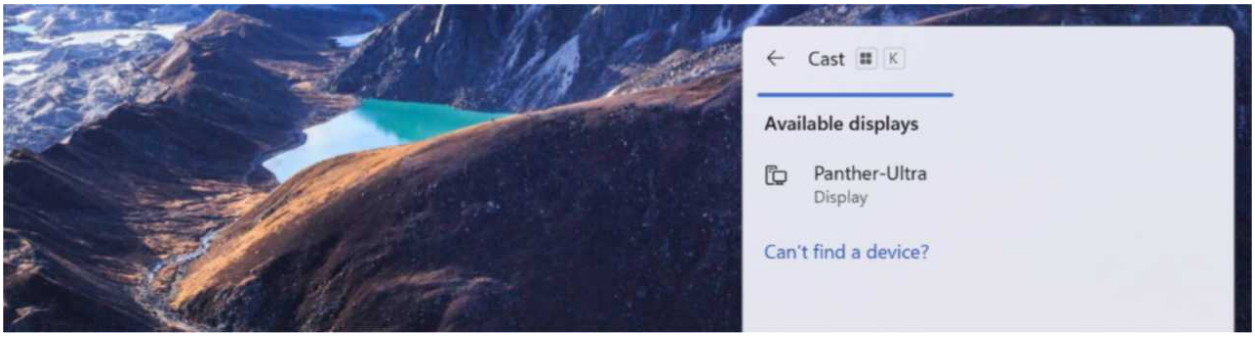
Color profile

If your PC has two or more *color profiles* installed, you will see a Color profile quick settings button, though it will never see that name in its label. Instead, the Color profile button will display as the currently-selected color profile. Each time you click this button, the color profile changes to the next color profile.



Cast

This button displays the *Cast* page when clicked, providing a way to connect to an available wireless display–including many modern smart TVs–using a Wi-Fi-based technology called *Miracast*. To connect to a wireless display, click it in the list. To disconnect from a wireless display, open the Cast pane and click the Disconnect button.



Keyboard shortcut: You can display this interface directly by typing Windows key + K at any time.

Learn more: Connect to a wireless display

Project

This button displays the *Project* page so you can configure how Windows 11 uses one or more secondary displays. By default, Windows 11 configures external displays to *duplicate* the primary display when connected, but this is rarely ideal. You can use this pane to *extend* the desktop–to use both displays, each with its own desktop–or to use only one of the displays.

Keyboard shortcut: You can display this interface directly by typing Windows key + P at any time.

Learn more: Multiple Displays

Recall

This button appears only if you have a Copilot+ PC. It provides a handy front-end to Recall so you can preview available snapshots, open the Recall app, or access Recall settings in the Settings app.

> **Learn more**: Recall

Shared audio

New to 2026, Windows 11 supports *Shared audio*, a way to play the same audio output to two compatible Bluetooth LE headphones, earbuds, hearing aids, or similar simultaneously. You can toggle this feature on using the "Shared audio" quick setting button, which only appears in Quick settings if it's supported by your PC.

> **Tip**: Unfortunately, Share audio also requires a Copilot+ PC, which can limit its availability.

When you click "Shared audio," the Shared audio interface appears and lists the compatible Bluetooth audio devices that are paired with your PC.

Select the two you wish to use and click “Share” to get started.

> **Learn more**: Bluetooth

Rotation lock

This button appears if you have a tablet or 2-in-1/convertible PC that supports display rotation. When toggled on, it prevents the PC from rotating away from its current orientation, which can be Landscape, Portrait, Landscape (flipped), or Portrait (flipped).

> **Tip**: You can manually configure a display orientation in the Settings app: Navigation to System > Display and locate “Display orientation” in the “Scale & layout” section of that page.

Brightness and Volume

The Brightness and Volume sliders below the quick settings buttons grid are straightforward: You use them to granularly adjust the display brightness and audio volume, respectively, between 0 and 100 percent. You can also click the icon to the left of the Volume slide to toggle Volume mute on and off.

Quick settings includes a “Brightness” slider you can use to control the brightness of the display.

> **Tip**: Laptops and other portable PCs typically include dedicated keys in the top function row of

the keyboard for increasing or decreasing screen brightness and for Volume up, Volume down, and Mute, and these keys are often easier and quicker to use.

Sound output

Windows 11 includes a useful “Sound output” interface that lets you switch between available audio output devices (like speakers, headphones, and the Shared audio feature noted above), spatial sound capabilities if available, and a volume mixer that lets you granularly adjust volume on an app-by-app basis.

You can access this scrollable interface by opening Quick settings and clicking the “Select a sound output” button to the right of the Volume slider.

Keyboard shortcut: You can also display “Sound output” directly at any time by typing Winkey + Ctrl + V.

Tip: This interface is a miniature version of the Settings page found by navigating to System > Sound > Volume mixer. They’re nearly identical, though the Settings version includes a useful “Reset sound devices and volumes for all apps to the recommended defaults” option that is missing from Sound output.

Multitasking

Windows 11 offers a rich set of multitasking features like Clipboard, Alt + Tab, Task view, Snap, Do not disturb and Focus, Task Manager, and Desktops.

Clipboard

The Windows *Clipboard* allows you to share information stored in one app–the source app–with a second app–the destination app–using well-understood *copy*, *cut*, and *paste* operations. It has evolved over the years to include rich text formats including those supported by Microsoft Office applications and multiple graphics formats. And File Explorer uses Clipboard-based copy, cut, and paste operations for copying and moving files between different locations in the file system.

Defaults

The Clipboard can only hold a single item by default, and it exists solely in RAM, so it is not persistent and will not survive a reboot. That item is stored in multiple formats when necessary, however, for maximum compatibility. For example, if you copy or cut formatted text from a Microsoft Word document, that item is stored in the Clipboard in multiple formats so that it can retain its formatting or be pasted as plain text, depending on the destination application.

Customize

Windows 11 provides the most advanced version of Clipboard yet. In addition to supporting all the functionality you remember from previous Windows versions, you can also enable a *Clipboard history* feature to store multiple items in the Clipboard at once and sync Clipboard text between multiple PCs.

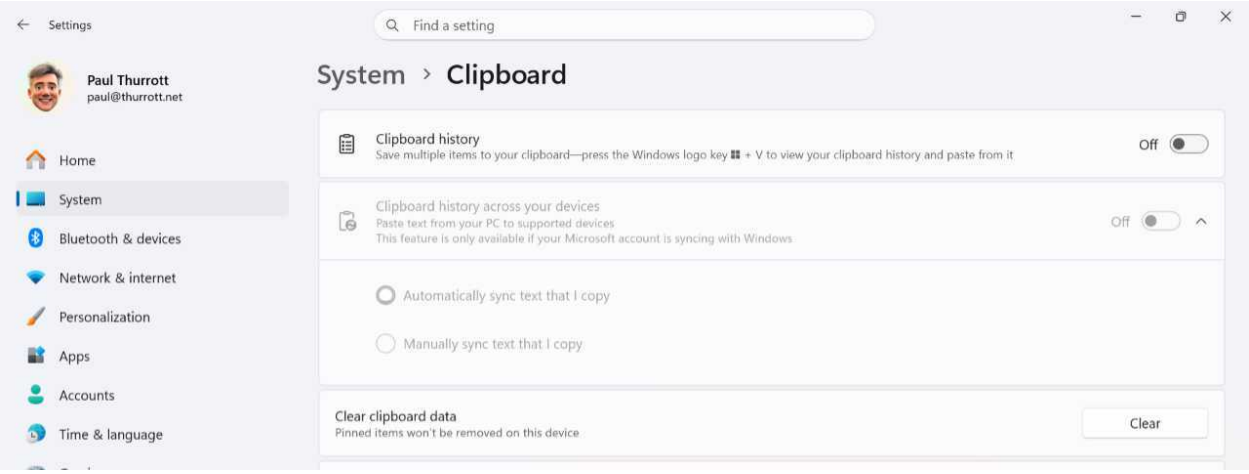
> **Tip:** Cross-device Clipboard sync requires you to sign in to Windows 11 with a Microsoft account.

Use Clipboard history to copy multiple items to the Clipboard

To help overcome the Clipboard's most obvious limitation–it can hold only a single item at a time–Windows 11 provides an optional Clipboard history feature that lets you save multiple items to the Clipboard.

Enable Clipboard history

To enable Clipboard history, open the Settings app and navigate to System > Clipboard.



Then, configure the setting "Clipboard history" as "On."

> **Keyboard shortcut**: Alternatively, you can simply type Windows key + V, the keyboard shortcut used to paste one of multiple items stored in Clipboard history; if this feature isn't yet enabled, the Clipboard history window will appear and present a "Turn on" button so you can enable this feature.

Now, when you copy something to the Clipboard, it will be added to the Clipboard without replacing whatever was in the Clipboard previously. But there are a few caveats:

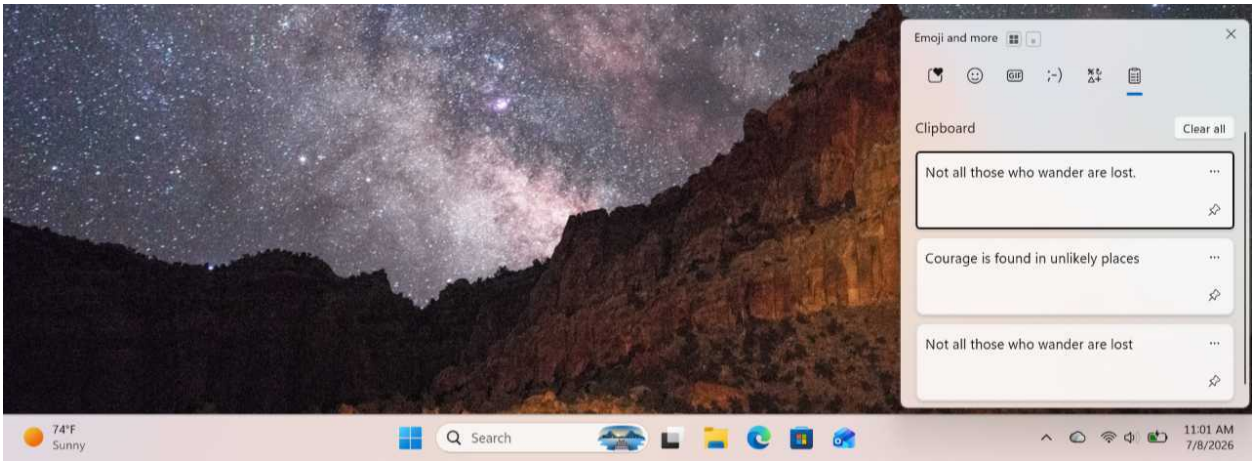
- Clipboard history can store up to 25 items
- Those items can be text, HTML, and bitmap graphics only
- Each item must be 25 MB or smaller

The Clipboard will still work normally with items that do not meet those criteria. But unsupported items will not appear in Clipboard history.

Use Clipboard history

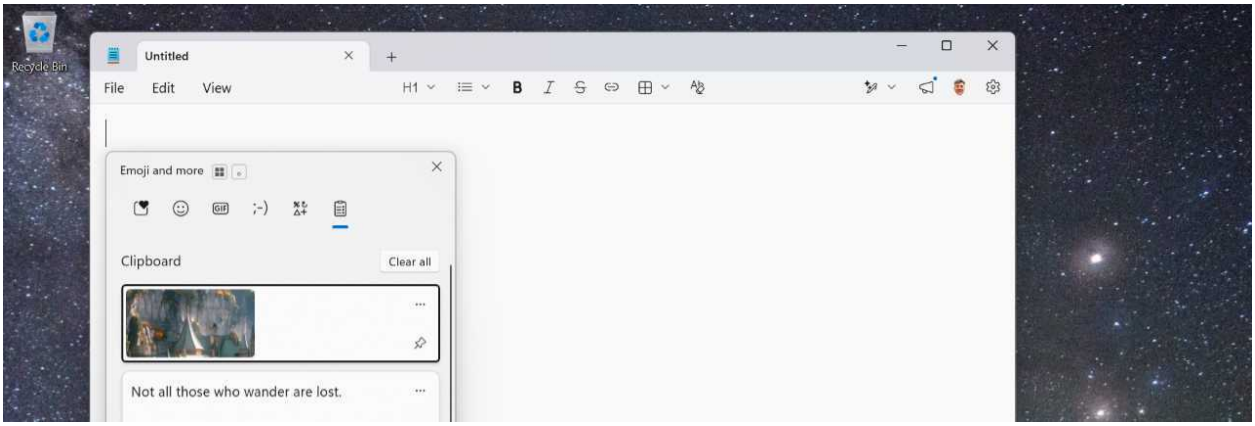
With Clipboard history enabled, normal paste operations will work as before: If you use the Ctrl + V keyboard shortcut, for example, Windows 11 will paste the most recent item that was added to the Clipboard.

But now you can use the new Windows key + V keyboard shortcut to display the Clipboard history window so you can choose which item to paste.



Using this pop-up window, you can select from the items that are available in the Clipboard. In this example, there are three items, all of which are plain text. (Each is a quote from J.R.R. Tolkien.)

Because the Clipboard works differently with different types of items and with different apps (each of which has its own capabilities and limitations), what you see here–and what you can paste–may vary. For example, if you copy an image from Microsoft Paint to the Clipboard and then try to paste it to Notepad, a plain text editor, you will see that the graphic appears in Clipboard history, even though you can't paste it into Notepad.



Do more with Clipboard history

In addition to basic copy and paste operations, Clipboard history supports some other useful features. They are:

- **Pin item**. If you find yourself pasting one of the items in Clipboard history repeatedly, you can *pin* it so that it remains in Clipboard history, won't be overwritten, and will even survive reboots. To do so, open Clipboard history, find the item you wish to pin and then click its "Pin item" (pushpin) icon.

Tip: Yes, you can pin multiple items to Clipboard history.

- **Paste item as text**. The Clipboard supports multiple text formats, including rich text like that created by Microsoft Word. If you want to ensure that text stored in Clipboard history is pasted as plain text, select its "See more" link ("...") and then the "Paste as text" (clipboard) icon that appears.

- **Delete item**. To remove an item from Clipboard history, select its "See more" link ("...") and then the "Delete" (trashcan) icon that appears.
- **Delete all items**. To remove all the items from Clipboard history, select the "Clear all" button in the Clipboard history window.

Sync the Clipboard across your PCs

Windows 11 supports a feature that lets you copy text to the Clipboard on one PC and then paste it on another PC. This feature is not enabled by default, and you have to enable it on each PC you intend to use.

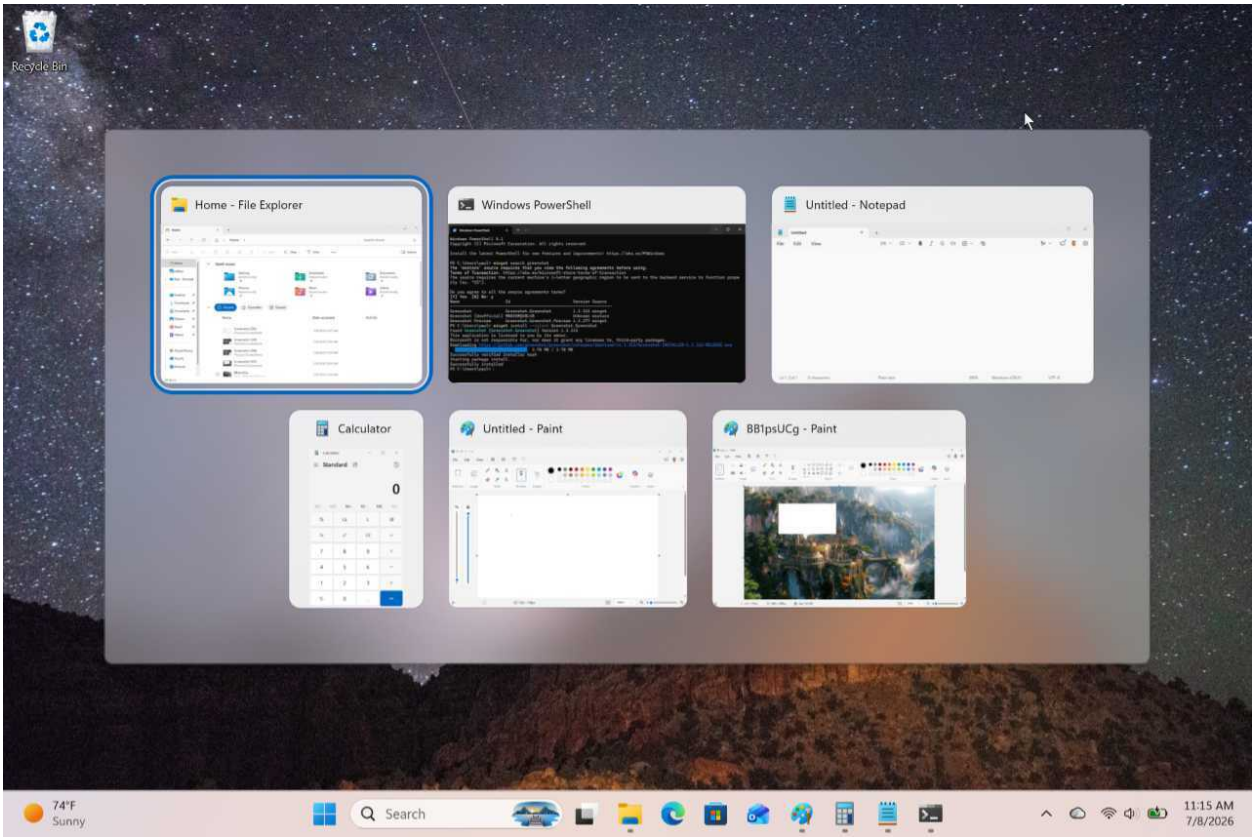
> **Tip**: This feature requires Clipboard history to be enabled, and it requires you to sign in to Windows 11 with a Microsoft account.

To enable Clipboard history sync, open the Settings app, navigate to System > Clipboard, and configure "Clipboard history across your devices" to "On."

If you expand that item, you can see that "Automatically sync text that I copy" is enabled. You can switch this to a manual sync, but automatic syncing is generally the better choice.

Alt-Tab

Alt-Tab is the simplest and oldest form of multitasking between apps and other windows in Windows. It works much as it always has in Windows 11: There's no graphical interface for launching this feature, so you have to hold down the Alt key and then tap Tab to do so. When you do, a grid of app and window thumbnails appears in a window that displays on top of all other windows.

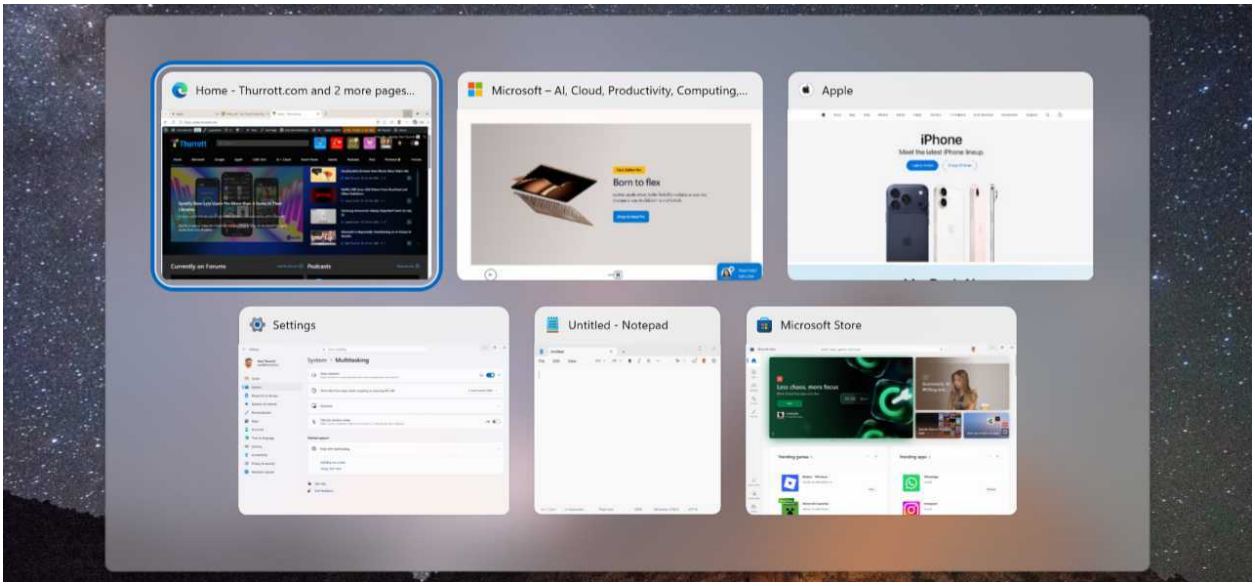


> **Tip**: If you have a laptop with a touchpad that supports gestures, you can also display Alt + Tab by swiping

Defaults

By default, Task view is configured so that snapped apps and windows appear in Task view twice, once for the snapped window group and once for the standalone app window, so you can switch to either.

- Alt + Tab doesn't just display open app and window thumbnails by default, it also displays the three most recent tabs you accessed in Microsoft Edge.



- If you are using multiple Desktops–the Windows 11 term for *virtual desktops*–Alt-Tab will display only those apps and windows (and Edge tabs) that are open on the current desktop.

Customize

You can customize some Alt-Tab behaviors in the Settings app. Navigate to System > Multitasking to see the available options. Key options include:

- **Snap windows > Show my snapped windows when I hover over taskbar apps, in Task View, and when I press Alt+Tab**. If you don't want to see snapped window groups in Alt + Tab, you can disable this option.
- **Show tabs from apps when snapping or pressing Alt+Tab**. If you use Microsoft Edge and like being able to access individual tabs in Alt-Tab, you can configure this so that Alt + Tab displays the most recent 3, 5, or 20 Edge tabs. If you do not want to see Edge tabs in Alt + Tab, you can configure this to "Don't show tabs."
- **Show all open windows when I press Alt + Tab**. This isn't immediately obvious, but this setting determines whether Alt + Tab displays open apps and windows from all desktops or from just the current desktop.

Use Alt-Tab to switch between open windows

When you open Alt-Tab, the thumbnail for the next window in the *z-order*–the list of available apps and other windows, listed in the order in which they were most recently accessed–is selected. (Put another way, the window you most recently accessed is selected.) So you can quickly switch to this window by letting go of the ALT key. Alt-Tab closes when you do so.

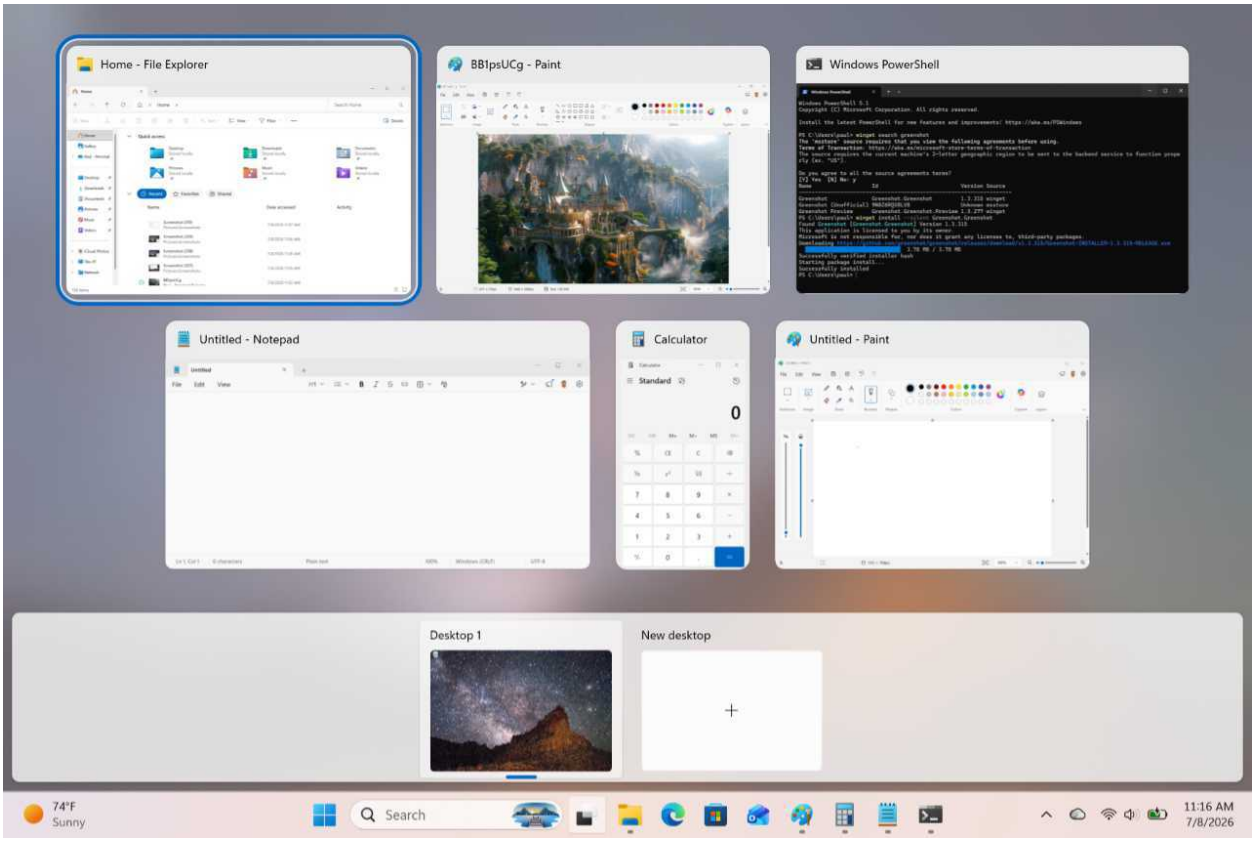
Indeed, you can quickly toggle between the two most-recently-accessed windows by repeatedly typing ALT + TAB.

To select another app or window, hold down the Alt key, and then repeatedly tap the Tab key. As you do so, the selection will change. When the app or window you want is selected, release the Alt key and that will jump to the forefront.

> **Tip:** You can also type Alt + Shift + Tab to move through the Alt-Tab z-order in reverse.

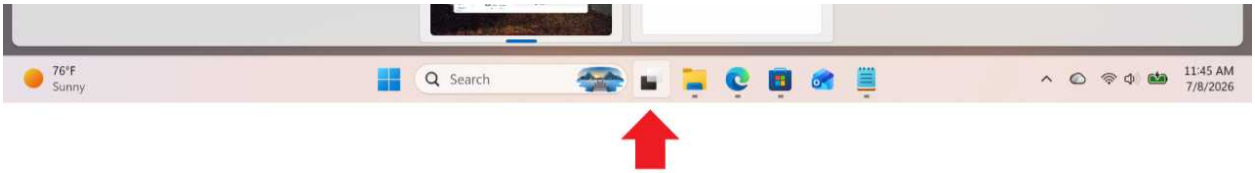
Task View

Task view works much like Alt-Tab in that it lets you switch between open apps and other windows (i.e. "tasks"). But it offers some key advantages over Alt-Tab as well. It's persistent and doesn't require the same keyboard gymnastics. It can be accessed by mouse using a handy Taskbar item. And it also lets you access Windows 11's virtual desktop feature, called Desktops.



> **Tip**: Task view is curiously missing one key feature that's available in Alt-Tab: While Alt-Tab can be configured to display individual Microsoft Edge tabs, Task view cannot. Instead, you will see a single thumbnail for Microsoft Edge in Task view.

To open Task view, click the Task view item in the Taskbar.



> **Keyboard shortcut**: You can also type Windows key + Tab to display Task view.

Task view displays an Alt+Tab-like switcher at the top, with thumbnails representing each open app and window. But there is also a *Desktops* pane on the bottom for accessing any available virtual desktops or creating a new virtual desktop.

> **Learn more**: Desktops

Defaults

By default, a Task view icon appears on the Windows 11 Taskbar. Task view is configured so that snapped apps and windows appear in Task view twice, once for the snapped window group and once for the standalone app window, so you can switch to either. And if you are using multiple Desktops–the Windows 11 term for *virtual desktops*–Alt-Tab will display only those apps and windows (and Edge tabs) that are open on the current desktop.

Customize

To determine whether a Task view item appears on the Taskbar, open Settings and navigate to Personalization > Taskbar. You can configure the "Task view" option under "Taskbar items" to "Off" to remove this item from the Taskbar. Which isn't a horrible idea if you can remember the Windows key + Tab keyboard shortcut and want to save some space on the Taskbar.

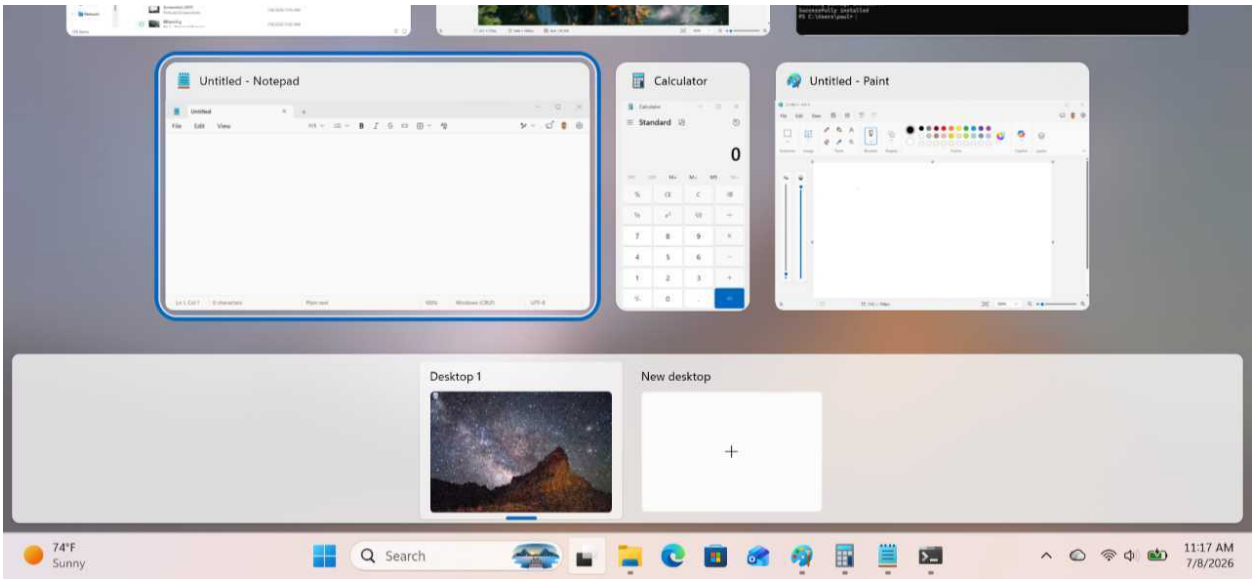
As with Alt-Tab, you can also customize some Task view behaviors in the Settings app by navigating to System > Multitasking to see the available options. Key options here include:

- **Snap windows > Show my snapped windows when I hover over taskbar apps, in Task View, and when I press Alt+Tab**. If you don't want to see snapped window groups in Task view, you can disable this option.
- **Show all open windows when I press Alt + Tab**. This setting determines whether the thumbnails at the top of Task view display open apps and windows from all desktops or from just the current desktop.

Use Task view to switch between open apps and windows

Task view displays bigger thumbnails than Alt-Tab for some reason. But there';s still a selection rectangle and Task view handles the z-order similarly: The currently focused window is first in the grid of thumbnails, followed by the other most-recently-accessed windows in order.

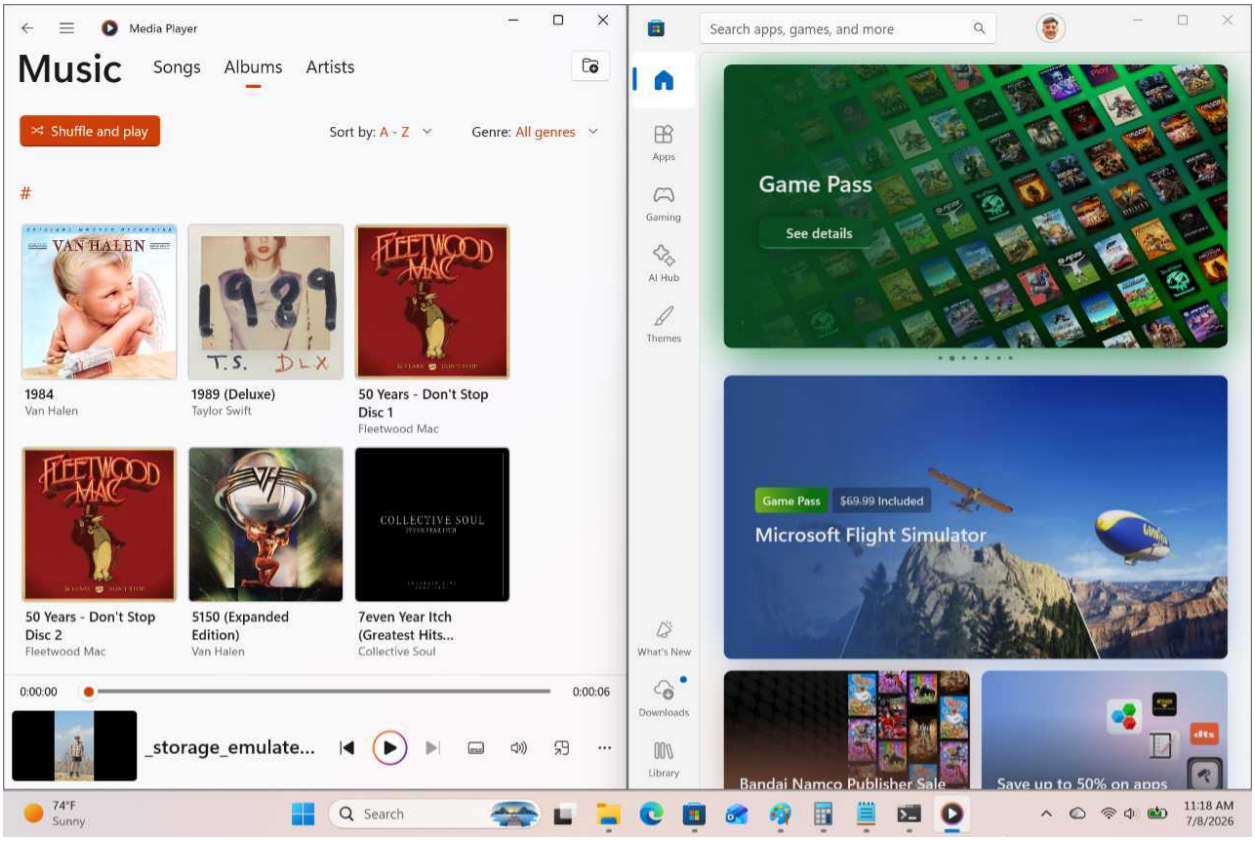
To switch to another open window, simply click the appropriate thumbnail. Task view closes when you do so.



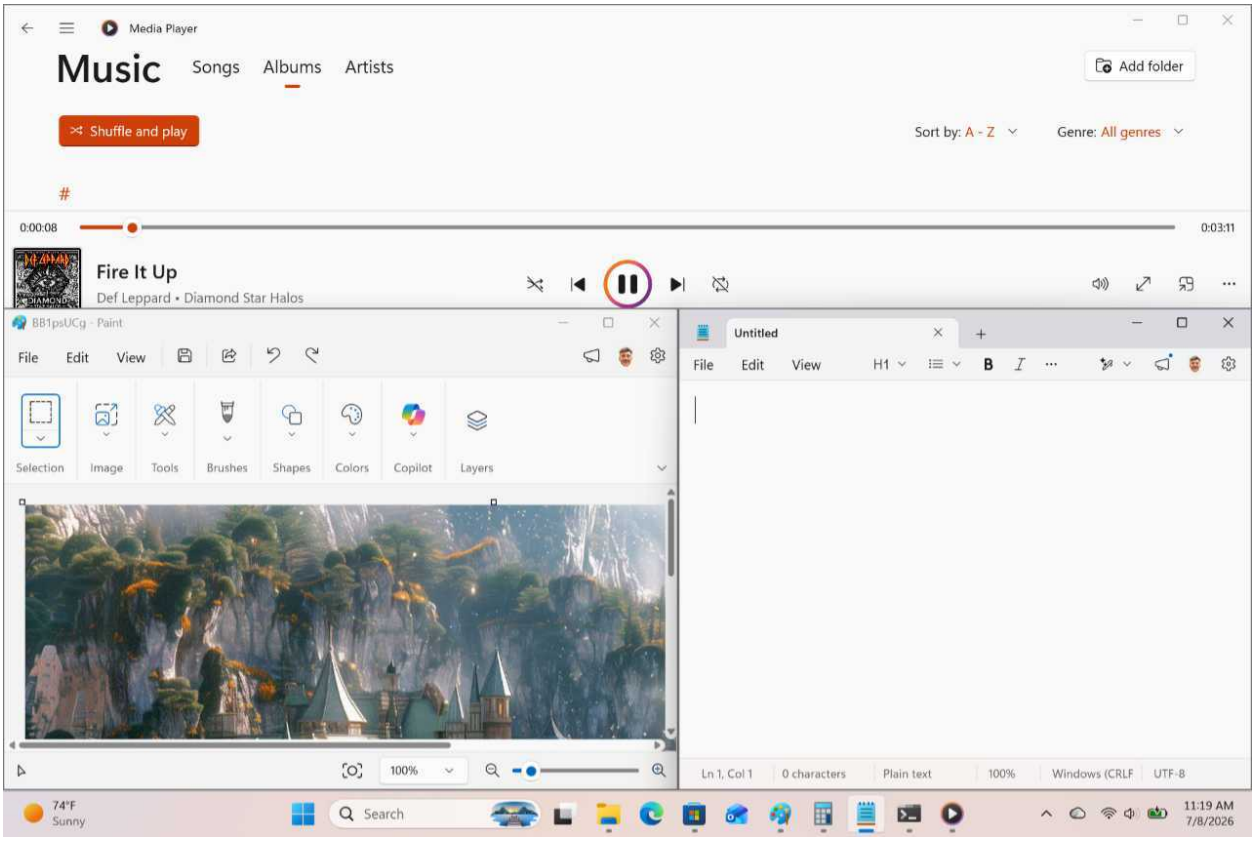
> **Keyboard shortcut**: If you like using the keyboard, you can use the Arrow keys to navigate through the available app and window thumbnails. Then, tap Enter or Space to switch to the selected window.

Snap

Snap is a set of Windows 11 features that helps you organize how your open apps and other windows appear on-screen. In its simplest configuration, you can snap two windows side-by-side, with each window occupying 50 percent of the screen.



But Snap also lets you position three, four, or more windows on-screen in interesting layouts.



The possibilities are only limited by your display's capabilities–including its resolution, scaling, physical size, and orientation–and your needs. If you have a higher resolution display or have configured display scaling to a smaller value, you may be offered additional layout options.

There are four primary Snap features:

Snap. This is used to *snap* an open window to a screen edge or corner, and to maximize and minimize a window.

Snap suggestions. When you snap one window, Windows 11 will suggest other windows you can snap in the remaining space.

Snap layouts. This feature is used to determine how multiple windows will be arranged on-screen, and it displays layout suggestions based on which apps are currently open.

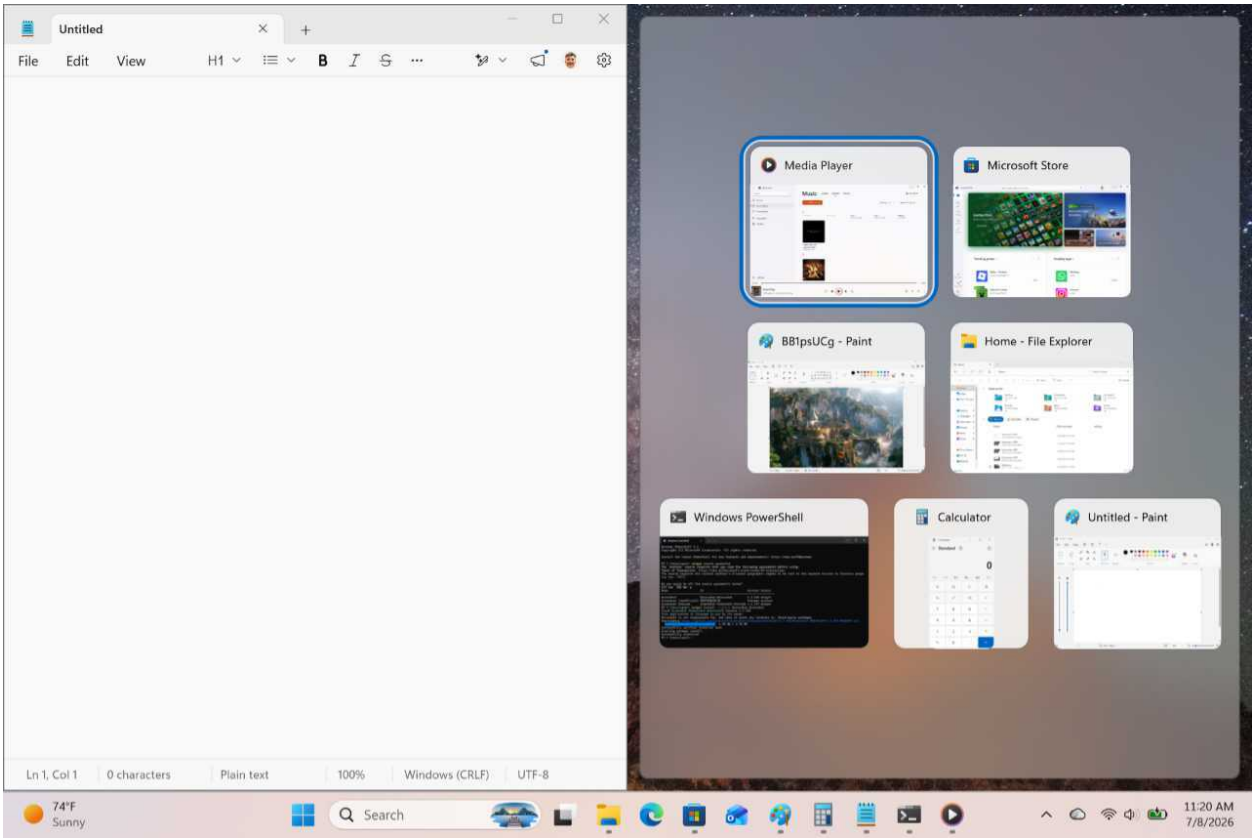
Snap assist. After you've *snapped* a window directly or with Snap layouts, Snap assist helps you position the other window(s) you will snap into the on-screen layout.

Snap groups. This feature helps you return to previously created Snap layouts.

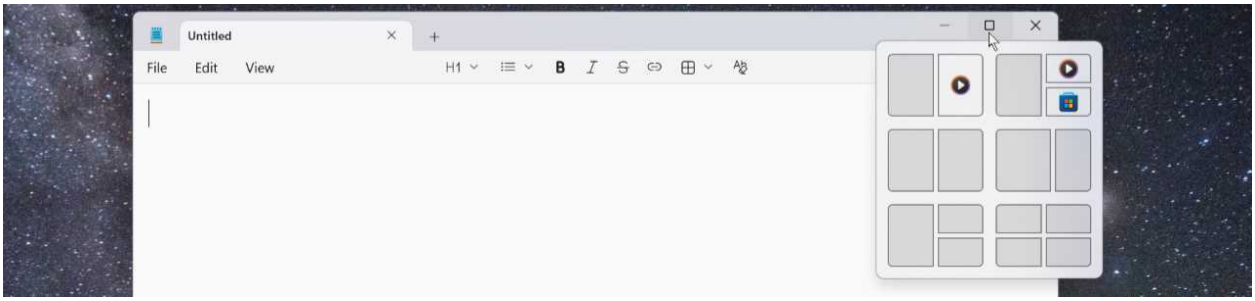
Defaults

Snap is configured in the following ways by default:

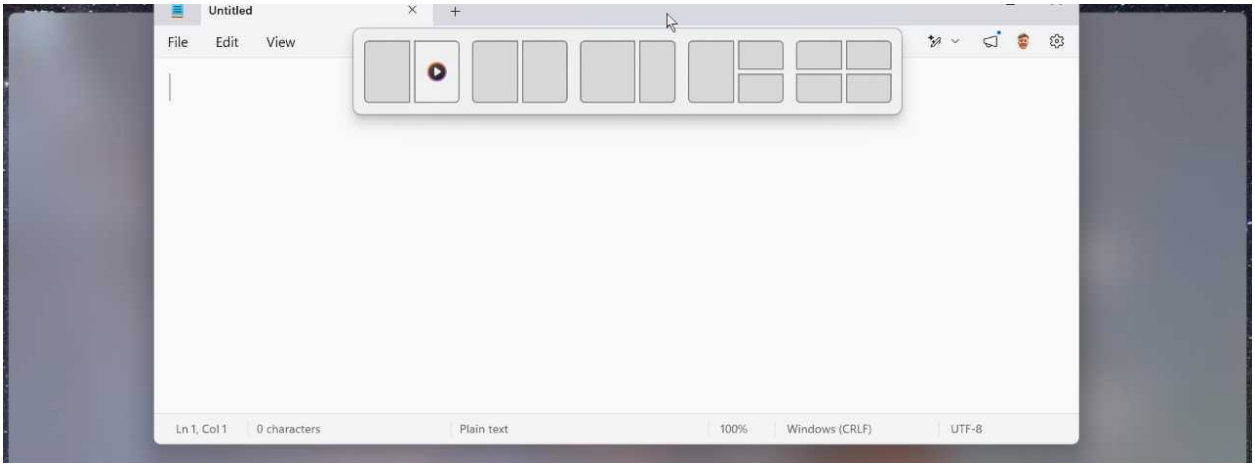
- Snap suggestions appear on-screen when you snap a window.



- A Snap layouts pop-up appears when you mouse-over a window's "Maximize" button.



- You can access a *Snap bar* with Snap layouts options when you drag a window towards the top of the display with the mouse.



- Snapped window groups appear in Alt-Tab, Task view, and when you mouse over the Taskbar shortcut button for any app in a snap group.

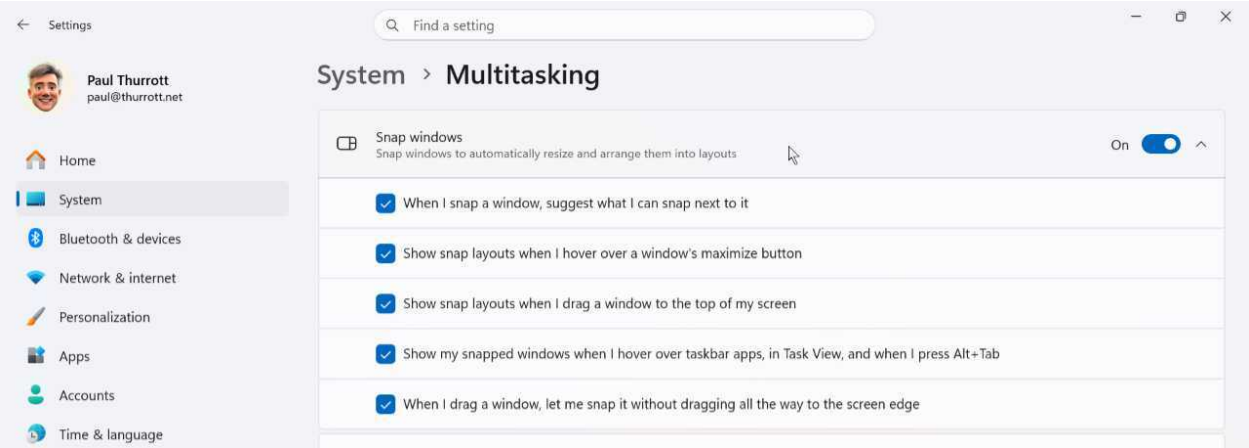
- When you use the mouse to drag a window so that it will be snapped, you can snap it before reaching the screen edge.

Additionally, Snap provides a lengthy list of keyboard shortcuts so you can use various Snap features without taking your hands off the keyboard. Some of the more commonly used keyboard shortcuts include:

- **Snap a window to the left side of the display**: Windows key + Left arrow
- **Snap a window to the right side of the display**: Windows key + Right arrow
- **Maximize a window**: Windows key + Up arrow
- **Restore a maximized window**: Windows key + Down arrow
- **Minimize a window**: Windows key + Down arrow
- **Display available Snap layouts for the current window**: Windows key + Z

Customize

All Snap customization occurs in Multitasking settings: Open the Settings app, navigate to System > Multitasking, and expand the "Snap windows" item so you can see the normally hidden options.



Here, you can configure the following:

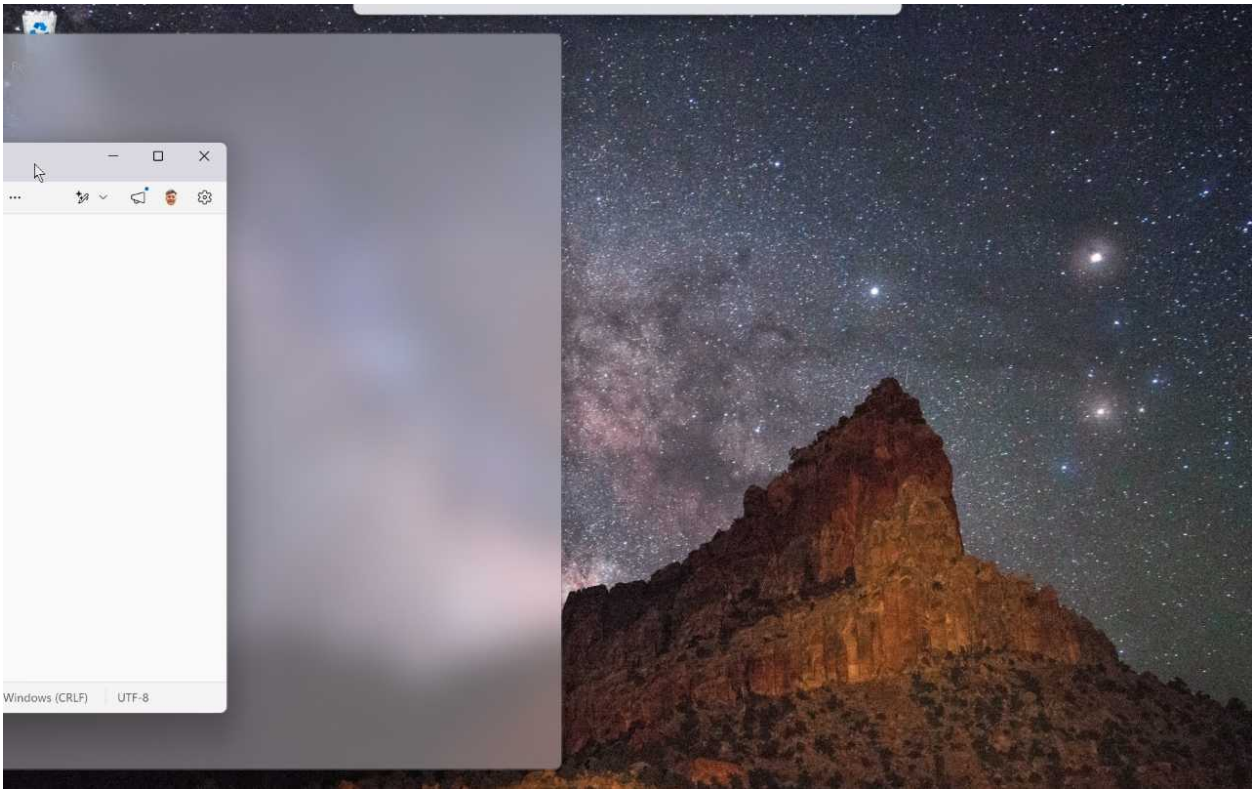
- **Disable Snap**. To disable Snap entirely, just configure the "Snap windows" setting to "Off."
- **Disable individual Snap features**. The several options you can see when you expand the "Snap windows" item let you configure individual Snap features on or off. For example, if you want to disable the Snap bar, which I find annoying, configure "Show snap layouts when I drag a window to the top of my screen" to "Off."
- **Determine whether Snap can access individual Microsoft Edge tabs**. By default, Snap works with open apps and windows and the three most recent tabs you've accessed in Microsoft Edge. But you can configure how many tabs Snap can access or disable this feature entirely by configuring the option "Show tabs from apps when snapping or pressing Alt+Tab."

Snap windows manually

If you only need to snap two or four windows, you can do so manually using drag-and-drop via your mouse, touchpad, multitouch, or keyboard shortcuts.

Snap two windows side-by-side

To snap a window to either side of the screen, drag it towards one of those screen edges. When you get close, a guide will appear showing where the window will be snapped if you let go of it.



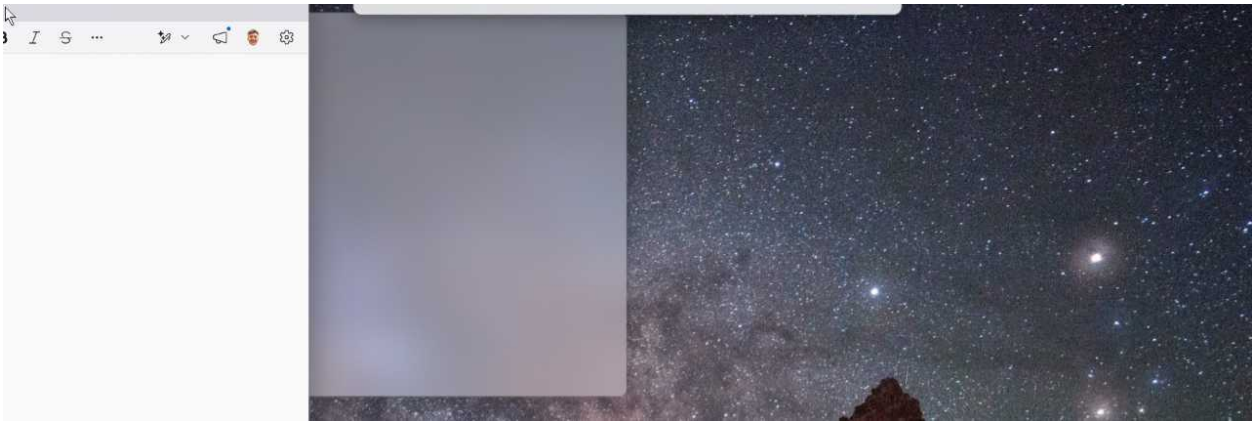
Let go of the window to snap it. When you do, *Snap assist* jumps in and shows you the other available windows that can be snapped in the remaining space.

Select the window you want and it will snap into place as well. Now you have two windows side-by-side.

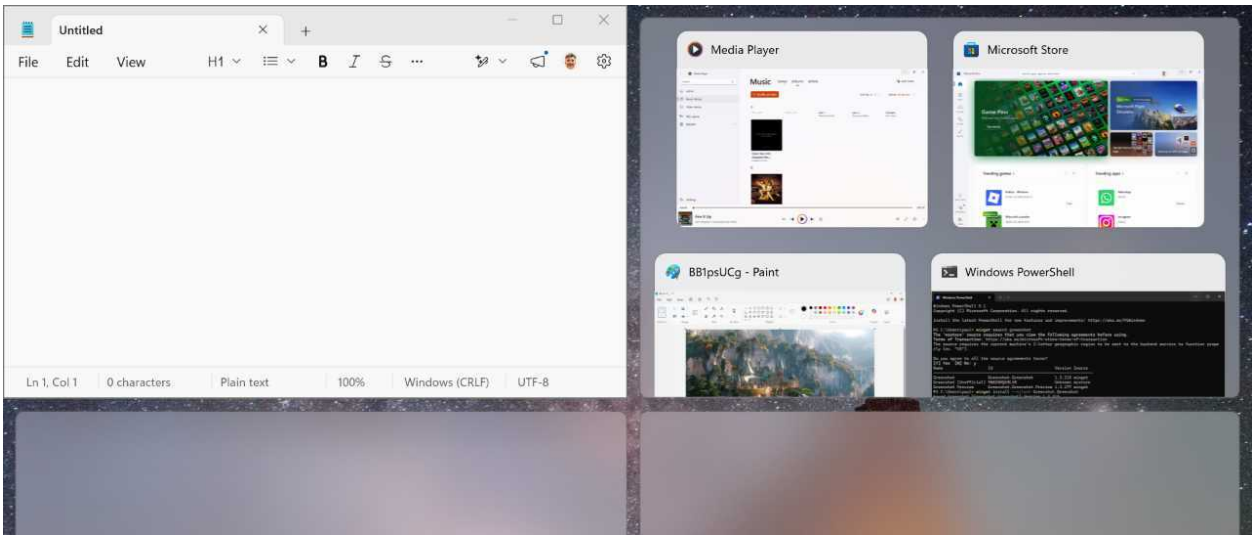
Snap four windows

You can also manually snap four windows so that each occupies 25 percent of the Desktop.

To get started, drag a window into one of the screen corners. As with the previous example, a guide appears, in this case showing you that the window can occupy 25 percent of the screen.



When you let go of the window, Snap assist once again appears, but this time it's in one of the three remaining areas.



As before, you can simply select the window you wish to occupy that space. The difference is that Snap assist will appear three times, once for each available space in turn.

Use Snap to maximize, restore, or minimize a window

You can also use Snap to maximize or minimize a window.

To maximize a window, drag it to the top edge of the screen and let go when the guide appears, indicating that doing so will result in a maximized window.

Use Snap layouts to arrange windows

Snapping windows manually works well enough, but it only supports a few layouts. For this reason, Microsoft created a feature called *Snap layouts* that offers the same layouts we just looked at and a few others. These include two-window layouts in which one window is wider than the other and one or more three-window layouts, depending on your screen properties and configuration.

Snap layouts also offers *suggestions* that will recommend which apps, Edge tabs, and other windows you may wish to use in some layouts.

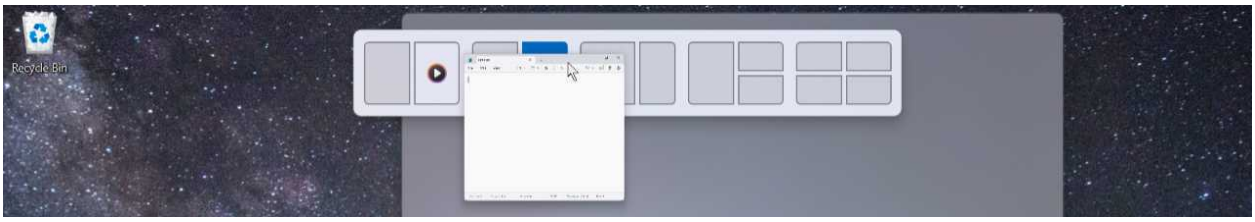
There are two primary ways to access Snap layouts: By dragging a window or by mousing-over the window controls on a window.

Use Snap layouts by dragging a window

To get started with Snap layouts, grab the first window you wish to snap with the mouse cursor or via touch and move it a bit. When you do, the bottom edge of the Snap bar appears at the top of the screen.

To view the available layouts, drag the window toward the Snap bar. When you get close, it expands and displays available Snap layouts.

If you drag the window over one of the available layouts, a *snap area* is highlighted and a *snap guide* appears on-screen to indicate where that window will move when you let go of it.



When the window is in the position you want, let go of it. Then, Snap assist will prompt you to position a window in each of the remaining snap areas provided by the selected layout, as before.

Note that some of these layouts have app suggestions that appear as small icons representing the suggested apps. These work differently than the layouts without suggestions. When you select a suggested layout, all the relevant apps and windows will snap into their respective places in one step.

Use Snap layouts by mousing-over the window controls of a window

You can also access Snap layouts by mousing over the Maximize/Restore window button of the currently focused window. When you do so, a Snap layouts pane appears right there.

The suggestions you see when invoking Snap layouts this way often vary from those the system recommends when you drag the window. But other than that, everything else works as described above.

Use Snap groups to restore a previous layout

After using Snap layouts to arrange two or more windows in a particular layout, you may find that you need to use other apps or windows. And that when you're done doing so, you want to return to the previous layout you were using. You could manually find and restore each window, of course. Or you can use a feature called *Snap groups* to restore them all with a single click.

To do so, you must first create a Snap layout with two or more windows. Then, you can minimize one or more of those windows, minimize all windows, open and use one or more other windows, or whatever. Later, you can return to the original layout using Alt-Tab or Task view, as the available layouts will appear in the grid of thumbnails in each alongside each available app or window.

Alternatively, you can mouse-over the Taskbar shortcut for one of the apps or windows that are part of a layout to see a pop-up with *two* thumbnails, one for the Snap group and one for just that window. Click the group thumbnail to restore the entire layout (that is, to restore all the windows in that layout to their previous positions).

> **Keyboard shortcut**: You can restore a previous layout with the keyboard, too. First, type Windows key + T to display The thumbnail for the first shortcut on the Taskbar. Then, use the Right arrow key to select the correct shortcut, if necessary. Then, tap Up arrow to select the group. Finally, tap Enter to restore it.

> **Tip**: To quickly close a Snap layout and close all its windows, mouse over the Taskbar shortcut for one of its windows and select the Close button in the group thumbnail.

Do not disturb and Focus

Do not disturb and *Focus* are two related Windows 11 features that are designed to minimize distractions and help us stay focused on our work. The former silences notifications, much like a similar feature on Android and iPhone. And the latter builds on Do not disturb by creating a configurable *focus session* that also removes other distractions so you can work more effectively.

Do not disturb

Do not disturb silences notifications and sends them directly to the Notifications center. When Do not disturb is enabled, Windows 11 and installed apps cannot display notification banners or play sounds.

Defaults

Do not disturb is typically off by default, but Windows 11 will automatically enable this feature when you're playing a game, duplicating a display, using an app in full-screen mode, or when you set up Windows 11 for the first time or have just installed an annual feature update. Do not disturb is also enabled when you start a focus session.

There are three visual indicators when Do not disturb is enabled:

- "Do not disturb" (bell) icon appears to the right of the time/date display in the Taskbar.

- The "Do not disturb" button at the top of the Notification center is set to "On."

- The "Do not disturb" option in the Settings app at System > Notifications is set to "On."

You can toggle Do not disturb on or off manually in the Notification center and in Settings. However it is enabled, Windows 11 will block most banner notifications and sounds and send the former directly to the Notification center. There are exceptions, however: By default, calls and reminders, and notifications from the Clock (for alarms), Game Bar, Nearby sharing, and Snipping Tool apps are configured as *priority notifications* and are allowed when Do not disturb is on.

Customize

You customize the behavior of Do not disturb in the Settings app by navigating to System > Notifications. Here, you will find several options for this feature:

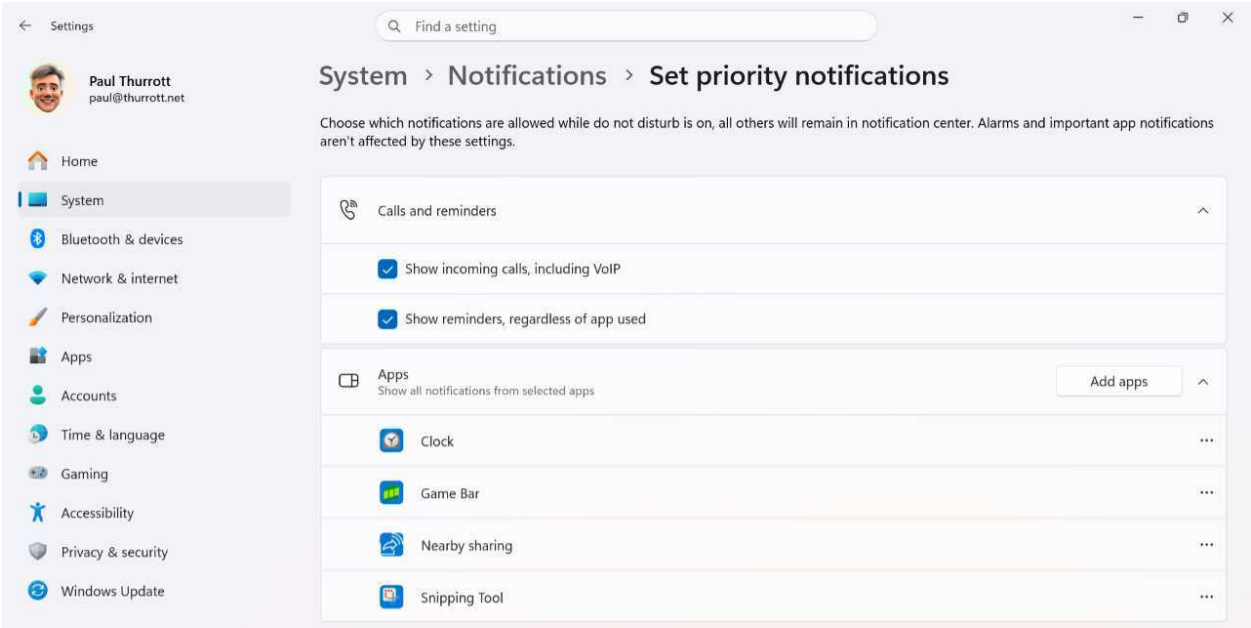
Notifications. You can use this toggle to disable all notifications in Windows 11, which renders Do not disturb moot.

Notifications > Show notification bell icon. This option is found by expanding the "Notifications" item. When enabled, a "Notification" (bell) icon will always appear next to the time/date display in the system tray in the Taskbar. When there are no pending notifications, this icon takes on an empty shape. And when there are notifications, or when Do not disturb is enabled, the icon changes accordingly.

Do not disturb. You can use this option to manually toggle Do not disturb on or off.

Turn on do not disturb automatically. You can expand this item to determine when Do not disturb is automatically enabled. In addition to the conditions noted earlier, you can use this interface to enable this feature during certain times, which can be useful.

Set priority notifications. This item displays the Set priority notifications page in Settings where you can configure which apps and system services can bypass Do not disturb. You can remove pre-configured options and add new apps to the list.



Focus

Focus builds on Do not disturb by eliminating even more distractions so that you can better concentrate on work. It does so by helping you create a so-called *focus session* in the Clock app in which Do not disturb is enabled and app icons in the Taskbar will not flash alerts or display badge notifications.

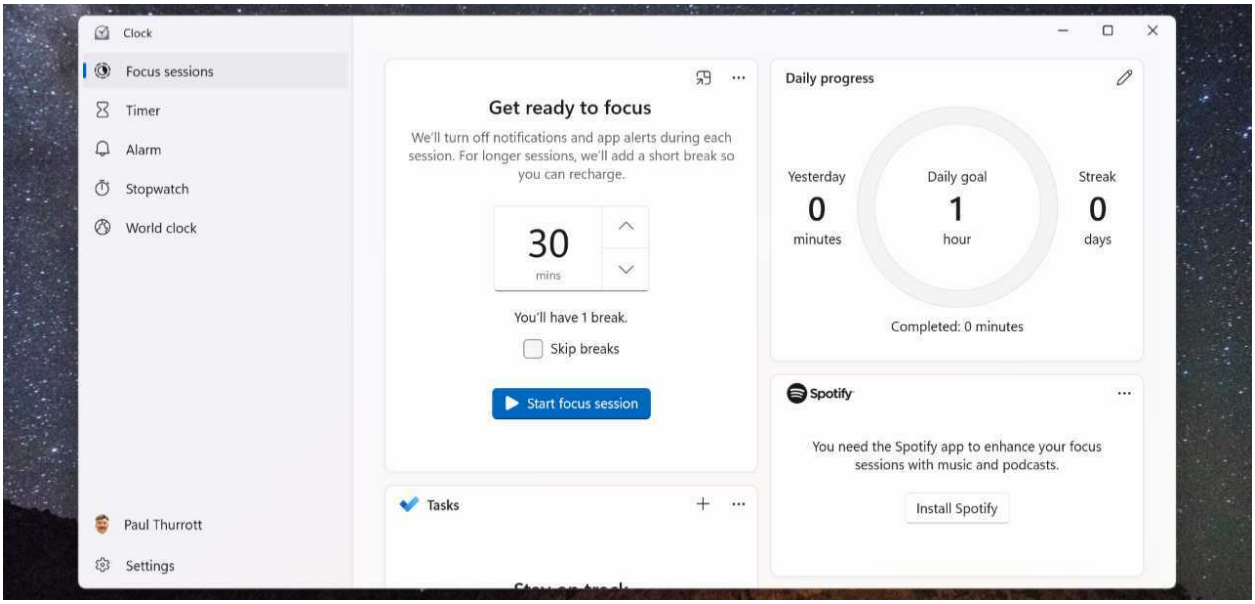
Defaults

Focus is disabled by default, and it remains disabled when Do not disturb is enabled.

You can start a focus session by:

- Opening the Notification center and clicking the “Focus” button at the bottom of the Calendar pane.

- Opening Focus settings in the Settings app (at System > Focus) and clicking the “Start focus session” button.
- Opening the Clock app and clicking the “Start focus session” button in the default Focus sessions view.

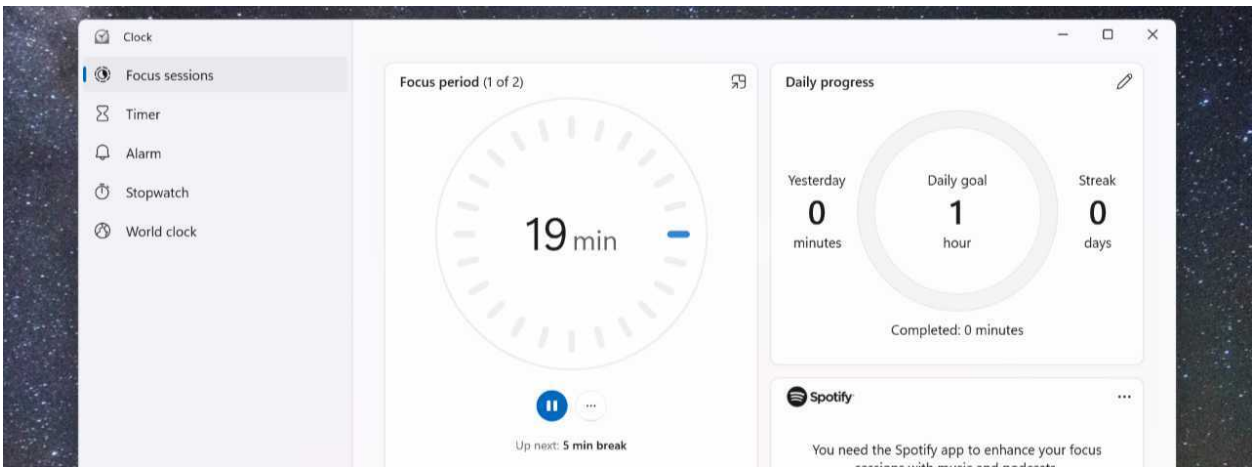


A focus session lasts for 30 minutes.

If you start a focus session from the Notification pane or Settings app, the Clock app appears onscreen with a minimalist interface that displays a *focus timer*–which counts down the remaining

time in the session–and “Pause focus session” and “See more” buttons. This window is set to be “Always on top” so that it appears over all other apps and windows, but you can resize this window and move it around on-screen as needed.

If you start a focus session from the Clock app or while that app is running, Clock displays normally and you can check in on the “Focus period” area in the default Focus sessions view as needed.



While in a focus session, you can view your progress, pause the focus session, or reset the focus session (after pausing).

Customize

You configure Focus in the Settings app by navigating to System > Focus.

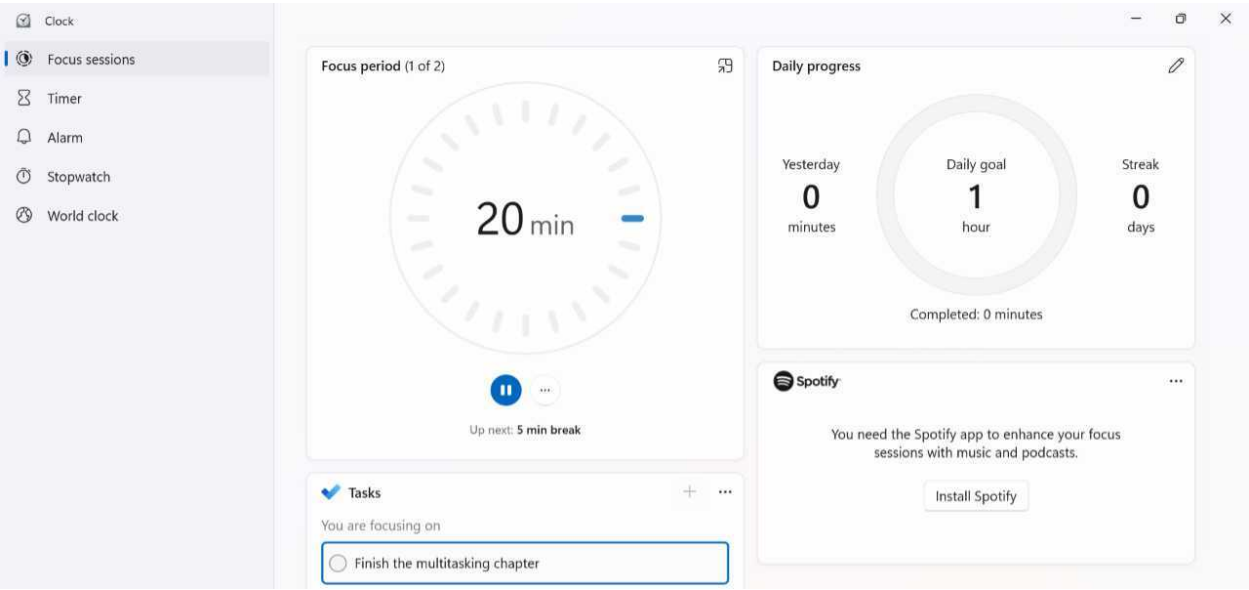
The following options are available here:

- **Start focus session**. This button is used to toggle a focus session on or off.

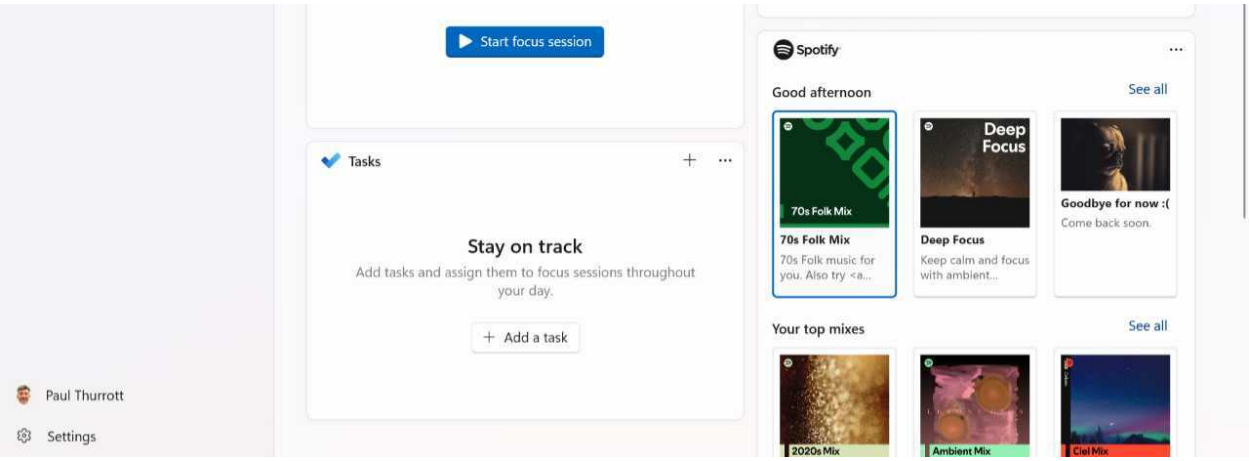
- **Session duration**. The default focus session is 30 minutes, but you can change it to any time frame you prefer.
- **Show the timer in the Clock app**. This option determines whether the Clock app appears in a minimalist, always on top interface when you enable a focus session.
- **Hide flashing on taskbar apps**. If you want apps to get your attention by flashing their Taskbar button, you can disable this option.
- **Turn on do not disturb**. It's not clear why any would disable Do not disturb while in a focus session, but you can.

You can also customize a focus session using the Clock app. When you launch this app, it displays the Focus session view by default and provides the following options:

- **Session duration and breaks**. In the "Get ready to focus" area, you can configure the duration of the focus session and whether it will prompt you to take breaks.
- **Daily goal**. By default, Focus is configured with a daily goal of one hour engaged in a focus session, but you can click the "Edit your daily goal" (pencil) icon in the "Daily progress" area to configure that otherwise.
- **Tasks**. If you sign in with a Microsoft account, you can integrate your to-do list in the Tasks app and then add tasks or assign tasks to focus sessions in the "Tasks" area.

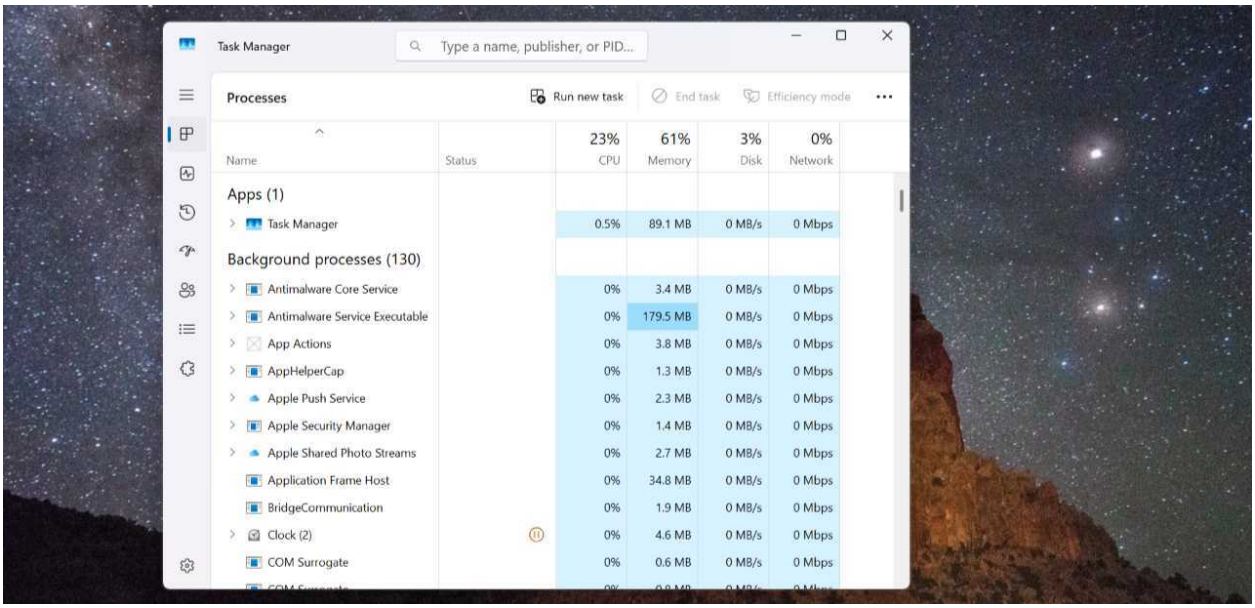


- **Spotify**. If you download and install the Spotify app from the Microsoft Store, you can link your Spotify account to Focus and then configure focus-oriented music or podcasts to play while you're in a focus session.



Task Manager

Task Manager is a powerful system utility that provides task management, startup application management, and other advanced features mostly aimed at more sophisticated users. In Windows 11, Task Manager has been updated with a simpler and more modern user interface and a handful of useful new features.



Defaults

You can launch Task Manager using several different methods:

- **Start and Windows Search**. Open Start, type *task*, and then select "Task Manager" from the search results.

- **Taskbar context menu**. If you right-click the Taskbar, you will see a "Task Manager" item in the context menu that appears.

- **Quick link menu**. Right-click the Start button to display the Quick link menu and then select "Task Manager."

> **Keyboard shortcut**: You can also display Quick link by typing Windows key + X.

> **Keyboard shortcuts**. There are two keyboard shortcuts for Task Manager. You can type Ctrl + Shift + Esc to open the app directly. Or, type Ctrl + Alt + Del to display the *Secure Attention Sequence (SAS)* screen, which displays a "Task Manager" item in a short list of options. This is the most resilient way to start Task Manager because it works even if the Windows 11 user interface is corrupt or unavailable.

Task Manager features a collapsed but expandable navigation bar on the left that provides access to the several views it offers. Most views display a search box, and all views include a "Run new task" button.

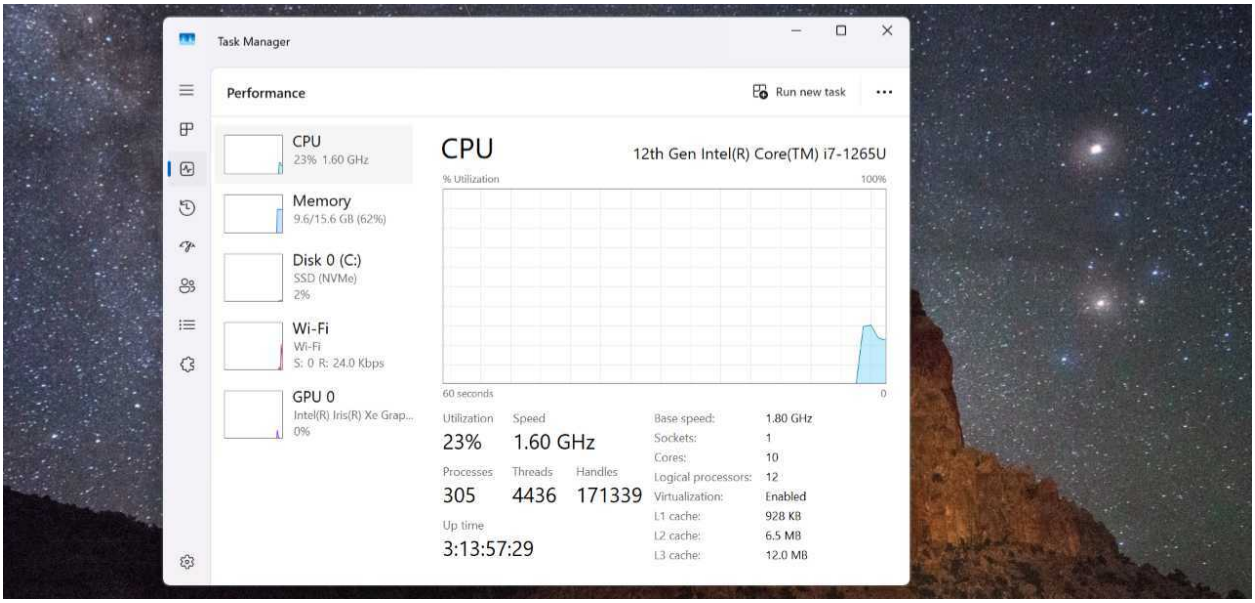
Learn more: Run new task

Task Manager provides the following views:

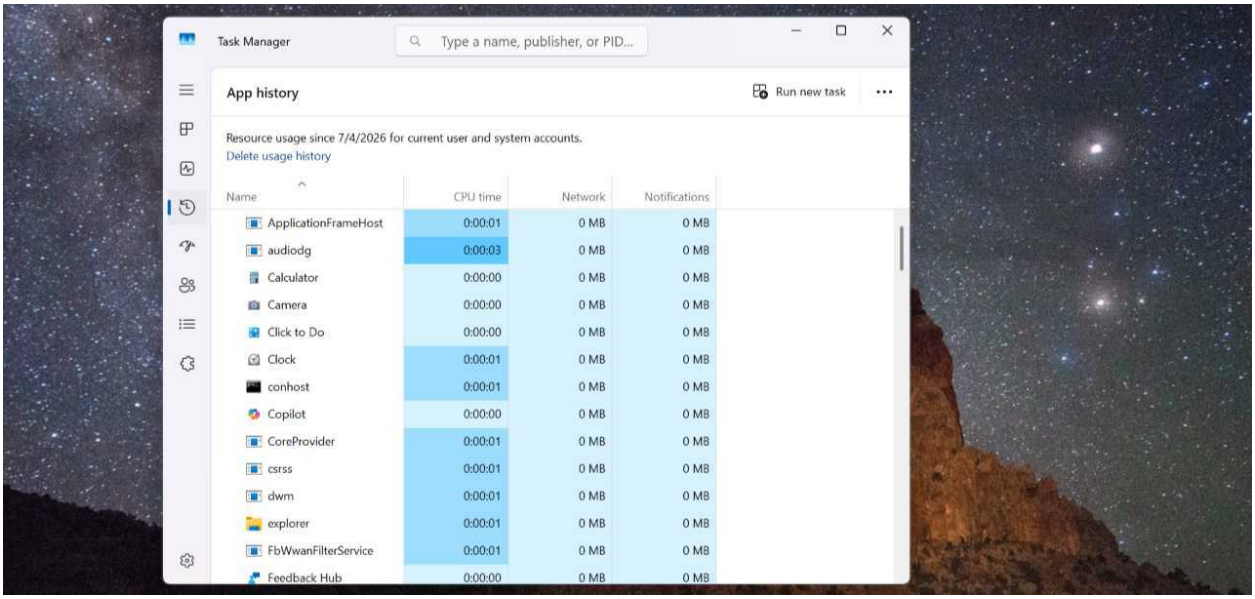
- **Processes**. This default view is used to manage running apps and services, and it provides a high-level view of how your PC's key resources are being utilized.

Learn more: Manage apps and processes

- **Performance**. This view provides dynamic graphs displaying real-time statistics and other information about the usage of the PC's CPU, memory, disks, network connections, NPU (if available), and graphics processors (GPUs). There's no interaction to be had here. Instead, you can learn more about the hardware in your PC and how it's being used.



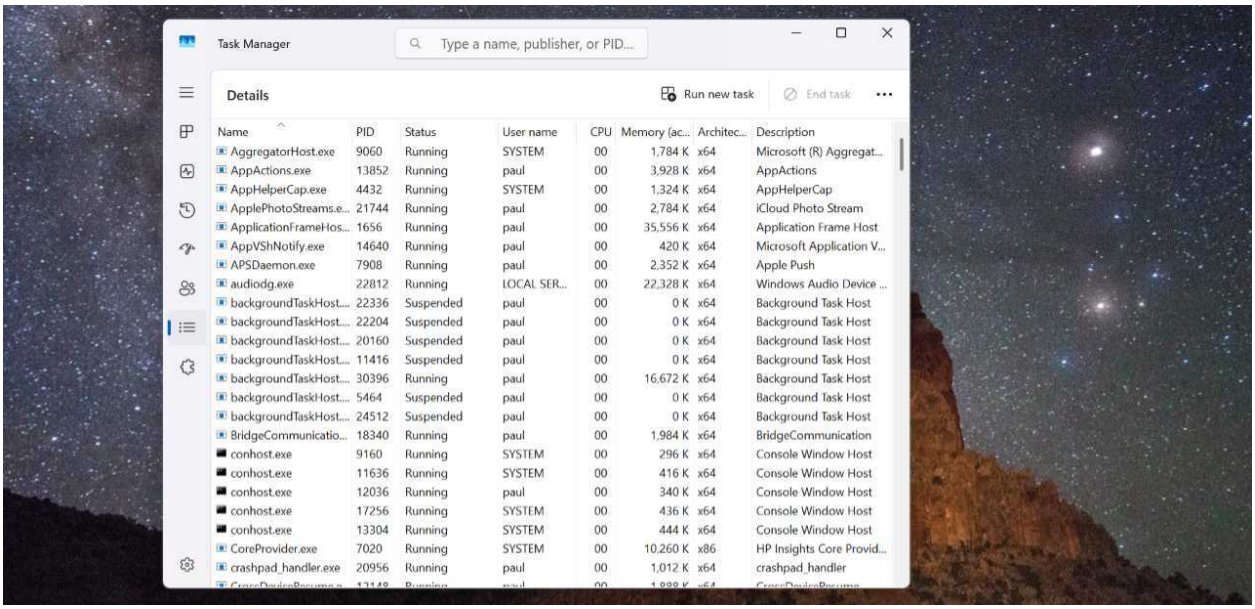
- **App history**. This curious view displays how each of the apps installed on your PC has consumed certain resources over time. You can sort the view by CPU time, Network, or Notifications by default. Or, right-click one of those headers to add other criteria like Metered network, Non-metered network, Downloads, and Uploads.



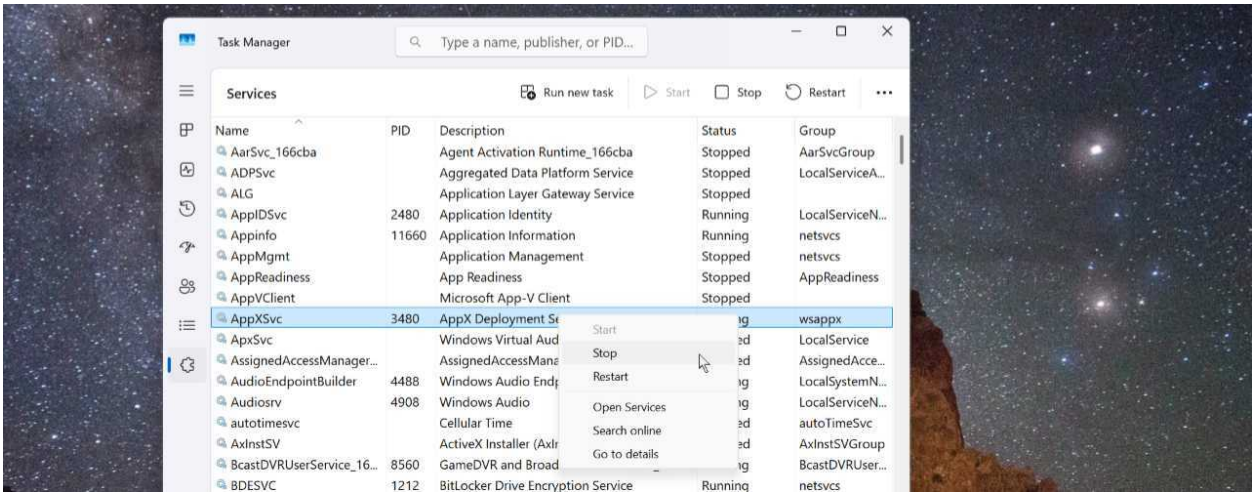
Startup apps. This view displays which apps have been configured to run automatically when the PC starts up and what impact each has on the startup speed.

> **Tip**: There is a more modern interface for this capability in the Settings app, found in Apps > Startup.

- **Users**. This view is most useful when there are two or more people signed in to Windows 11 simultaneously as it provides a peek at the processes running under each account. You can ignore this view if the PC is only used by a single person.
- **Details**. This view provides a detailed rundown of each process that is running on your system. But this one is interactive: You can right-click any process to see various actions you can take.

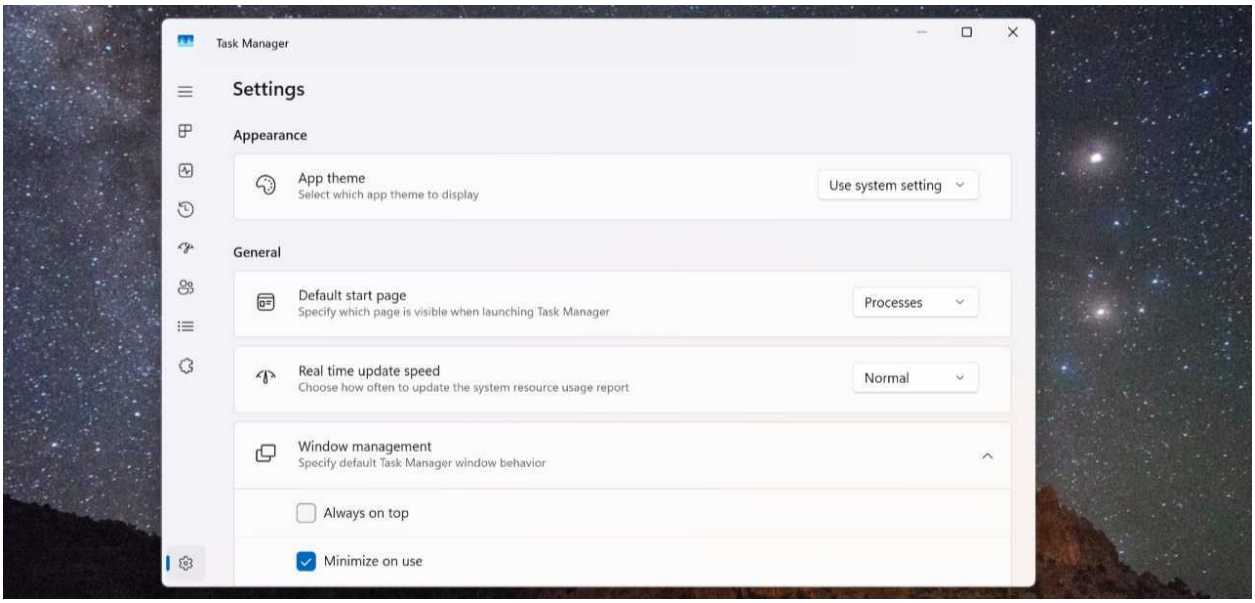


- **Services**. This view allows you to see and configure the *services* (background processes) that are available on your PC. To see which actions are available, right-click a service in the list. The most common reasons to use this view are to start, restart, or stop a process.



Configure

You can access Task Manager settings in the app by clicking the "Settings" (gear) button at the bottom of the navigation pane.



Key options here include:

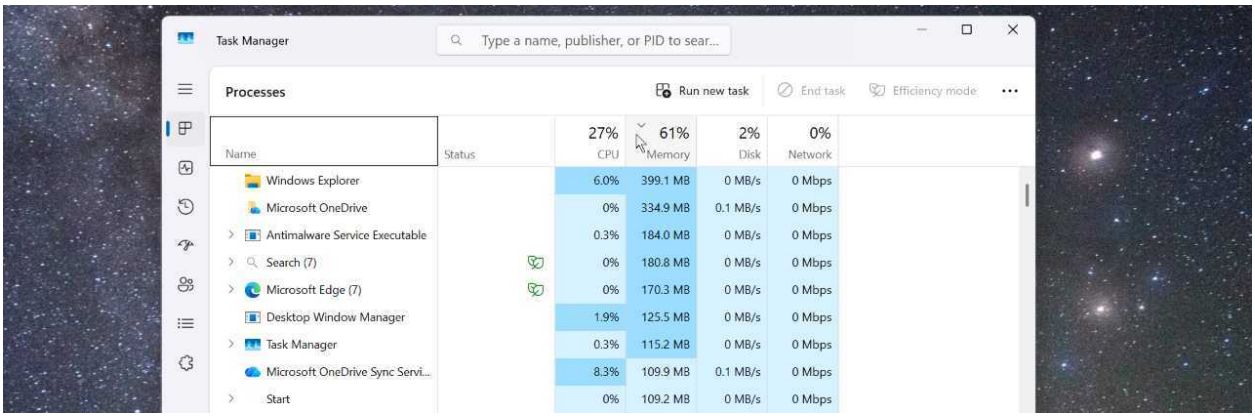
- **Default start page**. If you would rather launch Task Manager into a different view than Processes, you can configure that here.
- **Window management**. It's worth reviewing each of the three sub-options here. For example, you may want to enable "Always on top."

Manage apps and processes

Task Manager is most often used because an app is behaving badly, or the PC is performing slowly, and so it makes sense that Processes–which is used to manage running apps and processes–is the default view. Chances are, this is why you're here in the first place.

Processes provides a live and dynamic list of running processes–divided into Apps, Background processes, and Windows processes sections–and a columnar display that shows about each app and process, including a real-time visualization of how many resources each is consuming.

By default, Processes shows a single informational column called Status and four resource columns displayed using simplified heat maps that indicate resource utilization (where darker is more): CPU, Memory, Disk, and Network. You can sort the display by selecting a column heading. For example, to display the apps and processes by memory utilization, select the Memory heading.



> **Tip**: As noted, this Task Manager view is live. That means that the values you see in each column–and the order in which the processes are listed–can change as you're viewing it. To temporarily pause this behavior and "freeze" the view in place, hold down the Ctrl key.

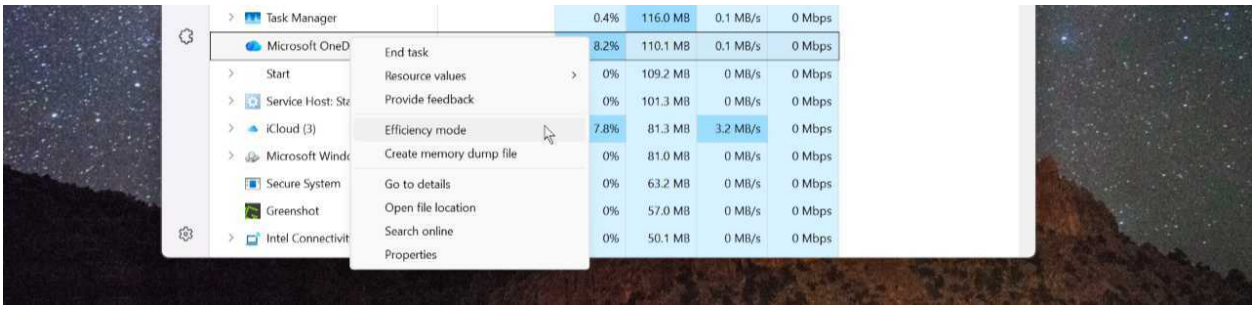
Fix a badly behaving app or process

If you find that an app or process is over-utilizing one or more system resources, you can try to fix it using Task Manager. There are two general approaches, one of which only addresses CPU usage and one of which will fix any problem assuming you don't mind it potentially being destructive.

Fix an app or process that is abusing the CPU

If you examine the Processes view and discover that an app or process is over-utilizing the CPU, you can try to fix it by running the app in Efficiency mode, a Windows 11 feature that throttles a process's CPU priority and improves its energy efficiency.

To do so, select the app or process in the Name column and then click the “Efficiency mode” button at the top. (Or, alternatively, right-click the item and choose “Efficiency mode” from the context menu that appears.) When running in Efficiency mode, the app or process will display a green “Efficiency mode” (leaf) icon in the Status column.

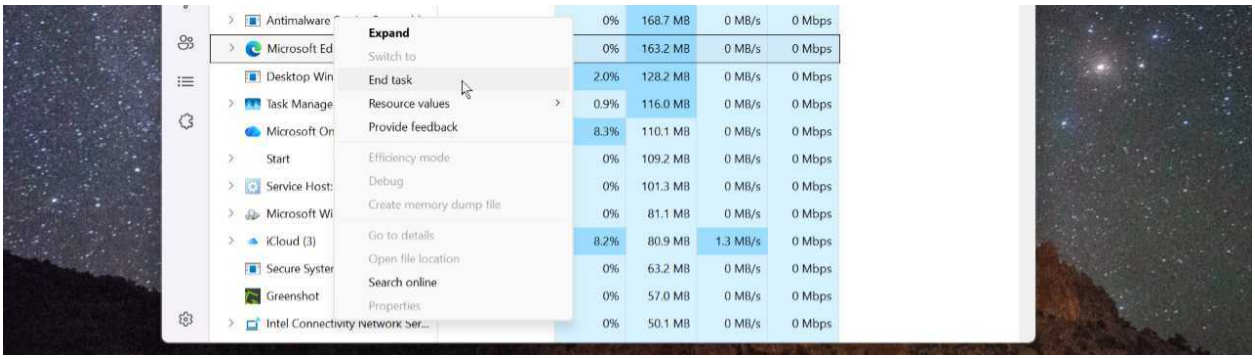


> **Tip**: The Efficiency mode options will sometimes be grayed out, indicating that throttling the process would negatively impact the system. Also, core Windows processes cannot be put into Efficiency mode.

Kill an app or process

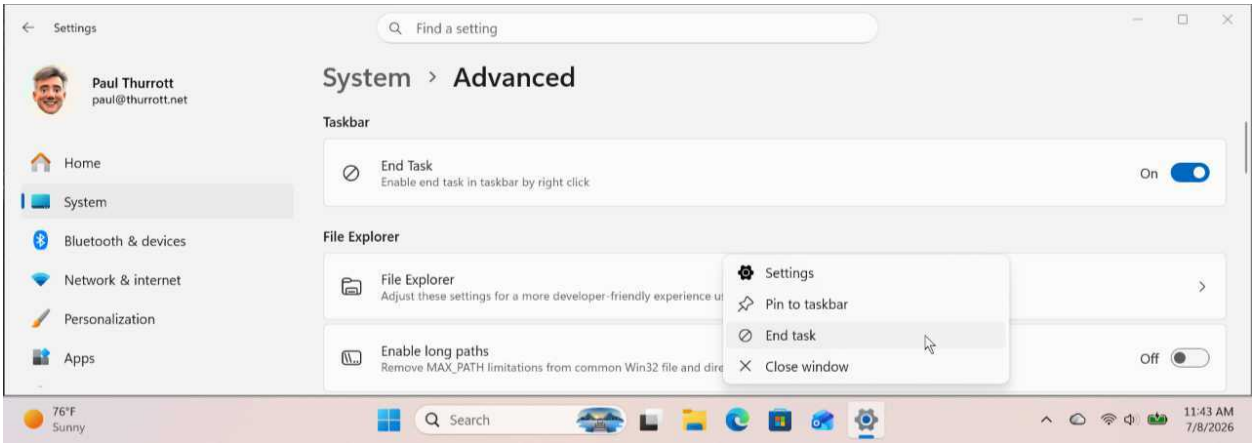
Efficiency mode can’t help when an app is over-utilizing non-CPU resources like RAM or disk access. Likewise, it’s sometimes not available and apps can crash or hang. In these cases, your only choice is to take the drastic and potentially (data) destructive step of terminating an app or process.

To do so, select the app or process and then click the “End task” button in the command bar. (Alternatively, right-click the app or process and choose “End task” from the context menu that appears.)



The app or process will be killed immediately, freeing up whatever system resources it was using.

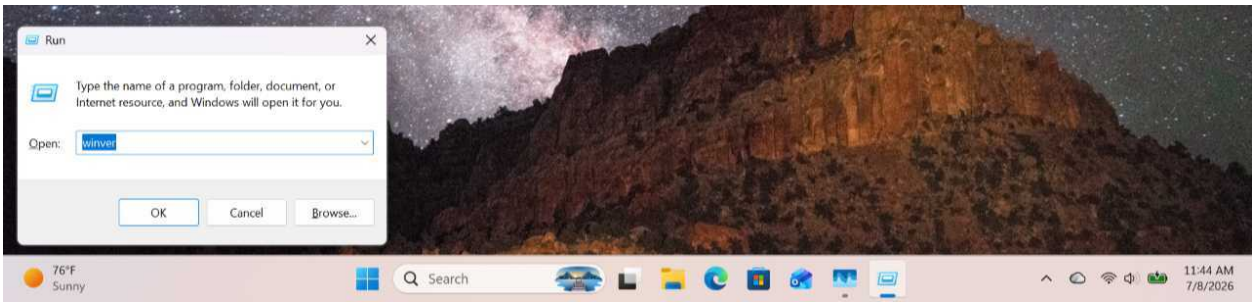
> **Tip**: If you find yourself doing this a lot, you can end those tasks that have visible windows more quickly via an optional End task feature that appears when you right-click an app shortcut button in the Taskbar. To enable this feature, open the Settings app, navigate to System > Advanced, and toggle the "End Task" option at the top of this page to "On."



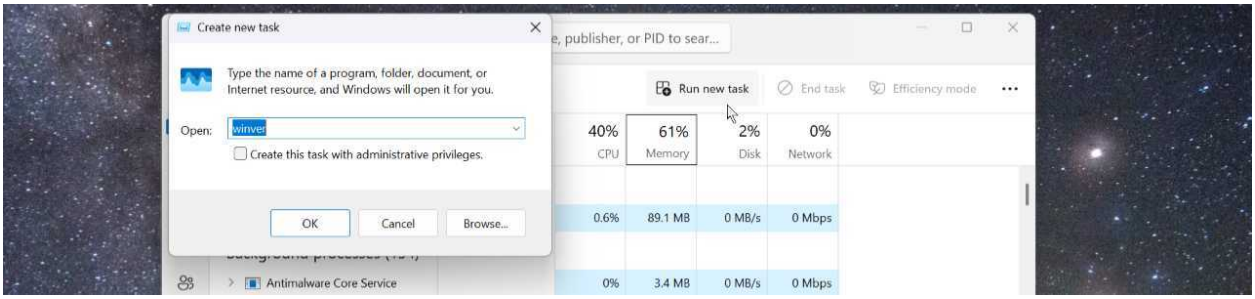
Run a new task

For the most part, it makes sense to use Windows Search to find and run apps that aren't pinned to Start or the Taskbar. But Windows has always offered other ways to do this, including some that predate Windows Search.

For example, you can use the Run app–easily found via Search or by typing Windows key + R–to open an app, assuming you know its file name.



Another method is to use Task Manager, which features a prominent "Run new task" button in all its views. Run new task has two advantages over the Run app: Because Task Manager is available even if the Windows user interface is corrupted or hung, you can use it to restart that interface, plus it allows you to easily run an app with administrative privileges.



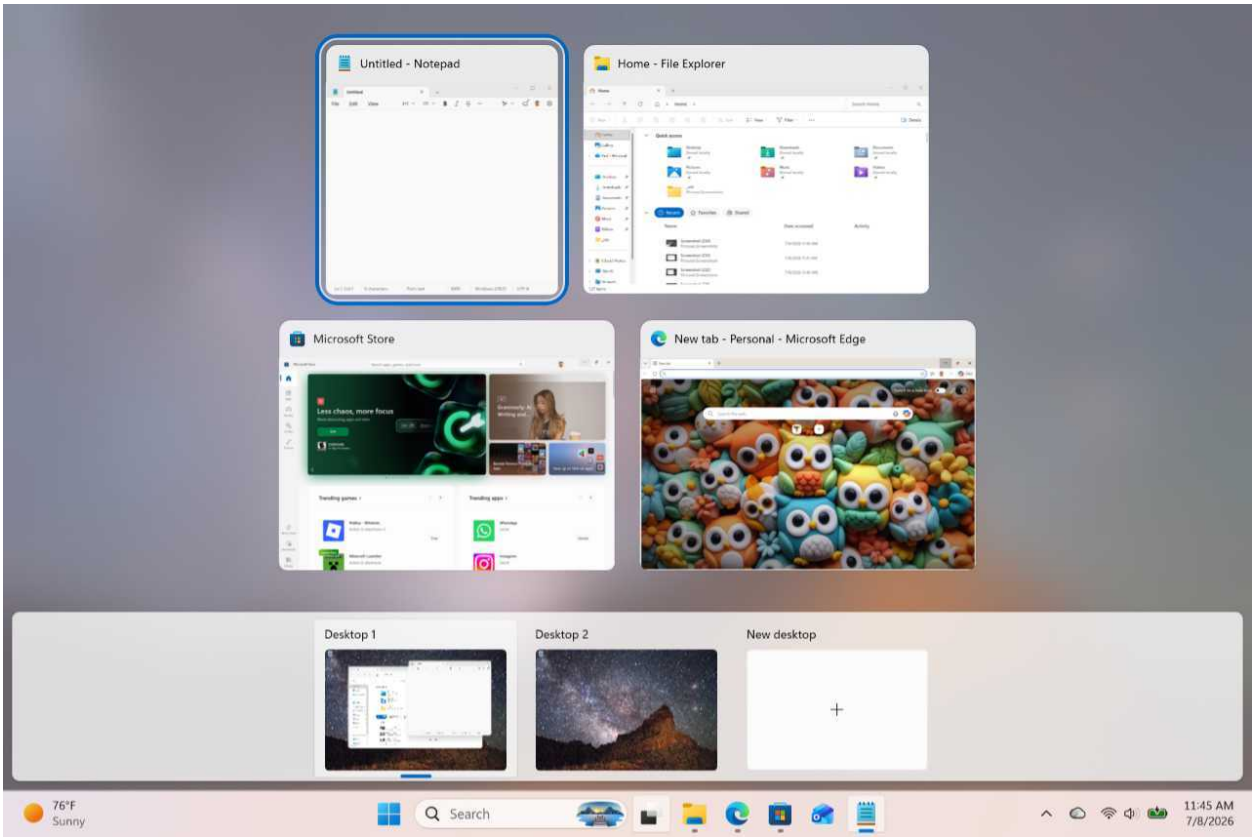
> **Tip**: "Run new task" also has the same limitation as the Run app. You need to know the file name of the app you wish to run.

Here's the most common reason to access this feature: If the Windows 11 user interface isn't working properly, type Ctrl + Shift + Esc (or Ctrl + Alt + Del) to open Task Manager, click the "Run new task" button, and then type "explorer.exe" (no quotes) in the "Open" text field and tap Enter. Voilà! You're back up and running again.

> **Keyboard shortcut**: When you're using Task Manager, you can also type Alt + N to launch the Run new task dialog.

Desktops

Windows 11 includes a feature called *Desktops* that lets you create multiple *virtual desktops*, each with its own apps, and then easily switch between them. Desktops is useful in various situations, and it helps reduce window clutter and cognitive overload by letting you group related apps–perhaps by project or type–in their own virtual desktops.



Defaults

Desktops is enabled by default and always available in Windows 11 via Task view. You display Task view by clicking the "Task view" item on the Taskbar or by typing Windows key + Tab.

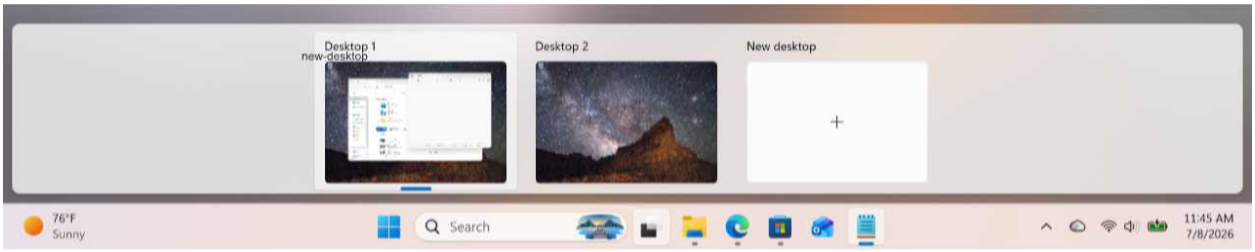
By default, Windows 11 uses a single desktop named Desktop 1. You can add additional desktops, switch between, and otherwise manage these virtual desktops in Task view.

Apps and windows you open in a virtual desktop will appear on the Taskbar in that desktop by default. Likewise, when you use Alt + Tab or Task view to switch between open apps and other windows, these interfaces will only display thumbnails for those apps that are open in the current virtual desktop.

Virtual desktops and whatever customizations you make to them are persistent and are available after each reboot.

You can perform the following Desktops-related actions in Task view:

- **Create a new virtual desktop**. Click the "New desktop" tile at the bottom of Task view and a new virtual desktop called Desktop 2 will appear to the right of Desktop 1 in the Desktops pane at the bottom. Subsequent new virtual desktops are named Desktop 3 and so on.

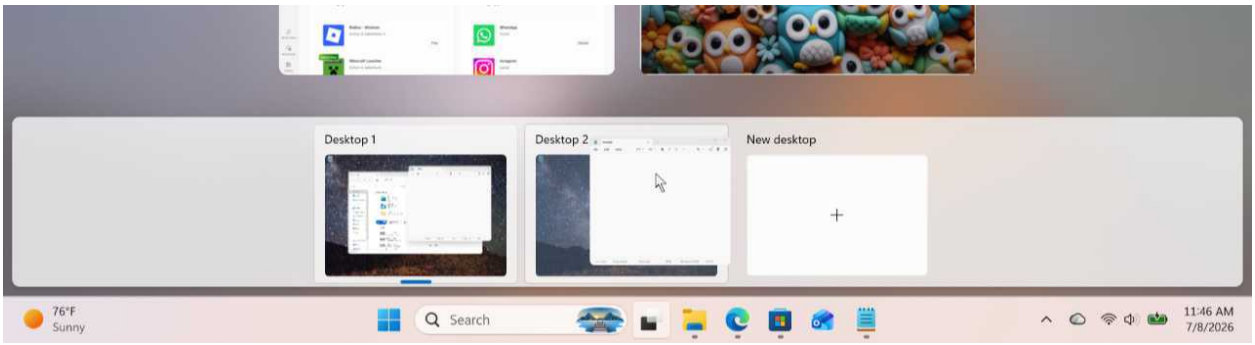


Keyboard shortcut You can also type Windows key + Ctrl + D to create a new virtual desktop.

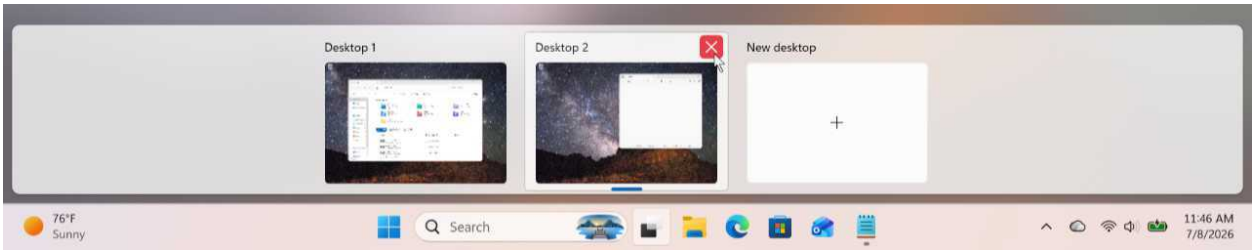
- **Switch between virtual desktops**. To switch between virtual desktops, open Task view and click the virtual desktop you want.

Keyboard shortcuts: Alternatively, you can switch to the next virtual desktop by typing Windows key + Ctrl + Right arrow. Or, type Windows key + Ctrl + Left arrow to switch to the previous virtual desktop.

- **Move an app or window to a different virtual desktop**. To move an app or window from one virtual desktop to another, navigate to the source desktop, open Task view, and then drag the app or window's thumbnail from the top of Task view into the tile representing the destination desktop. When you let go of the mouse, the app is moved to the new location.



- **Close a virtual desktop**. To close a virtual desktop, open Task view and click the "Close" button ("X") in the upper right of its tile. Any open app windows in that virtual desktop will move to the virtual desktop to its left.



Keyboard shortcut Or, type Windows key + Ctrl + F4 to close the current virtual desktop.

Tip: You cannot close the leftmost virtual desktop, which is actually the "real" Desktop that's named Desktop 1 by default.

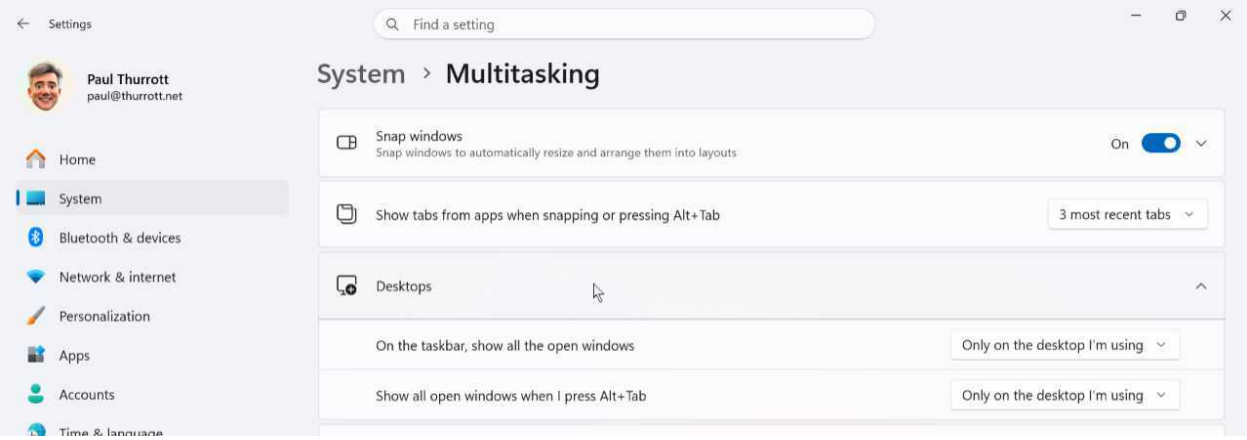
- **Reposition a virtual desktop in the Desktops z-order**. You can move a virtual desktop right or left in Task view using drag-and-drop. Alternatively, right-click a virtual desktop tile and choose "Move left" or "Move right" from the pop-up menu that appears.

Customize

There are a few Desktops settings in the Settings app, and you can separately customize individual virtual desktops to some degree in Task view.

Customize Desktops

To access Desktops settings, open Settings and navigate to System > Multitasking. There, you will find an expandable "Desktops" item with two options.



They are:

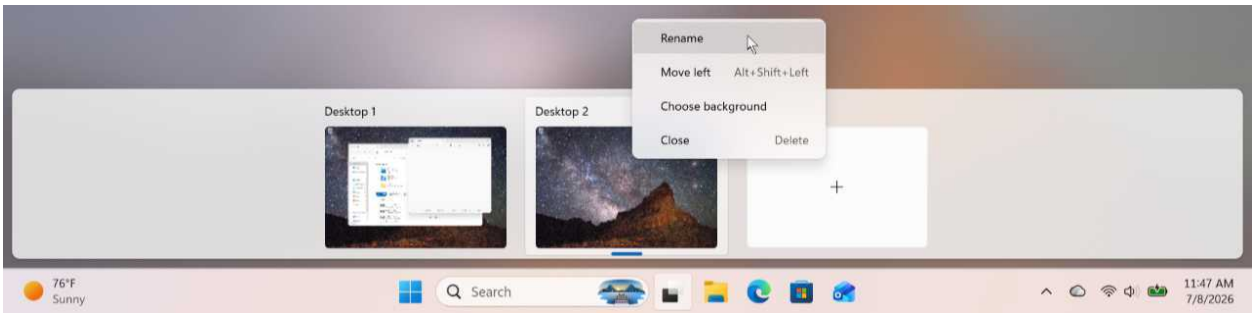
On the taskbar, show all open windows. If you want the Taskbar in each virtual desktop to display buttons for all open apps and windows, and not just those open in this virtual desktop, you can change this to "On all desktops."

Show all open windows when I press Alt+Tab. To display thumbnails for all open apps and windows in Alt + Tab and Task view, and not just those open in the current virtual desktop, you can change this to "On all desktops."

I recommend leaving each of those options in the default configuration: The point of Desktops is to isolate related apps and windows from the others you have open in other virtual desktops.

Customize a virtual desktop

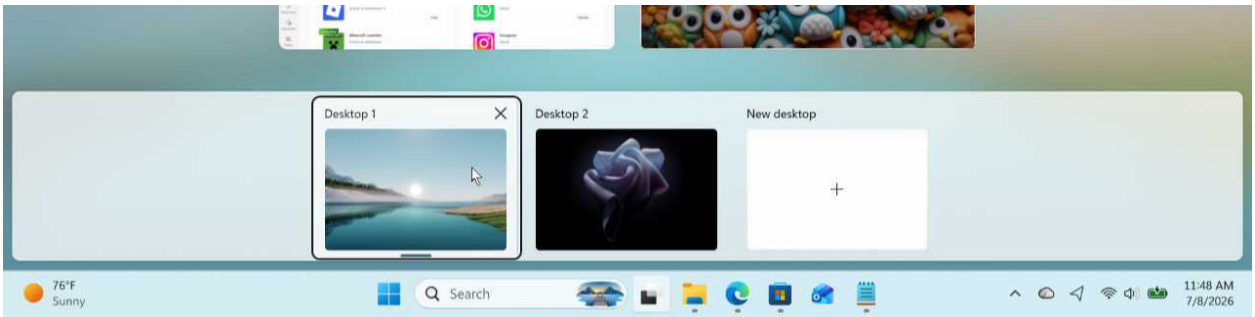
You can customize each virtual desktop you use in Task view. To do so, open Task view and right-click a virtual desktop to display a pop-up menu with several options.



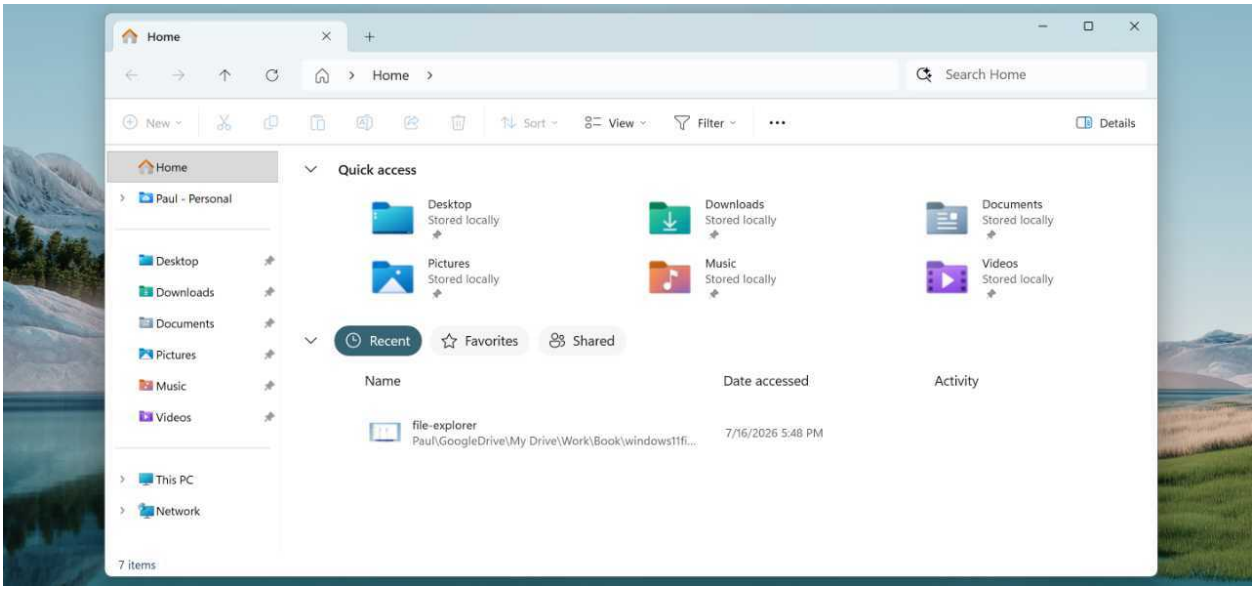
Available customizations include:

- **Rename the desktop**. If names like Desktop 1 and Desktop 2 are too limiting, you can rename any virtual desktop, including the default desktop.
- **Choose a background**. To visually differentiate each virtual desktop, you can assign each a unique background image. And only a background image: If you configure any virtual

desktop with a Windows Spotlight, Slideshow, or solid color as the background, it will be used for all virtual desktops.



Files



File Explorer offers point-and-click access to the Windows 11 file system and deep integration with OneDrive, Microsoft's cloud storage service.

Defaults

When you buy a new PC or reset an existing PC, Windows 11 configures the file system like so:

- NTFS (New Technology File System) is the default file system format because it offers integrated security, encryption, and data protection capabilities combined with excellent reliability and performance.
- File Explorer is the default file management app.
- The Windows 11 Desktop is a unique representation of the Desktop folder associated with your user account.
- The OneDrive in-box app is used to configure the cloud storage associated with your Microsoft account (MSA) or Microsoft Work or School account (MWSA).
- If you sign in to Windows 11 with an MSA or MWSA, you sign in to OneDrive automatically as well.
- If you sign in to Windows 11 with an MSA or MWSA, File Explorer displays the contents of your OneDrive-based files and enables Folder backup for your Desktop, Documents, and Pictures folders if you agree to it during the Windows Setup Out-of-Box Experience (OOBE).

Customize

You configure File Explorer in the app's Folder Options dialog as described later in this chapter.

You configure OneDrive using the settings interface in the OneDrive app as described later in this chapter.

File Explorer

File Explorer is the Windows 11 file management app, and though it looks and works much like its predecessors in earlier Windows versions, it's been modernized with a tabbed user interface, improved customization, and more.

Defaults

There are shortcuts to File Explorer in the Pinned area in Start and on the Taskbar, and you can launch the app from those locations or using Windows Search.

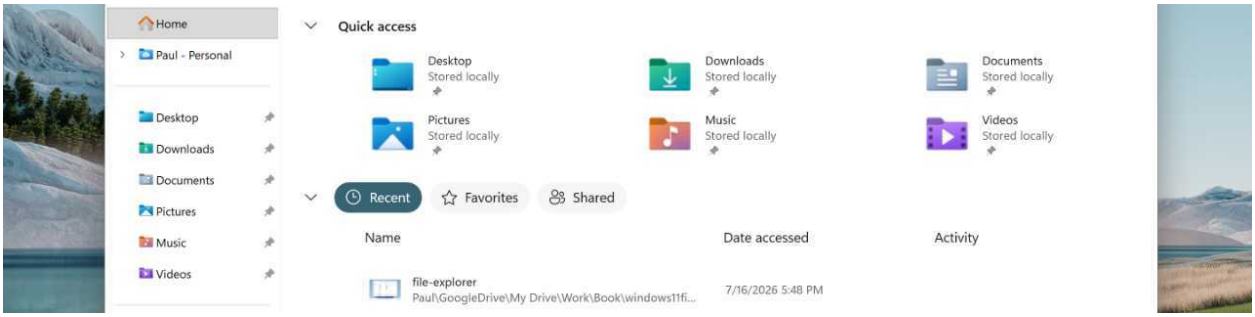
> **Keyboard shortcut:** You can also launch File Explorer by typing Windows key + E.

File Explorer displays a single tab open to the Home page by default. Key default features include:

- A tabbed user interface.
- "Back", "Forward", "Up", and "Refresh" buttons, an address bar displaying a simplified view of the file system *path*, and a search box.
- A command bar with file-related command buttons and a context menu, accessed with a right-click, both offering access to similar file-related commands.
- A navigation bar with Home, OneDrive, Gallery, customizable Quick access folders, and This PC and Network items for navigating to specific locations in the file system.
- The Home view is comprised of Quick access, Recent, Favorites, and Shared groups so you can quickly connect with frequently-accessed folders and files.

Home

The Windows 11 File Explorer displays its Home page by default. This page is somewhat unique in File Explorer in that it doesn't correspond to a file system location but instead presents a simpler and potentially useful selection of frequently accessed folders and files.



The Home page displays the following sections by default:

- **Quick access. **This displays your Desktop, Downloads, Documents, Pictures, Music, and Videos folders. But as you access other folders frequently, they will be added to Quick access automatically as well.
- **Recommended**. This section uses AI to display tiles for files you access frequently.
- **Recent**. This section displays links to files you recently accessed on this PC in reverse chronological order (most recent first).
- **Favorites**. This sections displays files and folders you've marked as favorites, similar to how you can do similarly with web pages in Microsoft Edge.
- **Shared**. This section displays files that others have shared with you through your Microsoft account (MSA).

Tabs

File Explorer tabs work much like those in any web browser. Key features include:

- **Open a new tab**. To open a new tab, click the "Add new tab" ("+") button to the right of the open tabs.

> **Keyboard shortcut**: You can also open a new tab by typing Ctrl + T.

- **Close a tab**. Click the "Close tab" ("x") button on the tab you wish to close.

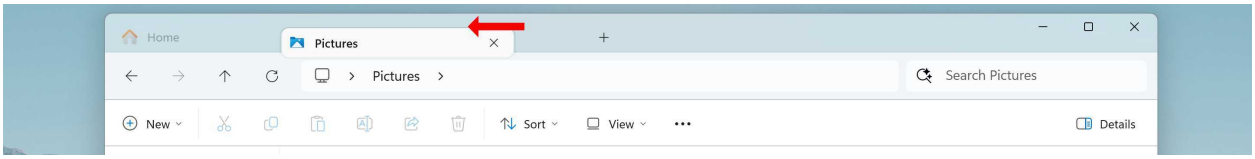
> **Keyboard shortcut**: You can also close a new tab by typing Ctrl + W.

Tip: If there is only a single tab displayed in File Explorer and you close that tab, the app exits.

- **Navigate to another tab**. You can move from tab-to-tab by clicking the tab you want to display.

Keyboard shortcut: You can also move from tab-to-tab by typing Ctrl + Tab. Or, to do so in reverse order, Ctrl + Shift + Tab.

- **Reorder a tab**. To move a tab to a new position in the tabs area, just drag and drop it with the mouse.



- **Access other tab options**. Right-click a tab to access "Close other tabs," "Close tabs to the right," and "Duplicate tab" options when applicable.
- **Open a folder in a new tab**. If you've navigated to a location in the file system and would like to open a folder there in a new tab, right-click that folder and select "Open in new tab" from the menu that appears.

- **Copy or move a file between two tabs**. Display at least two tabs in one File Explorer window, one navigated to the source location and one navigated to the destination. Then, select the file(s) and/or folder(s) you wish to copy or move and drag them to the tab displaying the destination location. When the destination tab's contents appear, drag the items down and release the mouse.

> **Tip**: Copying and moving between tabs follows the file copy/move rules you're familiar with. If the two locations are in the same disk or partition, the default drag-and-drop operation is copy, but if they are on different disks or partitions, it's move. If you wish to use the other, you can right-drag the items instead.

> **Keyboard shortcut**: You can also use the Ctrl + C/Ctrl + X and Ctrl + V keyboard shortcuts to copy/cut the selected items in the source folder and then paste them in the destination folder, respectively.

Address bar

File Explorer provides a modernized Address bar in Windows 11, which means that it's been completely rewritten and offers a few subtle new features.

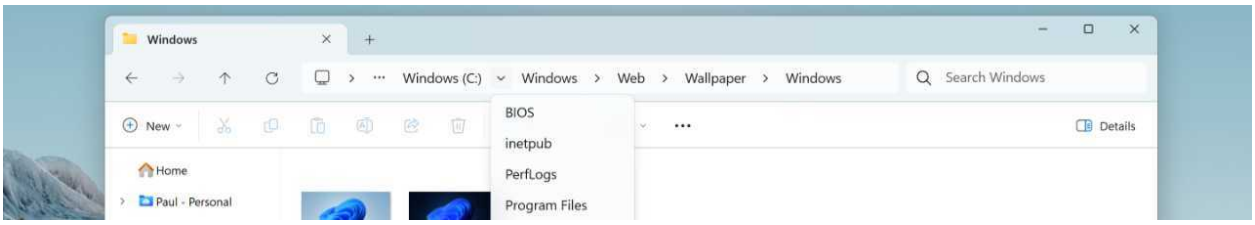
Among them are:

- The File Explorer Address bar recognizes and visually identifies *local* folders–any folder that exists only on this PC–and *cloud* folders–any folder that is on this PC but also synced with OneDrive and thus available from anywhere–in distinct ways.

- The Address bar displays a simplified view of the file system *path* that fully describes the location you're currently viewing by default. It separates each part of the path with a ">" character. And if the window is not wide enough to display every part of the path, some parts are hidden behind a "…" character. If you click that, you see the hidden parts of the path.

- You can see a more traditional depiction of the path of the currently displayed location by clicking a blank area of the Address bar.

- The Address bar is interactive: You can, for example, arbitrarily navigate *up* in the path by clicking any of its path parts. You can also move or copy a file (or multiple files) in the current view by dragging (or right-dragging) it into the Address bar and letting it go on the path part to which you wish the file(s) to be moved (or copied). As you hover over any path part in the Address bar, a tooltip appears to let you know what will happen if you let go of the file(s) there.



Navigation pane

The File Explorer navigation pane provides three main sections from top-to-bottom:

- A top section with Home, Gallery, and OneDrive items, the latter of which is named like *Your name- Personal* if you signed in to Windows with a Microsoft account.
- A dynamic Quick access section with the same folder locations displayed in the Quick access section in the default File Explorer Home page.
- A bottom section with file system links for This PC and Network.

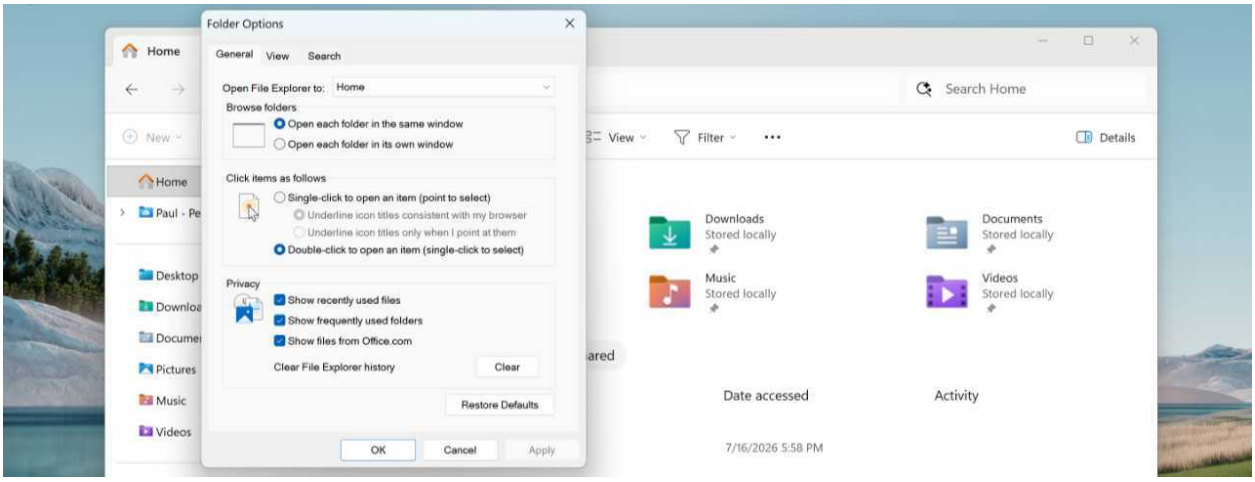
Customize

While File Explorer works well for most users without modification, power users and others may wish to customize how it works.

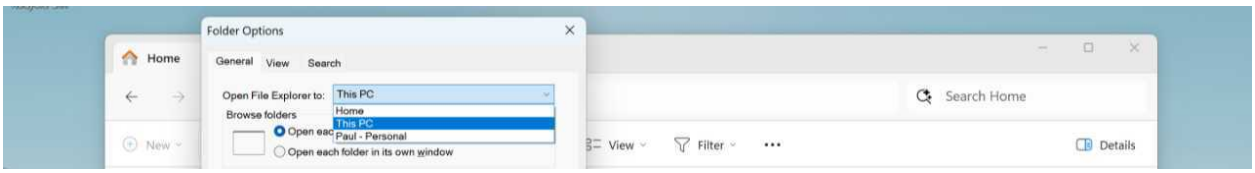
Configure the File Explorer home page

By default, File Explorer opens to the Home page, which displays your Quick access folders, favorite files, recently accessed files, and more in different views. But you can customize the home page so that it opens to This PC or OneDrive if you prefer.

To do so, click “See more” (“...”) in the File Explorer command bar and then select “Options” to display the Folder Options window.



In the default General tab, select “Open File Explorer to:” to display the choices.



Customize Quick access

By default, Quick access displays shortcuts to your Desktop, Downloads, Documents, Pictures, Music, and Videos folders. But as you access other folders frequently, they will be added to Quick access automatically as well.

This behavior is also configured in Folder Options. You can find the relevant options in the Privacy section on the General tab, and they are all enabled by default.

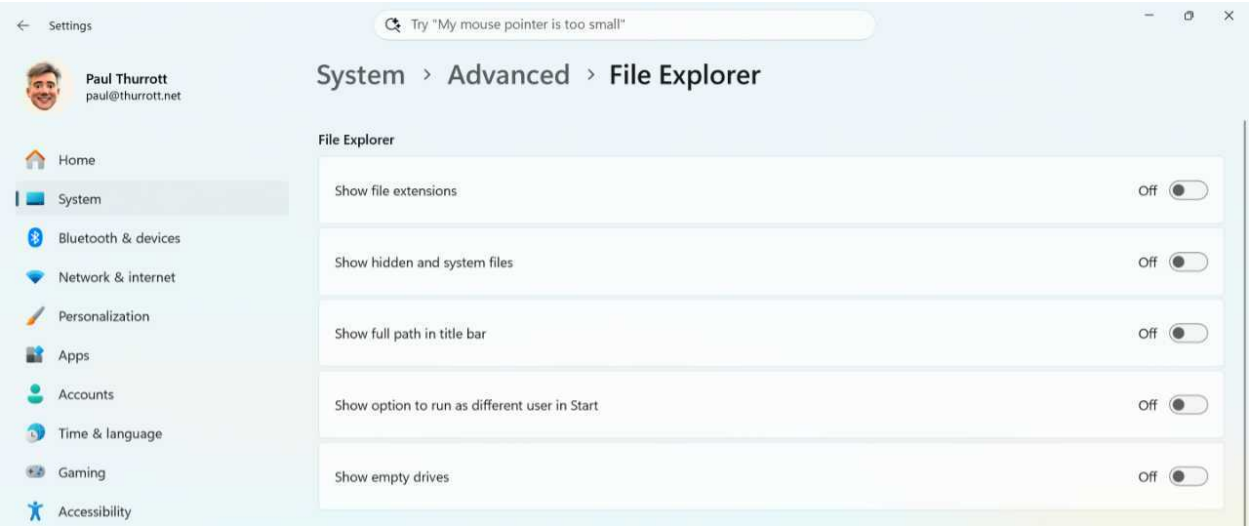
What you see here can vary, but possible options include:

- **Show recently used files**. This option determines whether the Recent section in the Home page displays your recently used files.
- **Show frequently used folders**. This option determines whether the Quick access view in the Home page (and in the Navigation pane) automatically displays shortcuts for folders you access frequently.
- **Show recommended section**. This option determines whether the Recommended view appears in the Home page, providing an activity-based list of recommended files.
- **Include account-based insights, recent, favorite, and recommended files**. This option determines whether the carousel of Recent, Favorites, and Shared file views appears in the Home page.

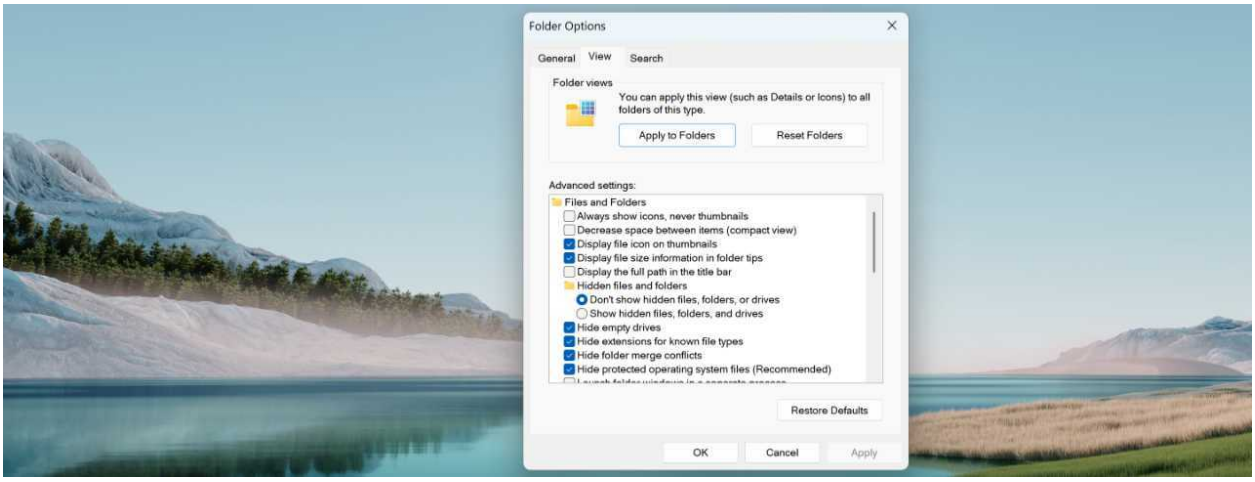
Customize the view

File Explorer is configured for most mainstream users, meaning it hides some complexity by default. But more advanced users may wish to customize what File Explorer displays and how. There are two places in Windows 11 to do so.

The first, oddly, is in the Settings app: If you navigate to System > Advanced > File Explorer, you will find a page listing several of the most common File Explorer view options–Show file extensions, Show hidden and system files, and more–that advanced users often configure.



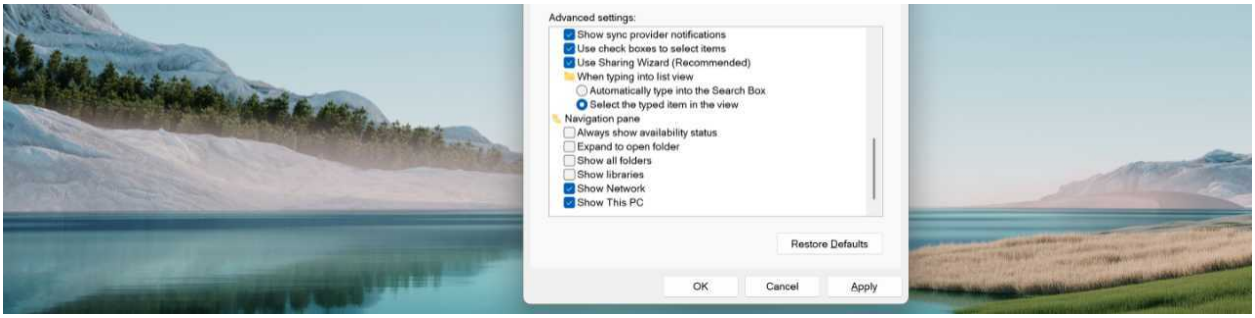
These and other File Explorer view options can also be configured in the File Explorer Folder Options dialog. Just navigate to View and take a look through the list of options in “Advanced settings.”



> **Tip**: Unlike so many interfaces in Windows 11, this dialog includes a nice "Restore Defaults" button you can click if you made a view customization you regret and can't figure out which option to revert.

Customize the Navigation pane

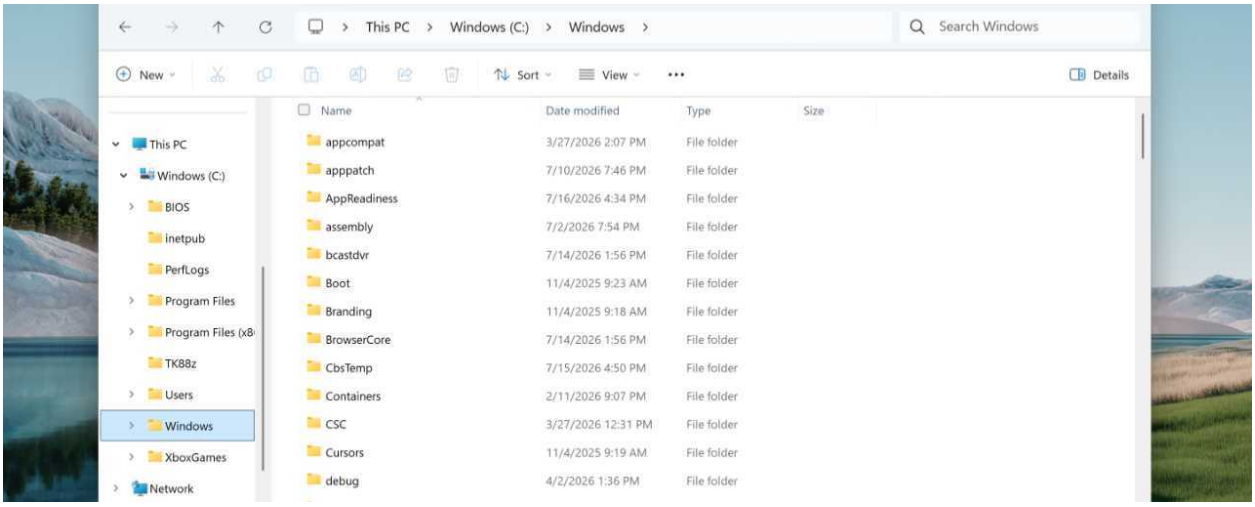
You can also customize which items appear in the Navigation pane to some degree. To do so, open Folder Options, navigate to the View tab, and examine the options in "Advanced settings" under "Navigation pane."



These include:

- **Always show availability status**. File Explorer displays an *availability status icon* for every OneDrive file and folder it displays in its main view. But you can enable this feature in the File Explorer navigation bar as well.
- **Expand to current folder**. Disabled by default, this option causes folder links in the Navigation pane to always expand to the location of the current folder or another view. For example, if you are displaying the contents of C:\Windows\, the "This PC" link in the

Navigation pane will be expanded so that you can see the path–with “Local Disk (C:)” and “Windows” nodes below it–to that location.



- **Show all folders**. Disabled by default, this option changes the Navigation pane into a folder tree view similar to the old File Manager application from legacy Windows versions. In addition to not using the standard three navigation pane sections, it adds legacy file system *nodes* like Control Panel and Recycle Bin. I don’t recommend this change to most, but it may appeal to the nostalgic.
- **Show libraries**. Disabled by default, this option displays a link to a legacy Windows feature called *libraries*, which are virtual folders that display views derived from the actual contents of multiple physical folders. For example, the Documents library might display the contents of your personal Documents folder plus the Documents folder in your OneDrive. This feature was deprecated because most users found it too complex, and unless you know you need this, we do not recommend enabling it here.
- **Show Network**. Enabled by default, this option determines whether the Network item appears in the Navigation pane.
- **Show This PC**. Enabled by default, this option determines whether the This PC item appears in the Navigation pane.

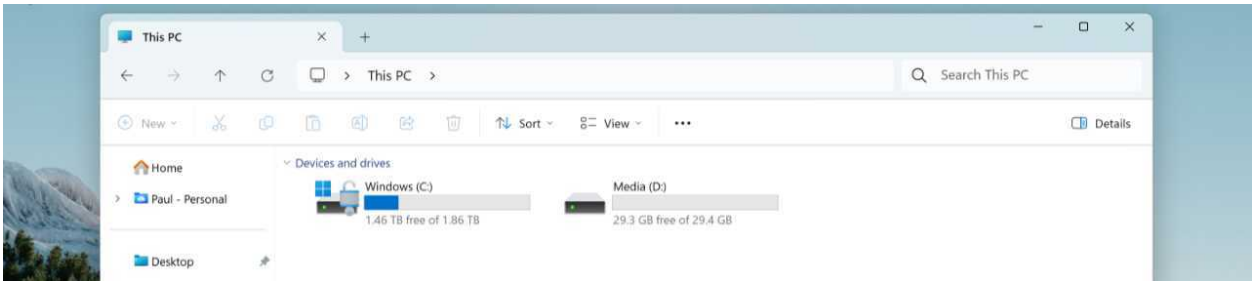
Tip: You can quickly access many of these toggles by right-clicking an empty area of the navigation bar.

Learn more: Configure OneDrive integration in File Explorer.

Customize how removable drives appear in File Explorer

When you connect a removable drive to your PC, one or more drive entries appear at the bottom of the File Explorer navigation pane, each with a corresponding drive letter. Here, you can see a single new entry, for "Media," that was assigned to drive letter D.

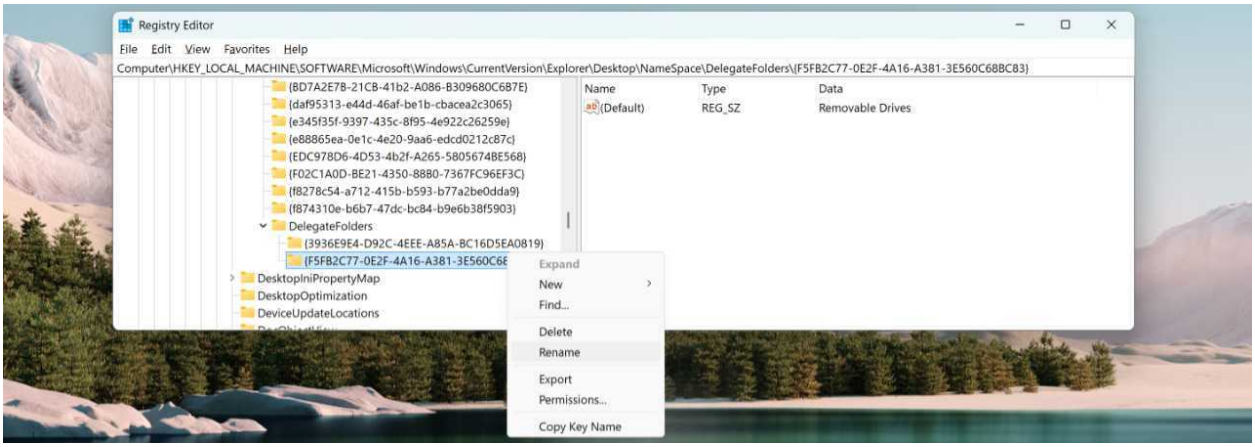
You may find this useful, as this new entry gives you an obvious place to click if you'd like to see the contents of that drive. But you may instead find it superfluous and a waste of on-screen real estate. You can configure Windows to automatically open any newly attached removable drive in a File Explorer window. And you can always access the removable drive along with any other PC storage by navigating to the This PC view.



Learn more: Storage

There's no interface here or anywhere else in Windows 11 that lets you configure File Explorer to not display removable drives. But you can use the *Registry* to prevent removable drives from appearing in the File Explorer navigation pane.

To do so, open the Registry Editor with Windows Search and navigate to *HKEY_LOCAL_-MACHINESOFTWAREMicrosoftWindowsCurrentVersionExplorerDesktopNameSpaceDelegateFolders\{F5FB2C77-0E2F-4A16-A381-3E560C68BC83}*. Right-click the "{F5FB2C77-0E2F-4A16-A381-3E560C68BC83}" key, choose "Rename," and add just a single character to the beginning or end of that key and then tap Enter.

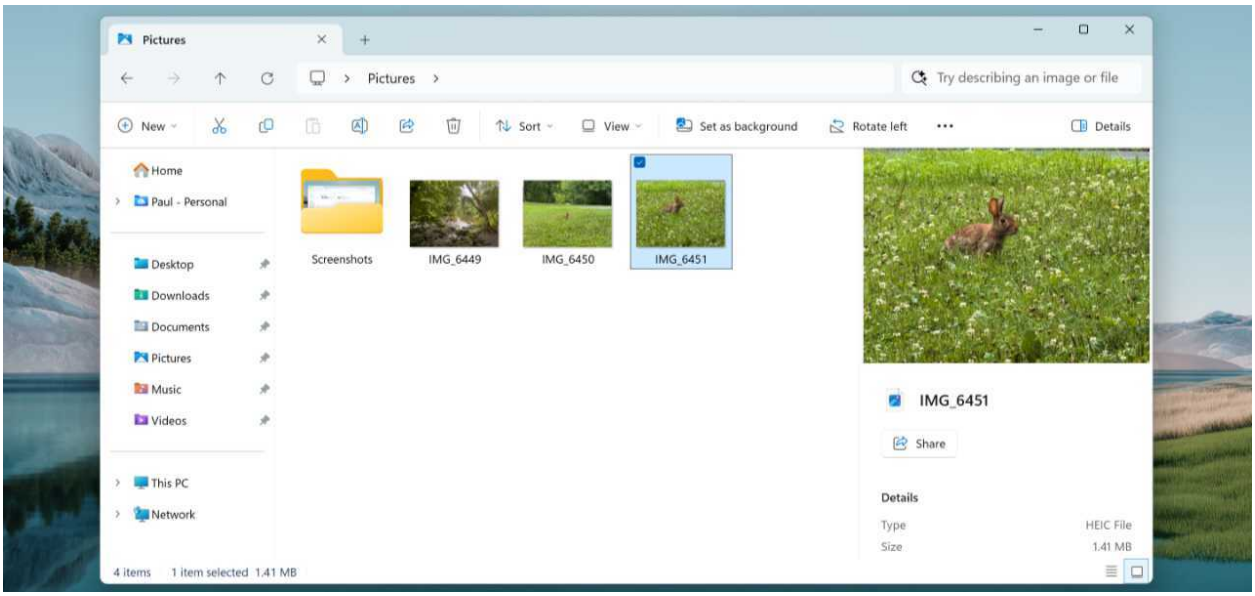


That's it: The drive(s) will disappear from the navigation bar in File Explorer, but you'll still be able to access them in the This PC view.

You can reverse the change by renaming that Registry key back to its original name.

Learn more about files with the Details pane

Microsoft has added a new Details pane to File Explorer that displays a thumbnail or icon, plus meta-data for the currently selected file. The Details pane appears on the right side of the files area and is toggled on and off via a new button at the far right of the File Explorer command bar.

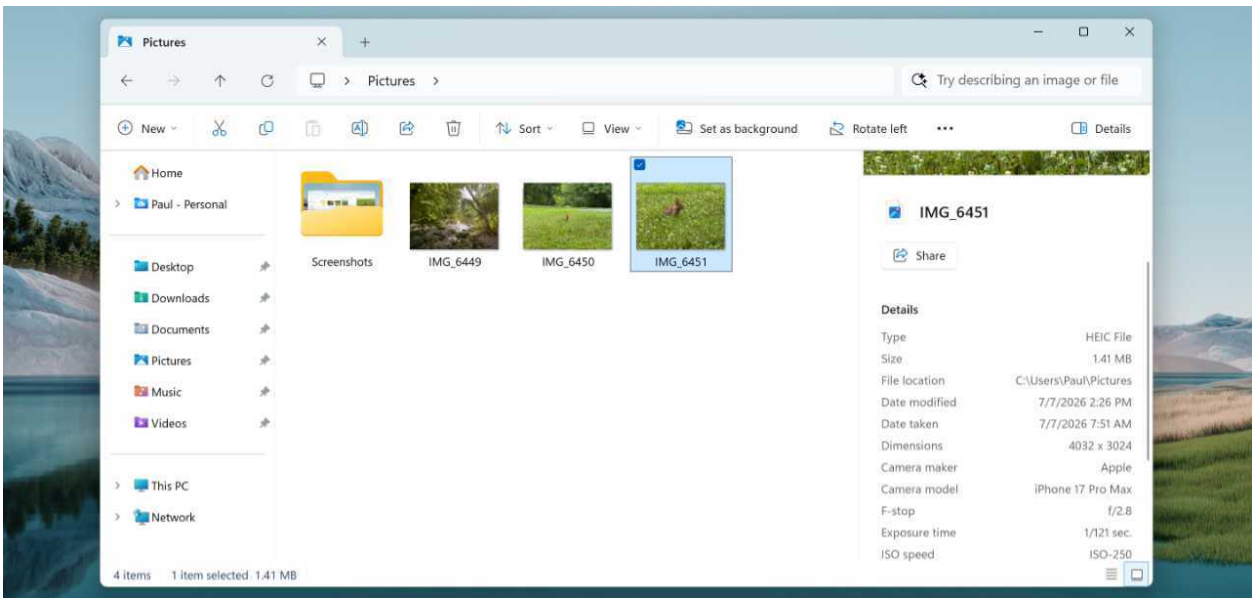


Keyboard shortcut: You can also type Alt + Shift + P to toggle the Details pane.

What you see in the Details pane will depend on the type of the selected file. There is a thumbnail preview for image files, for example, while many other file types will simply display an icon.

> **Tip**: The Details pane works with individual files only. It can't display information about two or more files.

Below that, you will find a "Share" button that duplicates the "Share" button in File Explorer's command bar, some selection of meta-data about the file that also varies by type, and a "Properties" button that opens the selected file's *property sheet*, a legacy interface for displaying file information.

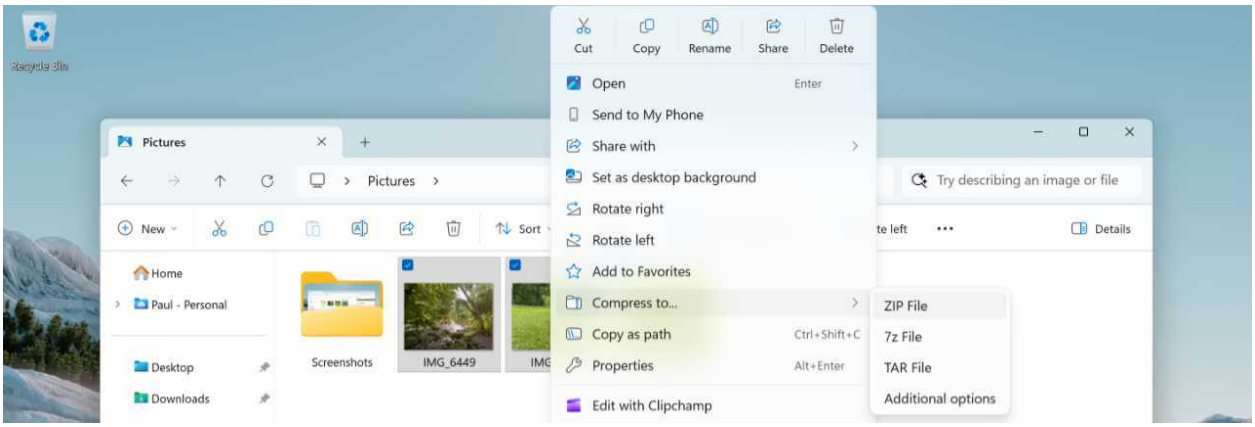


Work with archive files

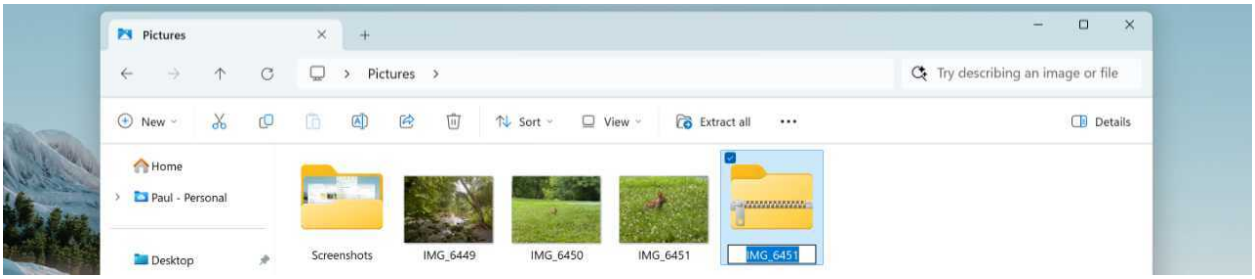
File Explorer has long offered integrated support for the popular *ZIP* archive file format via a feature called *compressed folders*. This feature lets users compress ("zip") one or more files into a ZIP archive and extract ("unzip") files from a ZIP archive. But it also simplifies the use of ZIP archives by allowing them to work like normal folders: You can open a ZIP archive like a folder, browse its contents, copy or move content to or from the archive, and perform other basic file operations.

With Windows 11, Microsoft has extended compressed folders to support compressing and extracting other archive file formats. So you can now create, view, and extract TAR (.tar, .tar.gz, .tar.bz2, .tar.zst, .tar.xz, .tgz, .tbz2, .tzst, and .txz) and 7-ZIP (.7z) archive file formats–plus ZIP files, as before–without needing to install a third-party app.

To create a compressed archive file, select one or more files in File Explorer (or the Desktop), right-click, and then choose “Compress to…” and then the appropriate archive format.

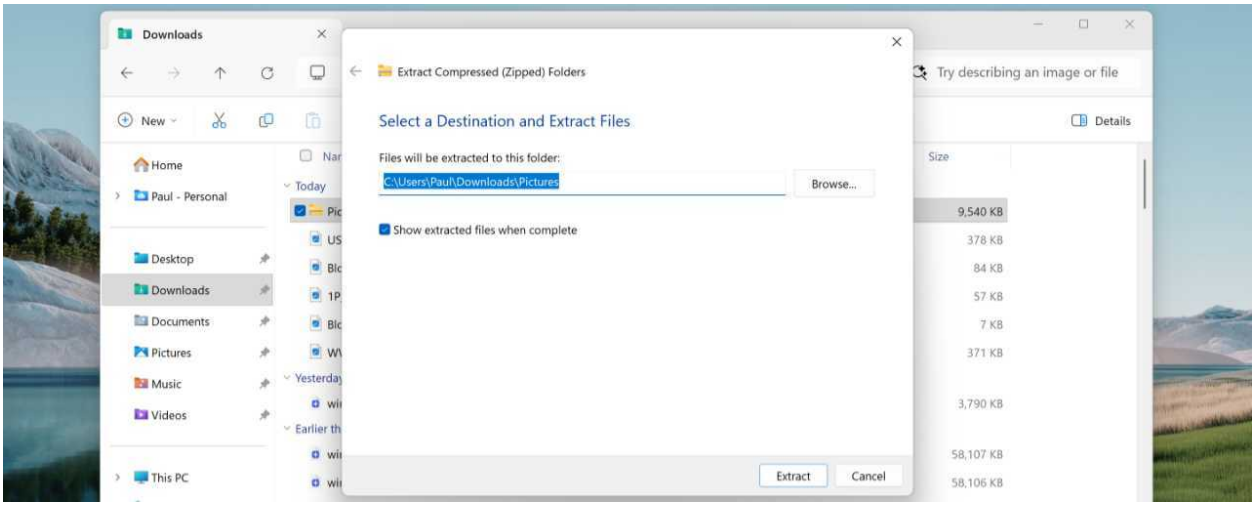


When you make your choice, Windows will create the file in the current folder (or on the Desktop) and then prompt you to name it.



To open a compressed archive file, just double-click it to display its contents like a normal folder inside a File Explorer window.

To extract a compressed archive file, right-click it, select “Extract All” and then click “Extract” in the Extract Archive window that appears (after optionally changing the destination path).

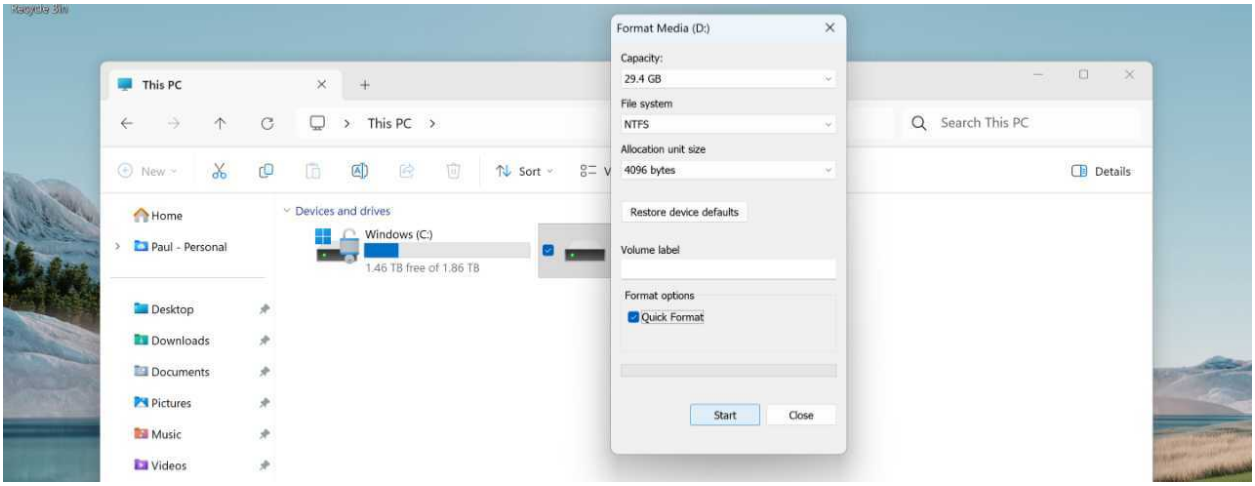


Format a disk with File Explorer

You may sometimes want to *format* a fixed disk or removable drive, a process that deletes any data on the device and prepares it for use with a clean, empty file system. There are various ways to do this, but the simplest by far is to use File Explorer.

> **Tip**: You can't format the system disk where Windows resides, typically the C: drive. You also can't use File Explorer to format hidden partitions on any disk; for that, you must use Disk Management.

To format a disk, open File Explorer and navigate to This PC. Then, right-click the disk and choose "Format…" from the context menu that appears to display the "Format" dialog.



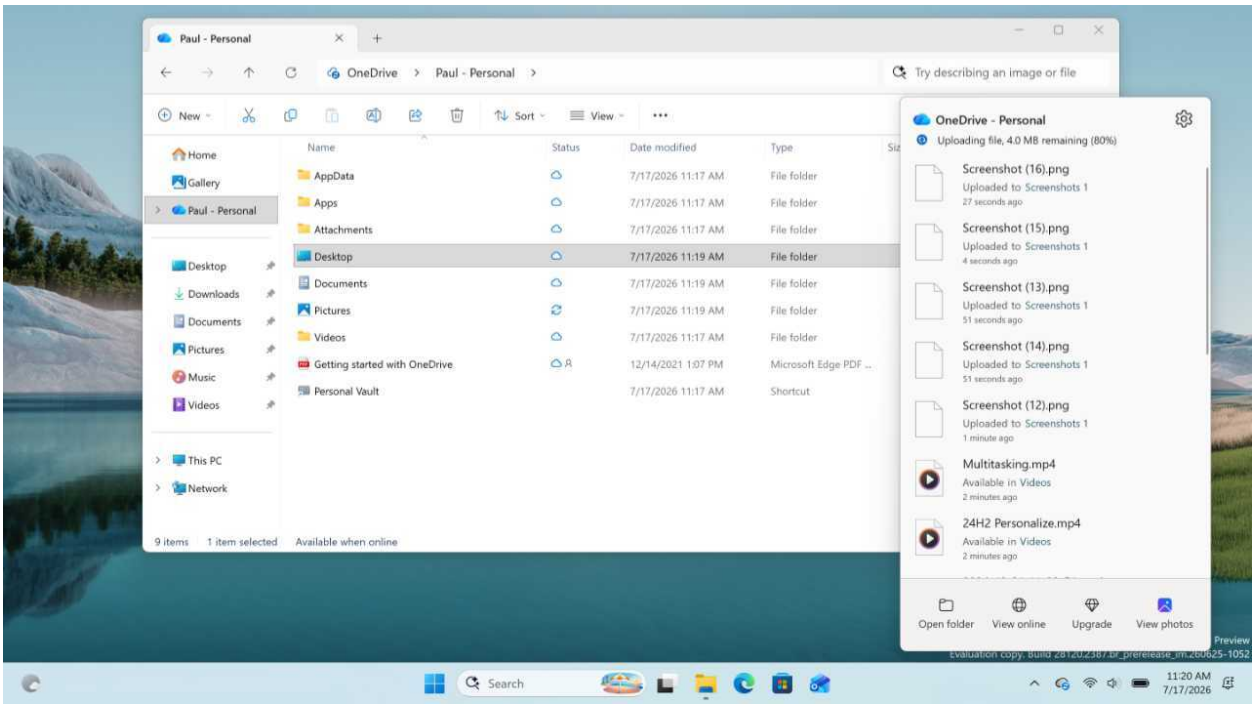
The following options are relevant here:

- **File system**. Windows 11 defaults to the NTFS file system used by the system disk, but you can optionally choose the FAT32 or exFAT file systems instead. NTFS is the best choice overall as it supports encryption and has no disk or file size limits. FAT32 is less efficient and only works with disks 2 TB or smaller, and exFAT offers good cross-compatibility if you need to use the disk with a Mac or some other computing platform.
- **Volume label**. This is a fancy term for "name," and you can use this field to assign a friendly name for your newly formatted disk. Otherwise, File Explorer uses a boring default name like "USB Drive."
- **Quick format**. By default, File Explorer performs a quick format that completes in just a few seconds because it the data that was there before will still be recoverable if needed. That's the right choice if this is your disk and only you are going to continue using it. But if you don't want anyone to access residual data on the disk, uncheck this option to perform a full format. It's much more time consuming, but this will securely wipe the disk too.

When you're ready, click "Start" to format the disk.

OneDrive

OneDrive is Microsoft's cloud storage service, and it is deeply integrated with Windows 11, allowing users to automatically sync content between the cloud and their PCs through File Explorer.



> **Tip**: There are also OneDrive apps on the web, Android devices, iPhones and iPad, and Macs.

Defaults

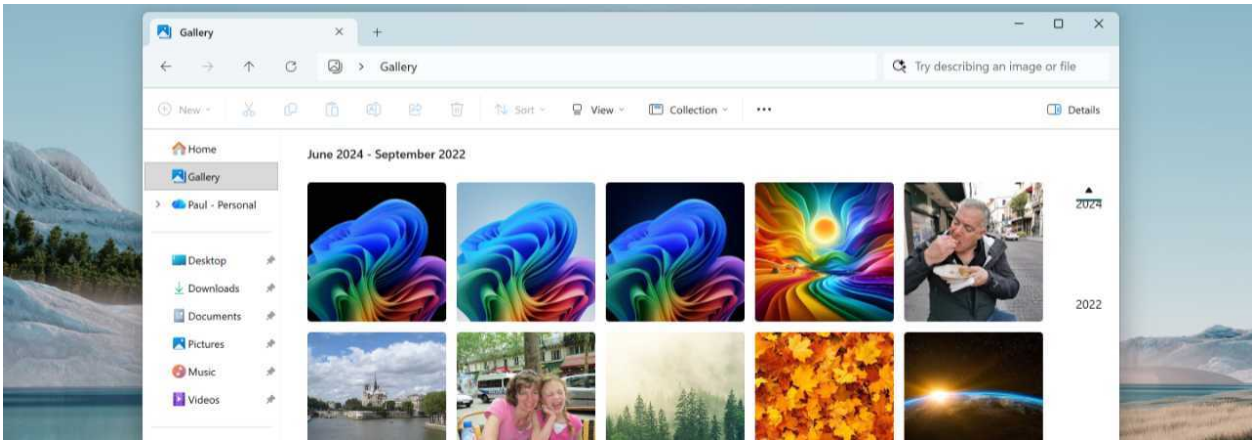
OneDrive runs when Windows 11 starts up so that you can seamlessly access the OneDrive app and the file system integration in File Explorer. The default configuration can vary based on choices you make during the Windows Setup Out-of-Box Experience (OOBE) and whether you sign in to Windows 11 using a Microsoft account (MSA) (or a Microsoft Work or School account, or MWSA).

If you sign in to Windows 11 with one of those online accounts, you may be prompted to "back up your files to OneDrive" during the OOBE, a reference to the OneDrive Folder backup feature. If you agreed to this offer, then Windows 11 enabled Folder backup for your Desktop, Documents, and Pictures folders.

If you did not agree to that offer or were not prompted with it, OneDrive may still attempt to automatically enable Folder backup during the first several minutes after you finish the OOBE in which it is indexing your cloud storage contents to make it fully visible in File Explorer. As discussed in Initial Configuration and Personalization, it's possible to short circuit that if you know how and move quickly enough. But if you're reading this now, it's too late, and you have to look at OneDrive settings to see how things are configured and change certain settings if desired.

Given all that:

- The OneDrive app and service are configured to run at startup and will be connected to your MSA (or MWSA) if you sign in to Windows 11 with one of those online account types.
- The OneDrive app is available via an icon in the system tray in the Taskbar.
- OneDrive may or may not have enabled Folder backup for your Desktop, Documents, and Pictures folders.
- When you first set up Windows 11, OneDrive indexes the local view of your OneDrive cloud storage to make it available in File Explorer (at C:Users*username*OneDrive" by default) like any locally stored files.
- OneDrive integrates into File Explorer via two key access points in the Navigation pane: A OneDrive item (typically with a name like *Username* - Personal) and a Gallery item that provides access to your OneDrive and local photos and image files similar to the Gallery view in the Photos app.

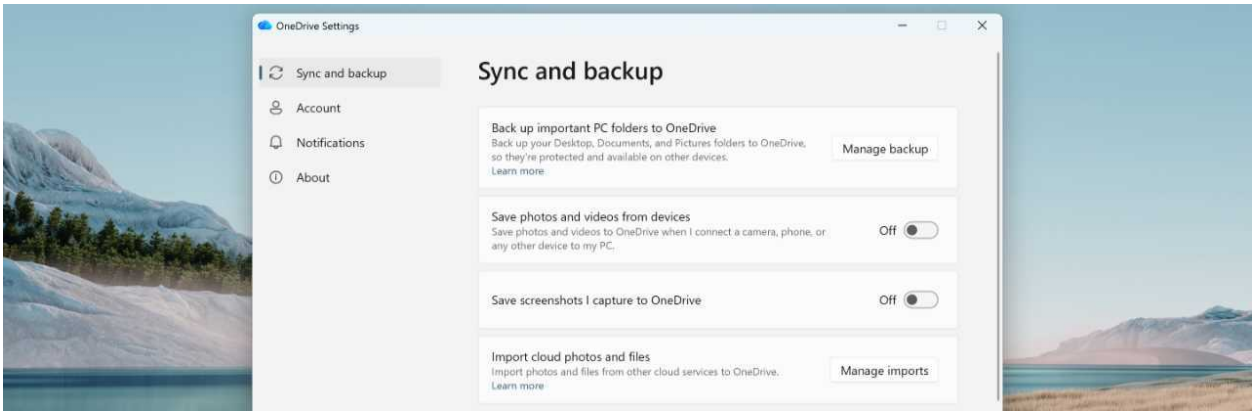


Customize

OneDrive customization occurs in two places: OneDrive app settings and File Explorer.

Configure OneDrive settings

To get started, find and click the OneDrive system tray icon to display the OneDrive app. Then, click "Help & settings" (gear) and then "Settings" to display OneDrive settings.

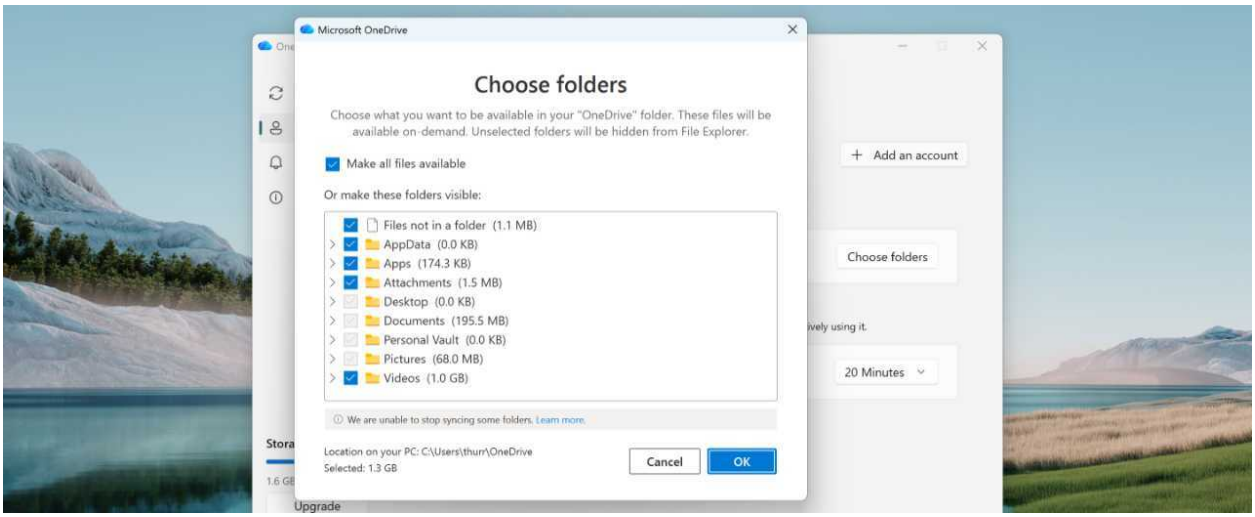


There's a lot here. But key settings across each major page of this settings interface are as follows:

- **Back up important PC folders to OneDrive (in Sync and backup)**. You can click the "Manage backup" button to configure Folder backup. Because this is so important, it's described in detail below.
- **Save screenshots I capture to OneDrive (in Sync and backup)**. The first time you use a keyboard shortcut like tapping Print screen to take a screenshot, OneDrive will appear to ask whether you would like to automatically save screenshots to OneDrive as well. You can configure this differently at any time here.

Learn more: Screenshots and Screen Recordings

- **Add an account (in Account)**. OneDrive is automatically configured to use the same online account you sign in to Windows 11 with, but you can use this interface to add another account to OneDrive locally too.
- **OneDrive (in Account)**. OneDrive automatically indexes your entire cloud storage locally but you can click the "Choose folders" button here if you would like to restrict which cloud-based locations appear in the local file system in File Explorer.



- **Notifications**. While some OneDrive notifications are useful, I always disable "Notify me when 'On this day' memories" because it's annoying. But it's worth scanning through the list of available notification types here and making your own decisions about how disruptive this app can be.

Configure OneDrive integration in File Explorer

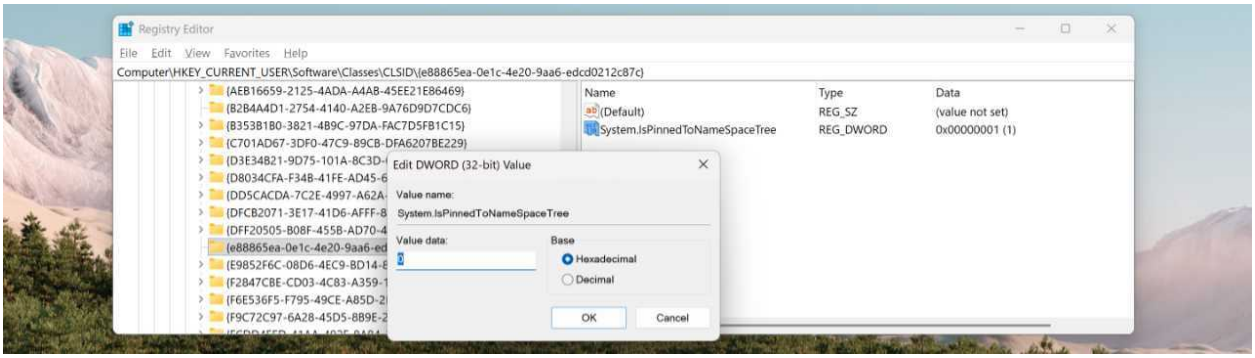
OneDrive is deeply integrated with File Explorer in ways both obvious and not. Some key configurations here include:

- **Make OneDrive the default home page in File Explorer**. If you use OneDrive extensively, you may wish to make OneDrive the default home page in File Explorer. This is described earlier in this chapter.

- **Configure file sync with File Explorer**. By default, OneDrive makes your entire cloud-based storage visible and accessible in the file system via File Explorer. But the files and folders you see there are just *stubs* that only download and open when you click one when the PC is online. That's nice, but it's not particularly convenient, especially if you need to access some files in there when the PC if offline. Fortunately, OneDrive supports a feature called *Files on Demand* that lets you arbitrarily mark folders and individual files to be available when you're offline. This is a big enough topic that it is described in more detail later in this chapter.

> **Tip**: If OneDrive Folder backup is enabled, then anything stored in your Desktop, Documents, and Pictures folders is likewise available when the PC is offline.

- **Display availability status in the File Explorer navigation bar**. This option is described earlier in this chapter.
- **Remove the Gallery view**. If you don't use the Gallery view in File Explorer, you're a bit stuck because there's no user interface to remove. For this, we must turn to the Registry Editor: Open the Registry Editor with Windows Search and navigate to *HKEY_CURRENT_USERSoftwareClassesCLSID\{e88865ea-0e1c-4e20-9aa6-edcd0212c87c}*. Right-click the "System.IsPinnedToNameSpaceTree" value in the right pane, choose "Modify," and change the "Value data" field in the dialog that appears from *1* to *0*. Then, click "OK." The Gallery view disappears immediately, and if you ever want to get it back, just modify that value again (back to *1*).

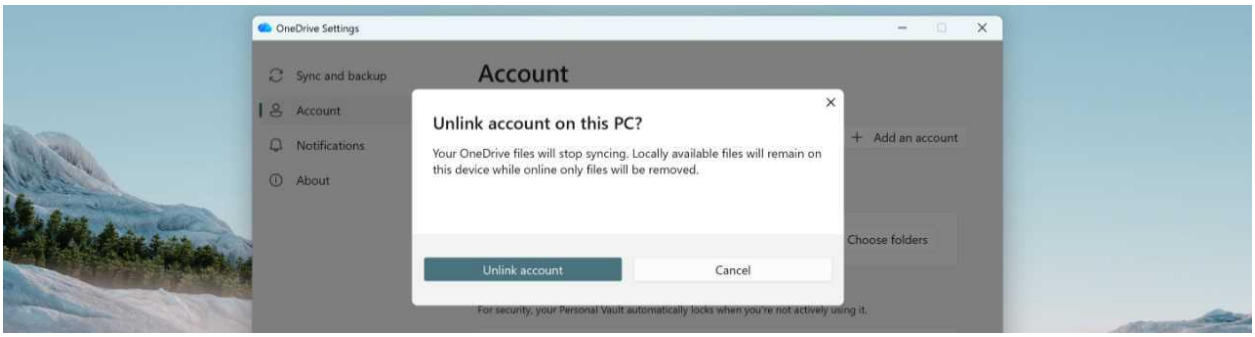


Change where OneDrive is located on your PC

Windows 11 places your OneDrive folder inside your user account folder structure (C:\Users*username*\OneDrive by default). This isn't something you need to think about all that often, since File Explorer provides a direct link to OneDrive in its navigation bar and simplifies the file path display in its Address bar.

But you can move OneDrive to a new location if you'd like. For example, those with desktop PCs sometimes have two drives, with a solid-state drive as the system disk (C:) and a large, traditional hard drive (D:) that's used for data. You may wish to move OneDrive from the system drive (C:) to that larger (D:) drive.

To do so, open OneDrive settings and navigate to the Account tab. Then, click the "Unlink this PC" link. Windows will prompt you to explain what will happen if you proceed.



Click "Unlink account." A "Set up OneDrive" window will appear.

Enter the email address for your Microsoft account as prompted and handle any two-step authentication requirements as prompted. Then, step through a series of mostly promotional windows until you arrive at one titled "Your OneDrive folder."

Here, you will find a link, "Change location," that lets you choose a new location for the OneDrive folder. Simply use the "Choose your OneDrive location" window–a renamed Open file dialog–to choose a new location.

> **Tip**: A OneDrive folder will be created for you in whatever location you choose. That is, you don't need to create a OneDrive folder manually.

After this, you will need to step through several other windows in which you can configure OneDrive Folder backup and then learn more about OneDrive. When you're done, File Explorer will open to the local version of your OneDrive, which is now in its new location in your PC's file system.

> **Tip**: The original OneDrive folder will remain on disk on your PC after this change, and it will contain any files you downloaded or synced to this PC. You can leave it there, of course, but if you delete it, it will free up whatever storage space it is taking up.

Sync key folders to the cloud with OneDrive Folder backup

When enabled, OneDrive Folder backup is configured to back up three key user folders–Desktop, Documents, and Pictures–to OneDrive. It does this by redirecting these local file system locations to similar locations inside the OneDrive folder structure. That is, instead of using C:\Users*user-name*\Desktop as the location for your Desktop folder, it will use C:\Users*user-name*\OneDriveDesktop.

> **Tip**: You can also optionally back up (sync) the Music and Videos user folders to OneDrive as well.

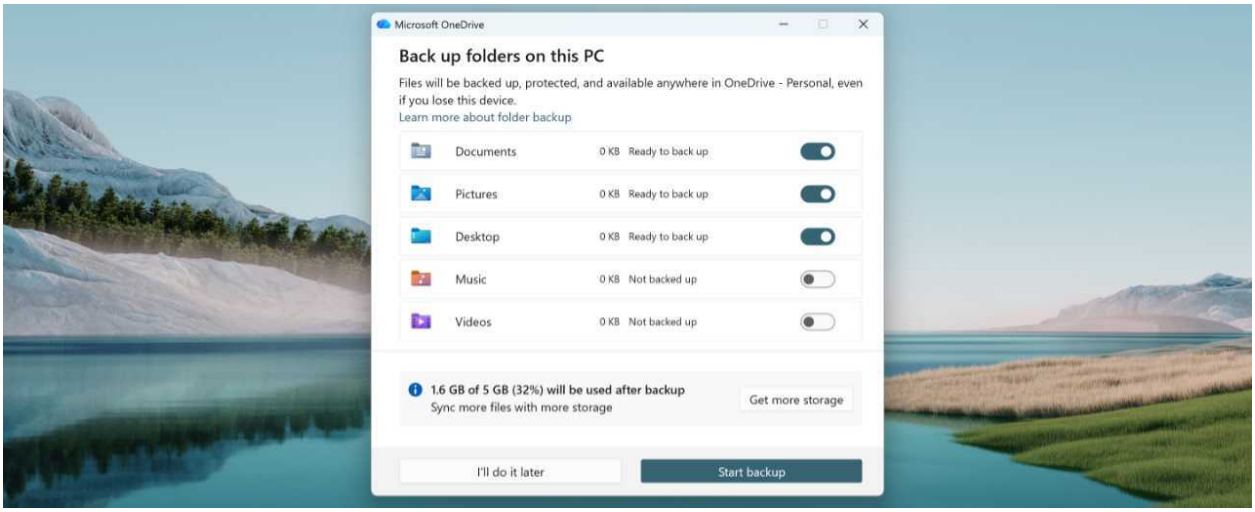
OneDrive Folder backup is incredibly useful if you store any documents or other files in any or all of those folders because they will be synced to OneDrive in the cloud and then made available to you on any PC, Mac, phone, or other device with access to the web or a OneDrive app. But this takes up storage as well, and if you're not paying for additional OneDrive storage, typically through a consumer Microsoft 365 subscription, you can quickly fill up the free 5 GB that Microsoft provides to everyone.

> **Learn more**: Get more OneDrive storage

The issues with OneDrive Folder backup don't end there, however. Some may not want to back up these folders to OneDrive because they don't want to use up too much of their OneDrive storage allotment, don't use those folders anyway, or use other cloud storage services. And Windows 11 has a nasty habit of auto-enabling this feature in some circumstances, even after you've declined an offer to do so.

However your feelings about OneDrive Folder backup, you should at least examine how this feature is configured. And, if desired, enable or disable the automatic backup (sync) of one or more of those folders.

To do so, open OneDrive settings . In the Sync and backup page, click the "Manage backup" button to display the "Back up folders on this PC" window.



Here, you will see On/Off toggle controls for the three folder locations that OneDrive automatically backs up–Documents, Pictures, and Desktop–plus two other important folders in your user account, Music and Videos. You can toggle each folder as you wish and then click "Save changes" or "Close" as needed.

Note, however, that making changes here will trigger certain behaviors and some are new to 2026.

Enable OneDrive Folder backup

If you enable Folder backup on one or more of these folders, OneDrive will display a window called "OneDrive is backing up your files." You can just close this window and get back to work, or you can click "View progress" to watch the files sync in the main OneDrive window.

In each case, Windows 11 will do the following:

- Redirect the selected folder(s) from their normal local file system location(s) to the relevant OneDrive file system location(s)
- Remove the local version(s) of the folders from the file system
- Move any content contained by the folder(s) to the new OneDrive-based location(s) where they can be accessible and sync from the cloud to other devices.
- *Combine* the contents of the local version(s) of the folder(s) with whatever is already stored in the OneDrive version(s) of the folder(s).

> **Tip**: That last point is important. You will likely have content in the OneDrive version(s) of the folder(s) already, and when you or the system enables OneDrive Folder backup, that content will now include whatever was in the local version(s) of the folder(s) too.

Disable OneDrive Folder backup

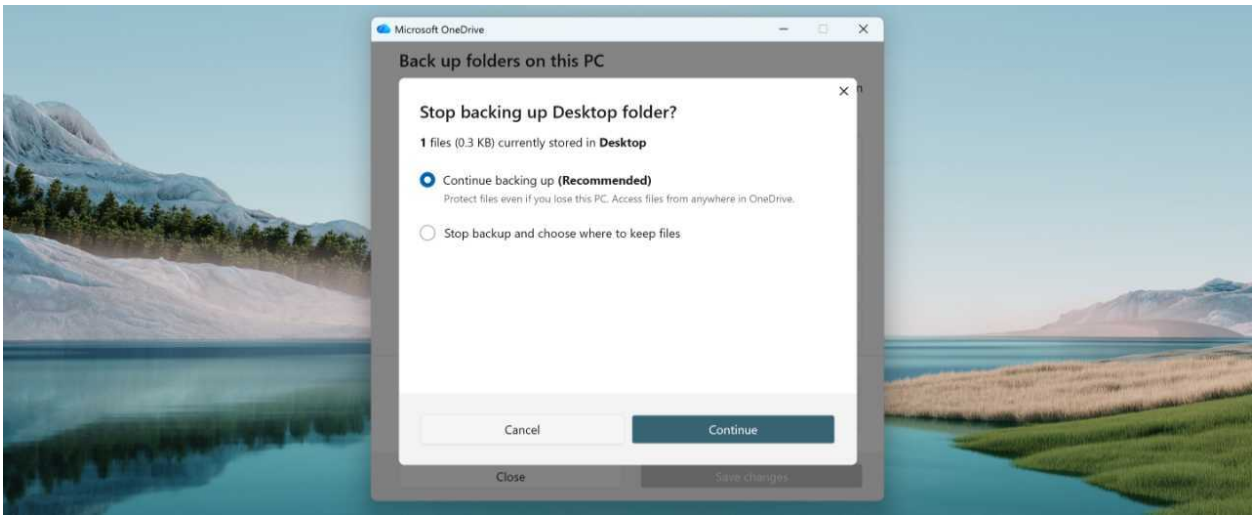
Disabling OneDrive Folder backup is more complicated. The issue is that you used to have two different folders–say, the local Documents folder associated with your sign-in account and the Documents folder in OneDrive–but you now have a single folder–the Documents folder in OneDrive, in this example–that's storing the combined contents of what was previously in both folders. So when you *disable* OneDrive Folder backup, that content–which, again, is the combined contents from two locations–has to go somewhere.

Previously, when you disabled OneDrive Folder backup on a folder, its contents would remain in OneDrive. That is, if you were using OneDrive Folder backup with the Documents folder but then disabled it, the following would happen:

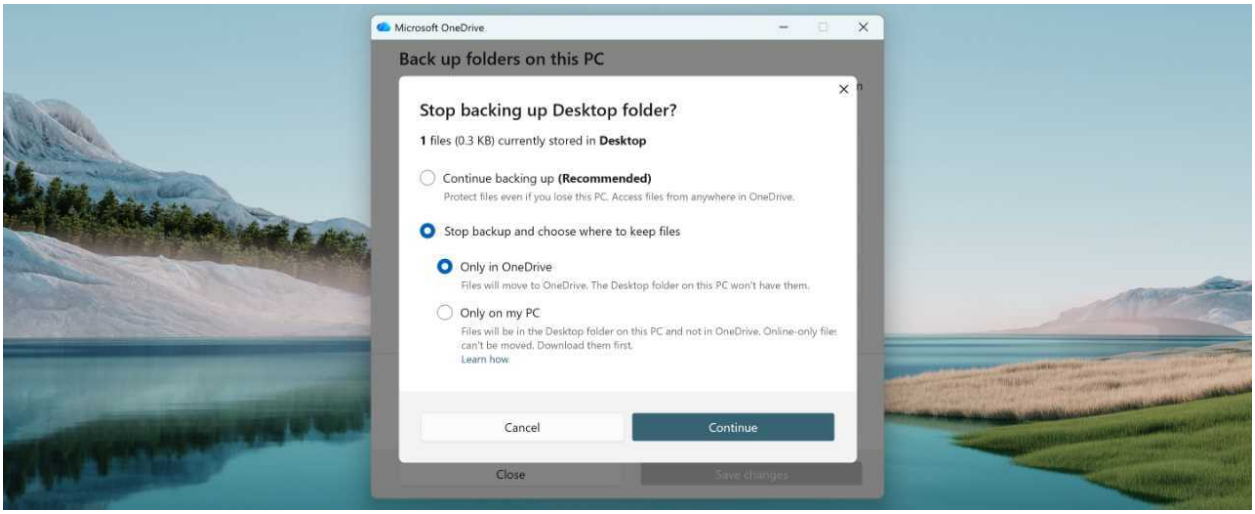
- Window 11 reinstated the local Documents folder (C:Users*username*Documents by default), making it available in the file system and to apps again.
- Any content that was previously stored in the OneDrive Documents folder (C:Users*username*Documents) remained in that location.

New to 2026, this behavior has changed. Now, when you disable OneDrive Folder backup on a folder, you're given two choices.

- First, OneDrive ensures that you really want to disable backup.



- Second, if you choose "Stop backing up and choose where to keep files," you are prompted to specify whether to keep the content in the OneDrive version of that folder or to *move* that content to the local version of that folder.



Easy, right?

Wrong. Unless you've only used a single computer over the past several years, it's possible–in fact, it's highly likely–that the OneDrive version of whatever folder had content in it from those other PCs, all commingled together. And it could be a lot of files that take up a lot of disk space, so choose carefully: The interface you're looking at explains how many files will transfer and how much space they require locally.

> **Tip**: If you're not sure what to do, choose "Only in OneDrive" here and then use File Explorer–perhaps two File Explorer windows side-by-side to determine which if any of the files in the OneDrive version of the folder you wish to copy or move back to the local file system version of the folder.

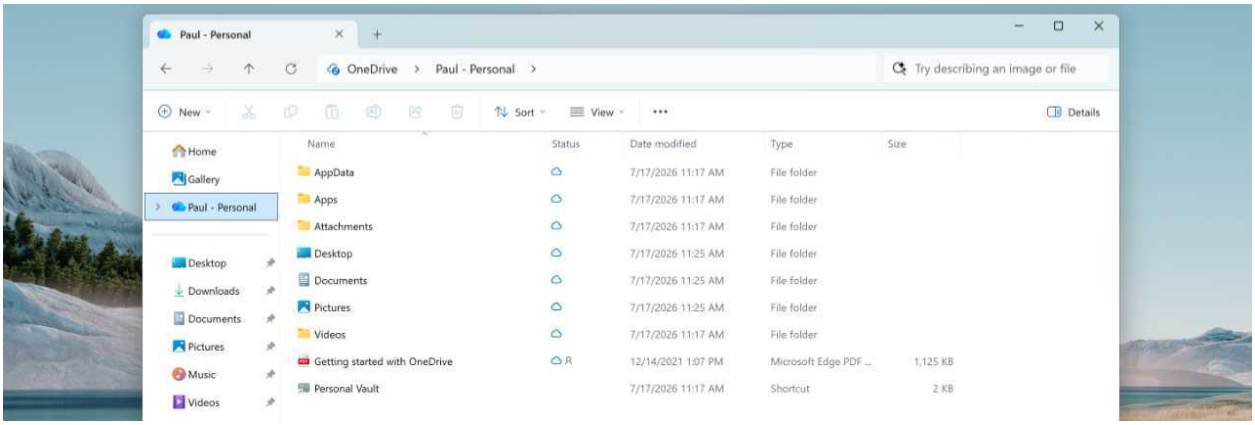
Access files offline with OneDrive Files on Demand

Before cloud computing, we saved documents and other files in the file systems of our PCs and hopefully backed them up from time to time using a removable drive or network-attached storage device. But with OneDrive and other cloud-based storage services, a more reliable and secure strategy emerged. Now, we can automatically *sync* the documents and other files we work with to the cloud, ensuring that they are, in effect, backed up to a different geographical location and, as good, be easily accessible on our other PCs and compatible devices.

Looking at OneDrive specifically, Microsoft's cloud storage service deeply integrates with Windows 11 using a feature called *Files on Demand*, as noted above. But you aren't limited to syncing your Desktop, Documents, and Pictures folders–and, optionally, your Music and Videos folders–with OneDrive. In Windows 11, your entire OneDrive is accessible in the file system and thus from File Explorer and any other app that deals with files. And you can arbitrarily configure

individual files or folders full of files to sync between OneDrive and your PC using another useful OneDrive feature called *Files on Demand*.

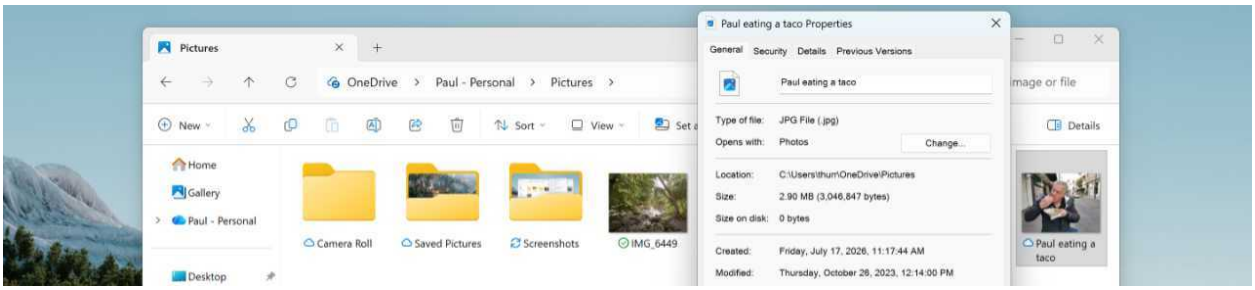
To understand this better, open File Explorer and click the OneDrive ("*username* - Personal") item in the top section of the Navigation bar on the left. When you do, the contents of your OneDrive storage appear in the app.



By default–and except for the content in folders impacted by OneDrive Folder backup if that feature is enabled–any OneDrive-based files that you view using File Explorer are not actually *on* your PC. Instead, they are in the cloud and Windows displays lightweight placeholders of those files, or stubs, which include thumbnails in many cases, and even detailed file information.

In the language of *Files On-Demand*, these files are said to be *online-only files*. They are visible in your PC's file system. But they are not stored in their original form in the file system. This means they are not available when your PC is offline.

Consider the Properties dialog for an online-only file. As you can see, its size is 2.9 MB; this represents how much storage the file actually takes up. But its size on disk is (roughly) 0 bytes. It takes up almost no space at all. That's the magic of Files On-Demand: You can *see* the OneDrive-based file in File Explorer, but it's taking up almost no space unless you need to open it.



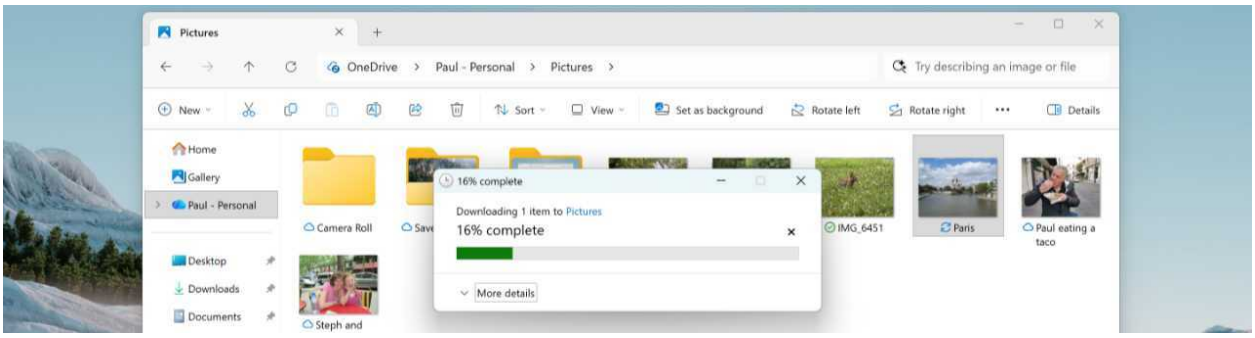
Make OneDrive files and folders always available, even when the PC is offline

The downside to online-only files is that they are only viewable and accessible in the file system when the PC is online. But you can make them accessible in the file system even when the PC is

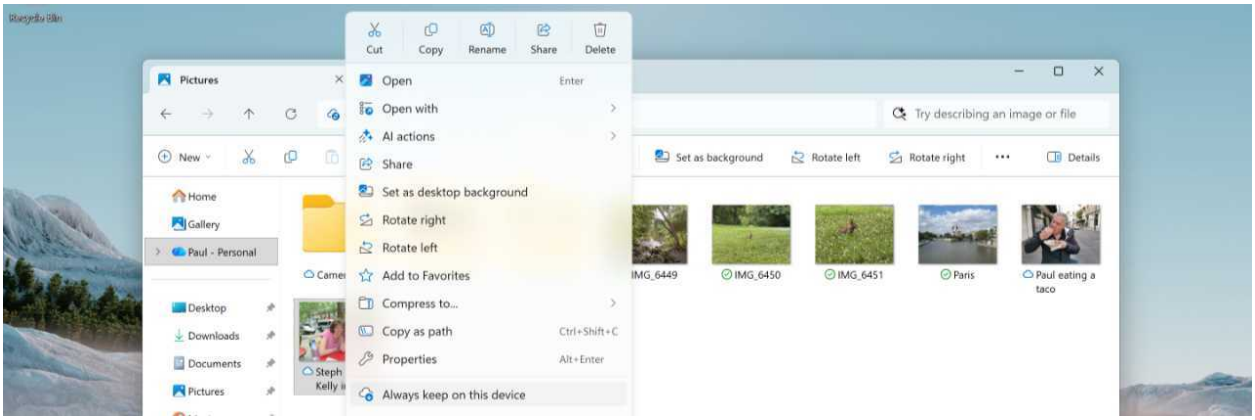
offline if desired. Even better, this system keeps the files synced with OneDrive in the cloud. In the language of Files On-Demand, such files are said to be *always available files*.

There are two ways to do this:

- **Open the file**. If you double-click an online-only file in File Explorer when the PC is online, it will download from OneDrive and then open normally. Going forward, it will always be available, including when the PC is offline.



- **Configure one or more files or folders to always be available on this PC**. If you right-click a file, folder, or selection of files and/or folders in OneDrive, you can select the "Always keep on this device" item in the context menu that appears to download the selected items to this PC and then keep them in sync with OneDrive in the cloud going forward.



Free up space by making synced files online-only

You can also reverse the changes described above. To *remove* the local version of an always available file and free up some local storage space, right-click it and choose "Free up space" from the context menu that appears.

> **Tip**: This also works with multiple selected files at once and with entire folders.

Quickly determine which files are available offline and which aren't

As you work with OneDrive files in File Explorer, you will notice that all OneDrive folder views display a *Status* indicator icon for each file in that folder. There are three possible icon overlays, and each visually helps you quickly determine their offline availability.

They are:

- **Available when online**. This icon overlay–a white cloud with a blue outline–means that the file is an online-only file. This is the default status for all OneDrive files, and it is the most common icon you will see.

- **Always available on this device**. This icon overlay–a white checkmark on solid green–indicates that you explicitly marked this item to be always available, so it is synced with the cloud and available even if the PC is offline.

- **Available on this device**. This icon overlay–a green checkmark on white–indicates that you double-clicked this file to open it locally. This file is available offline, of course, but it might transition back to being "Available when online" in the future if you don't access it again. To avoid that, explicitly configure it as "Always available on this device."

Protect your most important files with Personal Vault

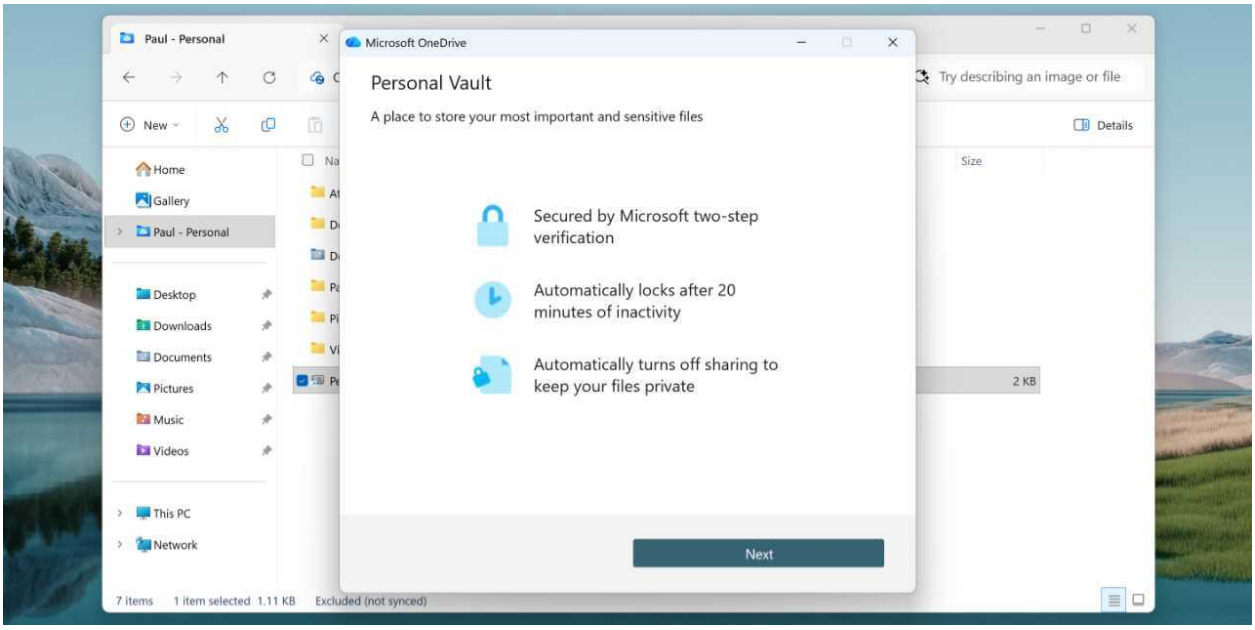
OneDrive lets you securely store your most important or sensitive documents, photos, and other files in a specially protected area called *Personal Vault*. Personal Vault is a top-level folder location in OneDrive, and it is accessible via the web, the OneDrive app on mobile, the Finder on the Mac, and File Explorer in Windows 11. But it differs from other OneDrive folders in that it requires you to verify your identity when you access it.

> **Tip**: That verification will be familiar to you if you use your Microsoft account's *two-step verification* protections, as you should.

> **Tip**: All Microsoft account holders can store 3 files in Personal Vault, but if you have a Microsoft 365 account, there is no file limit.

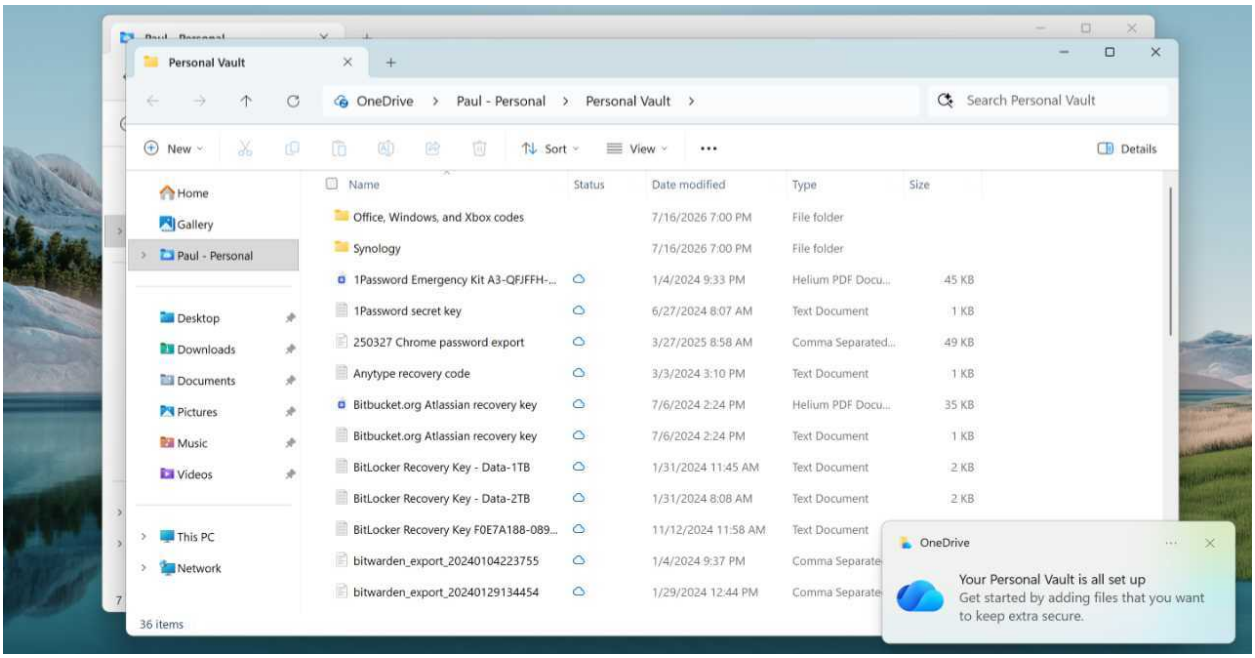
Enable Personal Vault

Before you can use the OneDrive Personal Vault in Windows 11, you have to enable it. To do so, open File Explorer, navigate to OneDrive, and double-click the Personal Vault item as you would any other folder. Windows 11 will prompt you about this feature, explaining how it works.



Click “Next,” then click “Allow” when prompted. Windows will display a User Account Control (UAC) permissions dialog. Approve that request.

After a bit of work, another prompt will appear asking you to sign in to your Microsoft account using a two-step verification request that will be delivered to your phone. Complete that process, and the Personal Vault folder will open in File Explorer. It will be empty if you’ve never used it before



Access Personal Vault

Once Personal Vault is enabled on your PC, you can use it normally and much like any other folder. That is, you can copy or move files or folders into or out of Personal Vault, delete files or folders in Personal Vault, or perform any other standard file operations.

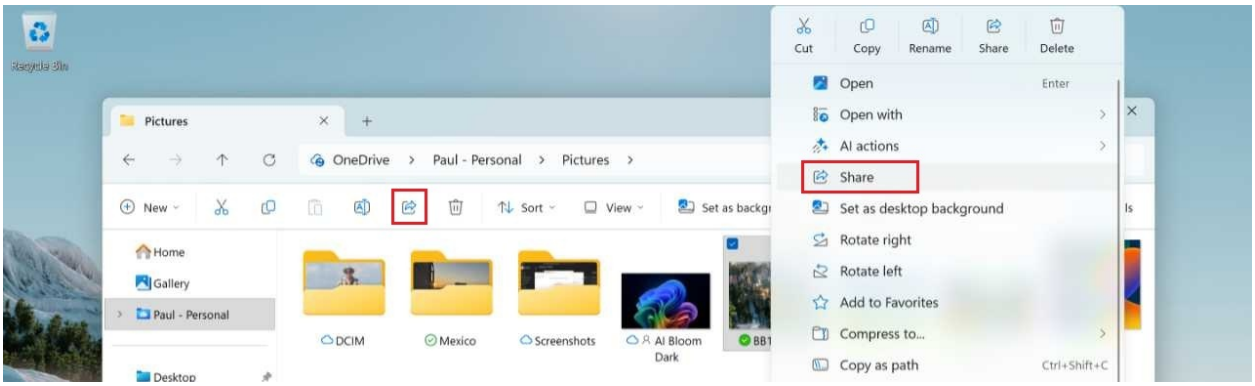
There is one security-related wrinkle: You will be prompted to verify your identity from time to time. This can happen if you've not used Personal Vault in a while. But it can also happen when you have been using Personal Vault but 20 minutes have elapsed since the last access.

Files copied or moved into Personal Vault can of course be viewed, edited, and deleted from the web or the OneDrive mobile app as well. In both cases, you will be prompted to verify your identity each time.

Share OneDrive files with others

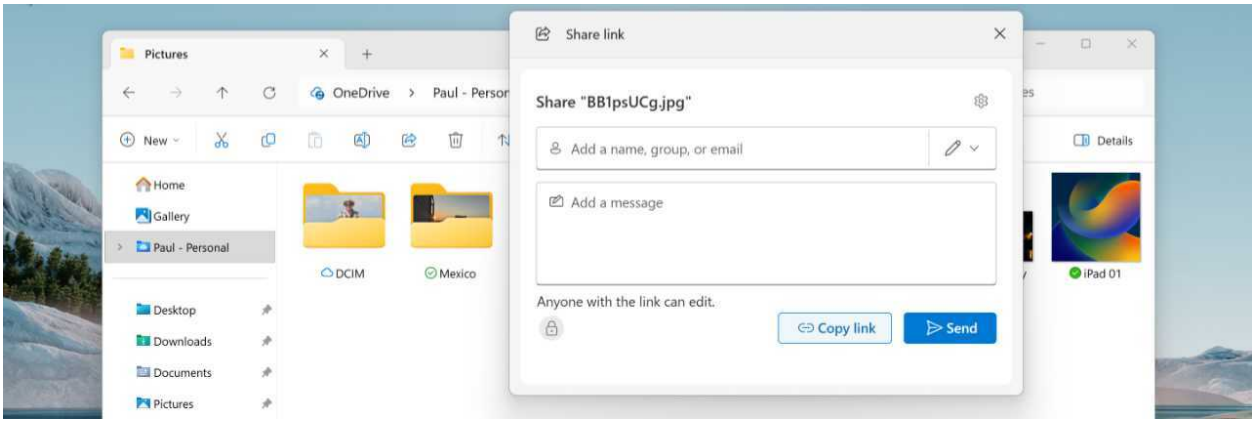
File Explorer lets you share files with others using email, Nearby share, compatible apps, and other means. But when the files you wish to share are stored in OneDrive, the experience changes. That's because OneDrive doesn't need to use your PC as an intermediary: Instead of manually sending these files to others, you can create a *link* for them to use so they can access the files directly from OneDrive. This link will let the other person view the file(s) in OneDrive in the cloud (in a web browser), download them, and, if allowed, even edit them.

To see this, select one or more OneDrive-based files and/or folders with File Explorer and then click the "Share" icon in the app's command bar.



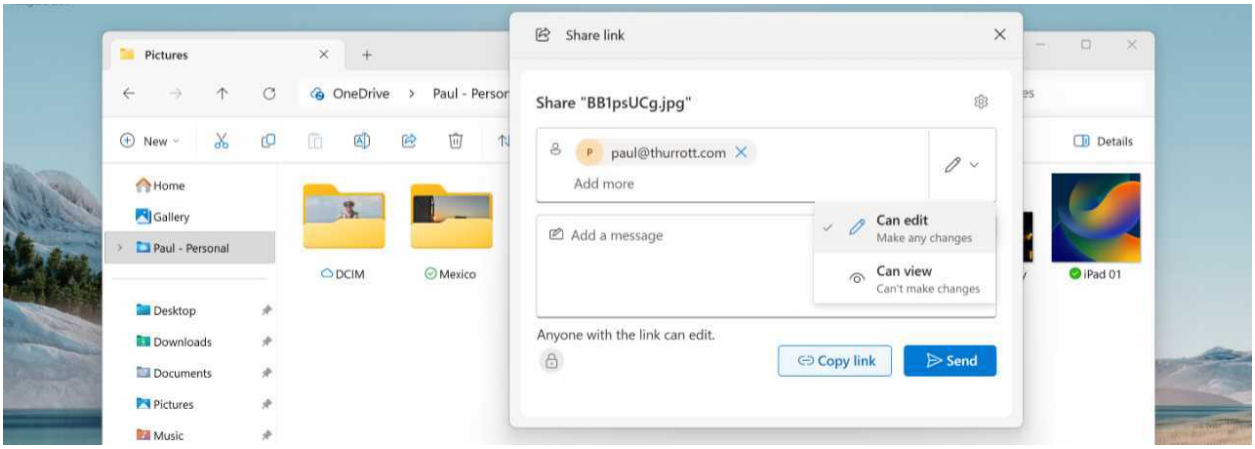
> **Tip**: You can also right-click the selected files/folders and click the "Share" icon in the pop-up menu that appears.

The "Share link" window appears.



Here, you can choose how to send the link and configure permissions for the shared file(s). Available options include:

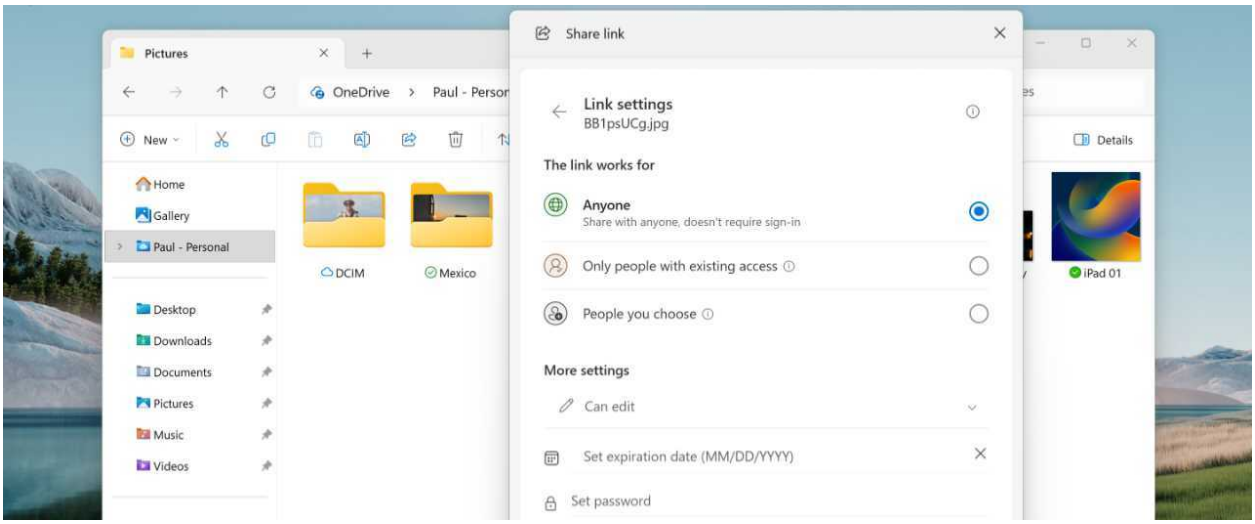
- **Add a name, group, or email**. You can use this field to add one or more recipients for the shared link, typically in the form of an email address.
- **Add a message**. You can optionally add a text-based message when you share a link via OneDrive.
- **Permissions**. Click the "Can edit" (pencil)/"Can view" (eye) toggle to choose a permission level for the shared item(s).



> **Tip**: Allowing a recipient to edit a shared file isn't as dangerous as it sounds: The recipients can edit the file(s) you shared in OneDrive, but those changes will be saved to a copy in their OneDrive and won't impact the original.

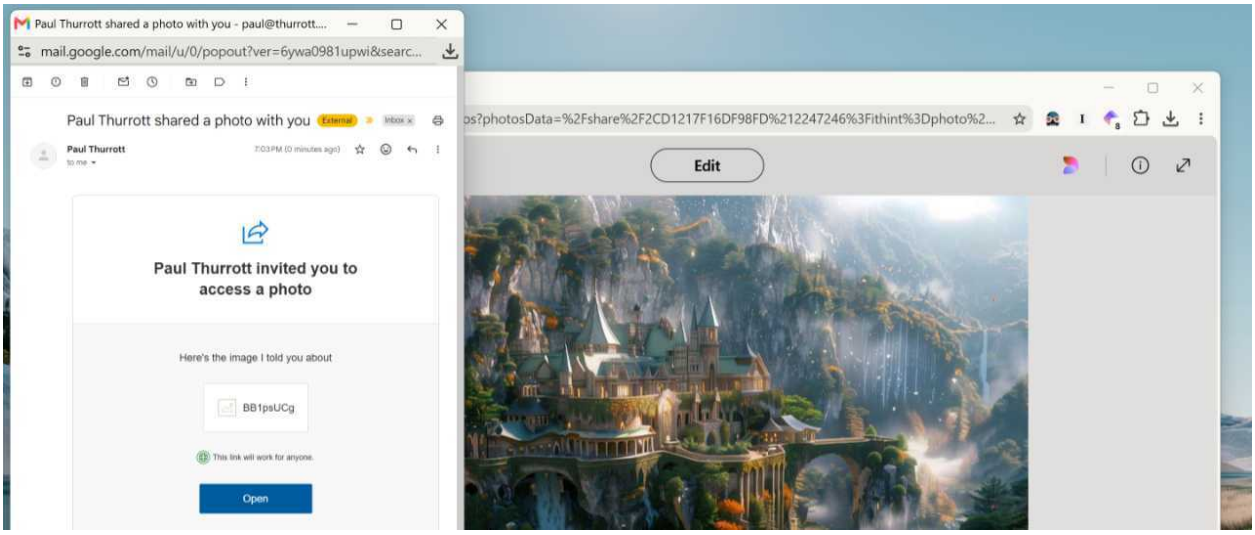
- **Link settings**. Click the "Sharing settings" (gear) icon or the "Anyone with the link can edit" link to display the "Link settings" page, where you can determine *who* can use this link–

anyone, only people with existing access, or people you choose (via that "Add a name, group, or email" field)–whether they can view or edit the shared item, and optionally configure an expiration date or password for the link.



- **Manage access**. Click this lock icon to display the "Manage access" page where you can change or revoke access to a shared item *after* you've already shared it.
- **Copy link**. Click this button to copy the share link to the Clipboard so you can manually share the item with others however you prefer.
- **Send**. Once you're ready to send the share link, click this button.

The people who receive the link can access the files using their web browser (after entering the correct password, if you specify that).



Get more OneDrive storage

Everyone with a Microsoft account gets 5 GB of free OneDrive storage space. But you can pay more to get more storage, starting with a Microsoft 365 subscription: Those with a Microsoft 365 Basic ($1.99 per month or $19.99 per year) subscription get an additional 100 GB of storage, while those with Microsoft 365 Personal ($6.99 per month or $69.99 per year), Family ($9.99 per month or $99.99 per year), or Premium ($19.99 per month or $199 per year) subscriptions get an additional 1 TB of OneDrive storage per user.

> **But wait, there's more:** You can compare these offerings on the Microsoft website.

Once you have a Microsoft 365 subscription, you can add additional storage in 200 GB ($1.99 per month), 1 TB ($9.99 per month), 5 TB ($49.99 per month), and 10 TB ($99.99 per month) allotments if 1 TB isn't enough.

Disable or uninstall OneDrive

If you don't use OneDrive, you can disable or even uninstall it. Either option will prevent the app from auto-starting when you sign in to Windows, and you won't see OneDrive entries in File Explorer or a OneDrive icon in the system tray in the Taskbar.

Disable OneDrive

To disable OneDrive, open OneDrive settings, navigate to the Account page, and click the "Unlink this PC" link next to your profile picture. Then, in the "Unlink account on this PC?" window that appears, click "Unlink account." The window will close, you will be signed out of OneDrive.

Now, click the OneDrive icon in the system tray. In the OneDrive window that appears–it's now titled "OneDrive isn't connected"– click the Help & Settings (gear) icon and then select "Quit OneDrive" from the menu that appears. You will be prompted one last time to make sure you're serious.

When you click "Quit OneDrive," OneDrive will finally close.

But you're not done yet: You have a few more tasks to complete.

- **Prevent OneDrive from running when the PC starts**. Open Settings, navigate to Apps > Startup and locate Microsoft OneDrive and Microsoft OneDrive Sync Service in the list of apps that are configured to run when you sign in to Windows 11. Configure both to "Off."

- **Handle the Windows Security warning**. Locate the Windows Security icon in the overflow area of the system tray in the Taskbar. Click it to open Windows Security, where you will see that the "Virus and threat protection" item has a warning about OneDrive not being enabled. Click "Dismiss" and then close Windows Security.
- **Optionally remove the OneDrive folder from the PC**. Finally, you may want to address the vestigial OneDrive folder in your user folder: Though OneDrive has been disabled along with its entry in the File Explorer navigation pane, the OneDrive folder and any contents you previously synced to this PC will still be there and taking up storage space. You can see this by opening File Explorer and navigating to C:Users*user-name*: The blue OneDrive folder is still there. Just delete it normally.

> **Tip**: Remember, the files it contains are all synced to the cloud. So you aren't deleting the originals.

- **Reboot the PC**. It's just common sense.

Uninstall OneDrive

If disabling OneDrive isn't drastic enough, you can uninstall it instead. All you have to do is open the Settings app, navigate to Apps > Installed apps, locate "Microsoft OneDrive" in the alphabetical list of installed apps, click its "More options" ("...") link and then select "Uninstall" from the menu that appears.

You'll be asked if you're sure, and then you'll need to approve a User Account Control (UAC) prompt. When you do, OneDrive is uninstalled.

As with the disable method described above, you should delete the OneDrive folder from your user profile–it's in C:Users*user-name*-and then reboot the PC.

> **Tip**: If you change your mind later and wish to continue using OneDrive, you can download it from the Microsoft website and then reinstall it.

Share

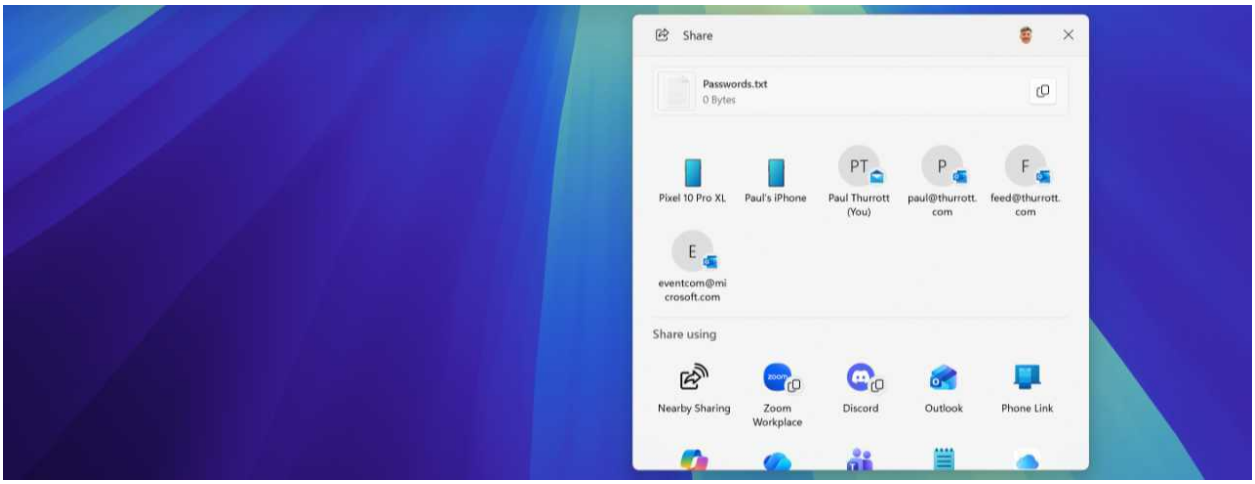
Windows 11 provides a few different ways to share files and other information to or from your PC and with other PCs, apps, and people.

> **Learn more**: Some related sharing methods are covered elsewhere in the book, too. For example, the Clipboard offers a simple way for you share information between apps and even devices with yourself. OneDrive provides its own methods of sharing files with others across the Internet. And with the right phone, Phone Link can share files and information between that phone and your PC.

Windows Share

Windows Share is a modern solution for sharing files and other information from your PC that's modeled after the similar interfaces found in mobile platforms like Android and the iPhone. With Windows Share, you can share files from File Explorer and share other types of information–like a webpage link in Microsoft Edge–from other apps.

Internally, Windows Share works through a series of *contracts* in which there is a *sender* and a *receiver*, typically apps, with each broadcasting its compatibility capabilities with the other. To the people using Windows 11, Windows Share is primarily accessed through a user interface called the *Share sheet*, a dialog-like window that displays all the ways in which you can share whatever it is you're trying to share.



Defaults

Windows Share is a system service that is enabled automatically by Windows 11 and always available in in-box apps like File Explorer.

Depending on the content you're trying to share, the Share sheet displays at least some of the following options:

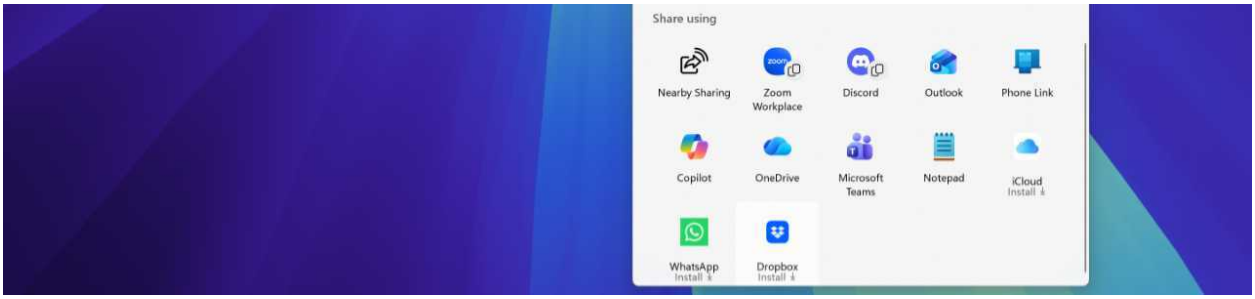
- **Copy**. You can use this button next to the name of the item(s) you're sharing to copy it to the Clipboard.
- **Resolution and edit**. If you share a compatible image file, you will see two additional controls on the Share sheet, a drop-down for selecting the image resolution (Original, Low, Medium, and High) and an "Edit" button to access a surprisingly feature-packed Photo Edit experience.

> **Learn more**: Share a photo or other image file

- **Phone(s)**. Any phones you've configured with Phone Link will appear as Share targets.
- **Recent contacts**. You can share with one or more recent contacts through email using the in-box Outlook app.
- **Nearby sharing**. You can use this unique Windows 11 feature to share items with another PC on the same local network or if paired with Bluetooth.

> **Learn more**: Nearby sharing

- **Apps**. You can share with any compatible apps. The apps you see listed under "Sharing using" will vary depending on the apps you have installed on this PC and those that are compatible with the item(s) you are sharing. Also, Microsoft promotes a few compatible apps here that you can click to install from the Microsoft Store.



The Share sheet is difficult to close because it was originally too easy to dismiss it in error. You can't tap Esc to dismiss it, for example. Instead, you have to click its "Close" window button.

> **Tip**: You can move the Share sheet around on-screen however you wish using drag-and-drop.

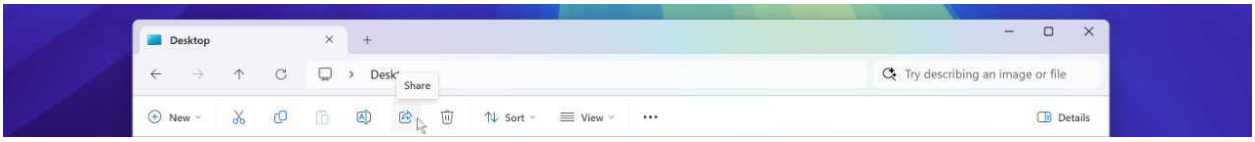
Customize

There's no way to directly configure Windows Share. But if you try to share using Nearby sharing, that feature is disabled by default and can be enabled during the sharing process.

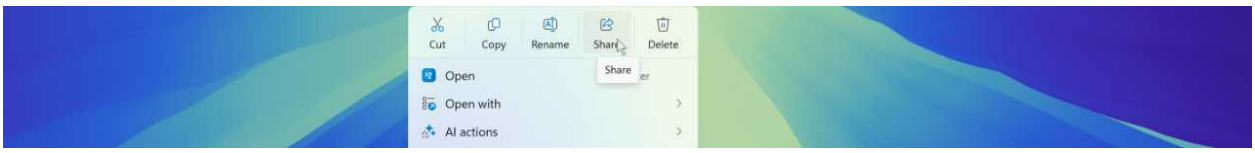
Share one or more documents and other files with Windows Share

You can share one or more documents or other files–but not a folder–using File Explorer. To do so, locate and select the file(s). Then do one of the following:

- **Command bar**. Click the "Share" command bar button.



- **Context menu**. Right-click the file(s) and select "Share" from the context menu that appears. Note that this item can appear at the top or bottom of the context menu depending on where the menu appears on-screen.



Whichever you choose, the Share sheet appears.

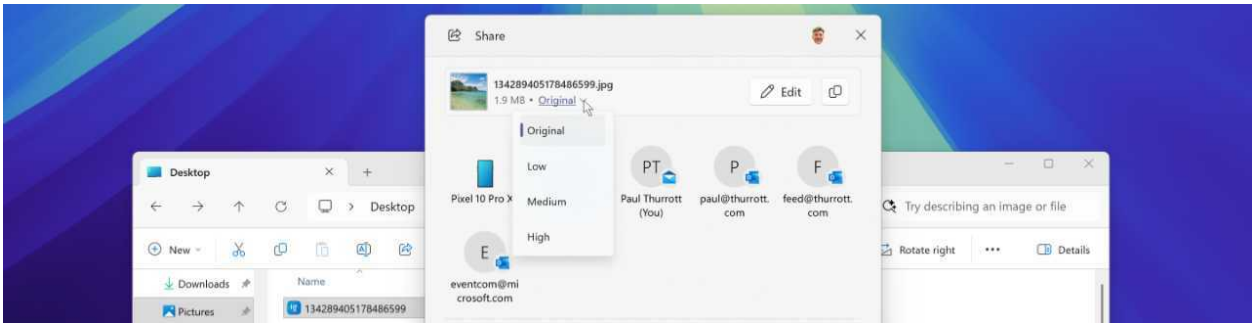
> **Tip**: There's a also a "Share with" item in the context menu that lets you share the selected file with a specific app. Share with is described later in the chapter.

Share a photo or other image file

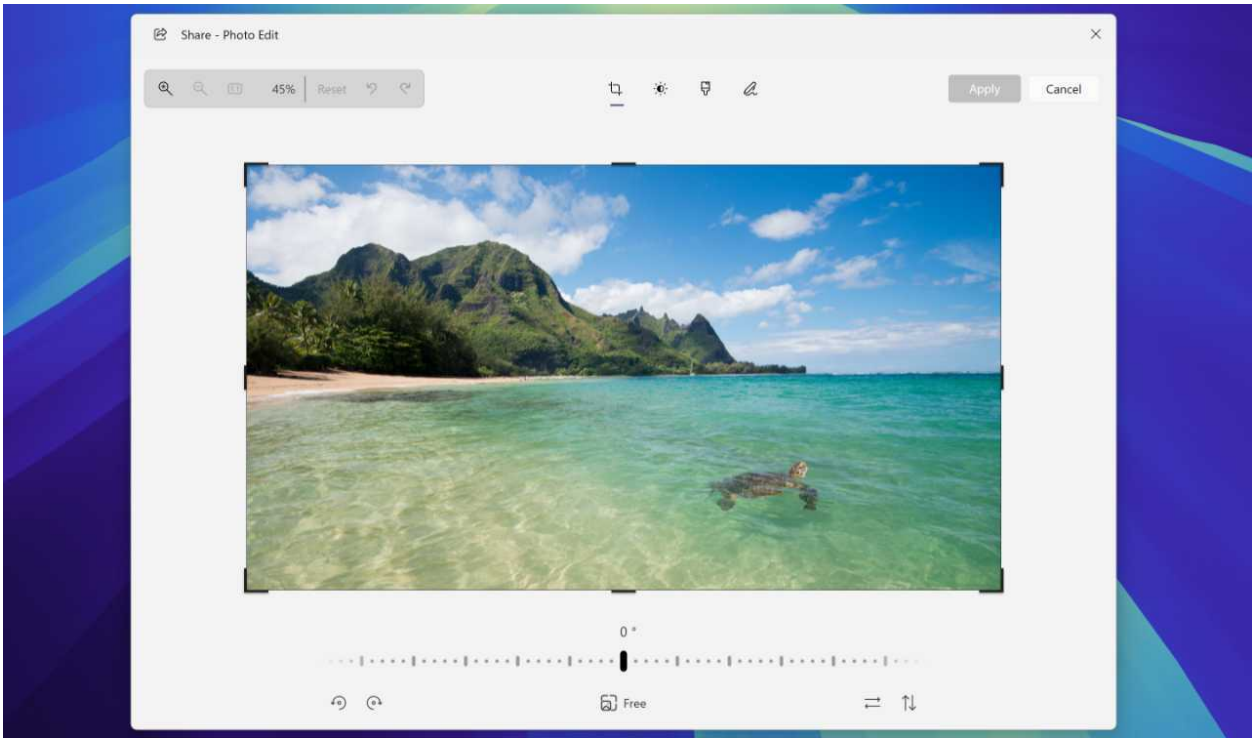
You can share one or more photos or image files using File Explorer similarly to sharing any other files. But if you share a single image file and it is compatible, Then you will see the additional options noted above, a drop-down for selecting the image resolution (Original, Low, Medium, and High) and an "Edit" button using a surprisingly feature-packed Photo Edit experience.

> **Tip**: Windows Share is compatible with most popular image formats, the most notable exception being the HEIC photo format used by the iPhone. If the image format isn't compatible, you can still share it, as above, but you won't see the additional options for resizing and editing the image.

To resize the image, click the "Original" drop-down below the image filename and then select a size from the menu that appears.



To edit the image before you share it, click the "Edit" button. When you do, the "Share - Photo Edit" window appears.



In addition to basic zoom, Undo, Redo, Reset and Fill/Fit controls, you can use the following tools here:

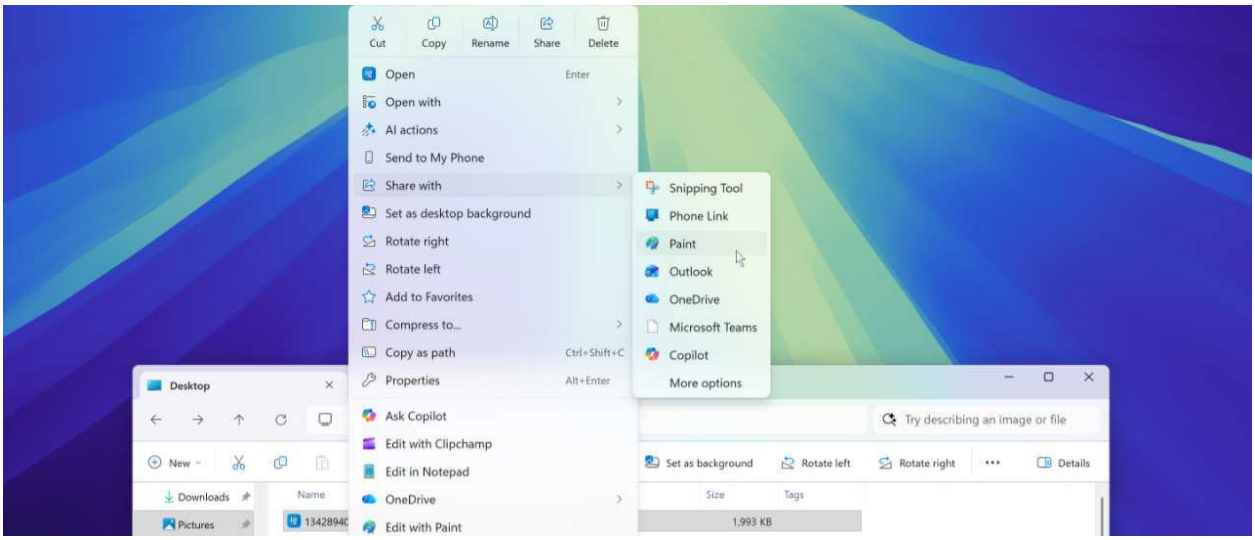
- **Crop**. This tool is selected by default. You can use the selection handles to adjust the cropping area and then crop the image accordingly. There are also rotation, aspect ratio, and flip horizontally/vertically controls at the bottom.
- **Adjustment**. This tool provides several light and color adjustment sliders. For example, to adjust the exposure, drag the Exposure slider to the right or left.
- **Filter**. This tool provides an "Auto Enhance" button and several filters–Punch, Golden, Radiate, Warm Contrast, and many more–each of which can be fine-tuned with an Intensity slider.
- **Markup**. This tool provides a selection of pens, highlighter, and erasers you can use to markup an image.

If these tools look familiar, there's a reason: They were lifted straight from the Photos app, which offers additional editing functionality if needed.

Share a file with a specific app

The Share sheet displays each app that's compatible with the item(s) you are sharing. But if you wish to share a file with a specific app, you can also use a "Share with" context menu item to do so directly, bypassing the Share sheet.

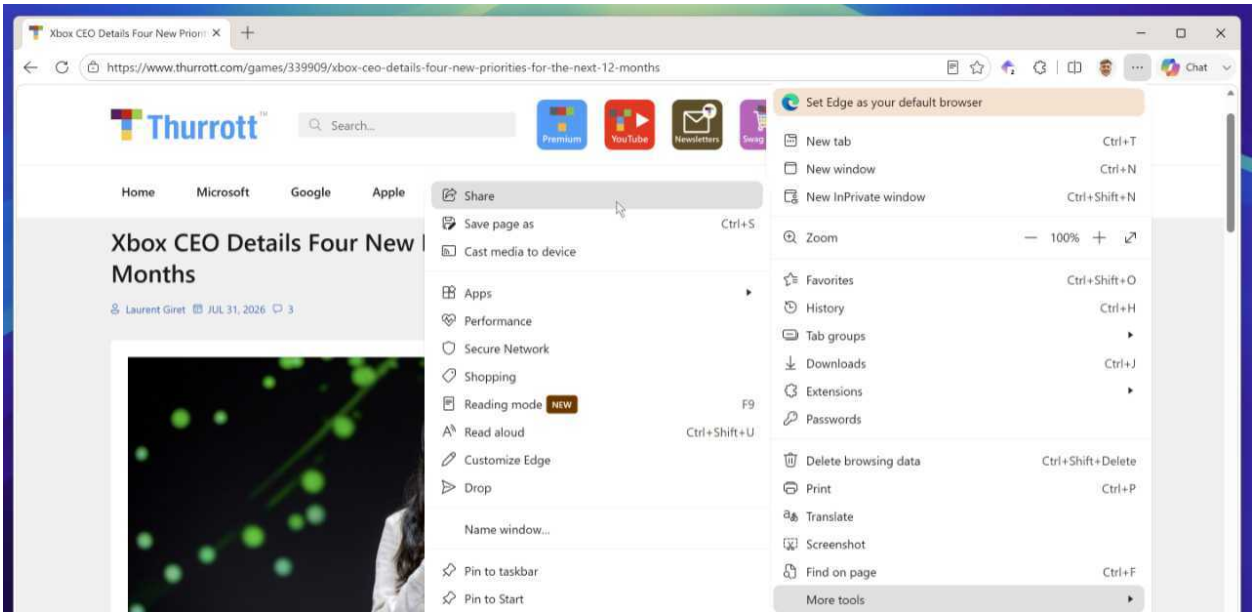
To do so, open File Explorer and locate the file(s) you want to share, right-click them, and select “Share with” and then the app you would like to use from the context menu that appears.



What happens next depends on the type(s) of file(s) you’re sharing and the available app choices. If you share files with Outlook, for example, they will be attached to an empty new message in that app. And if you share an image file with Paint, it will open that image in Paint so you can edit it.

Share a website link with Microsoft Edge

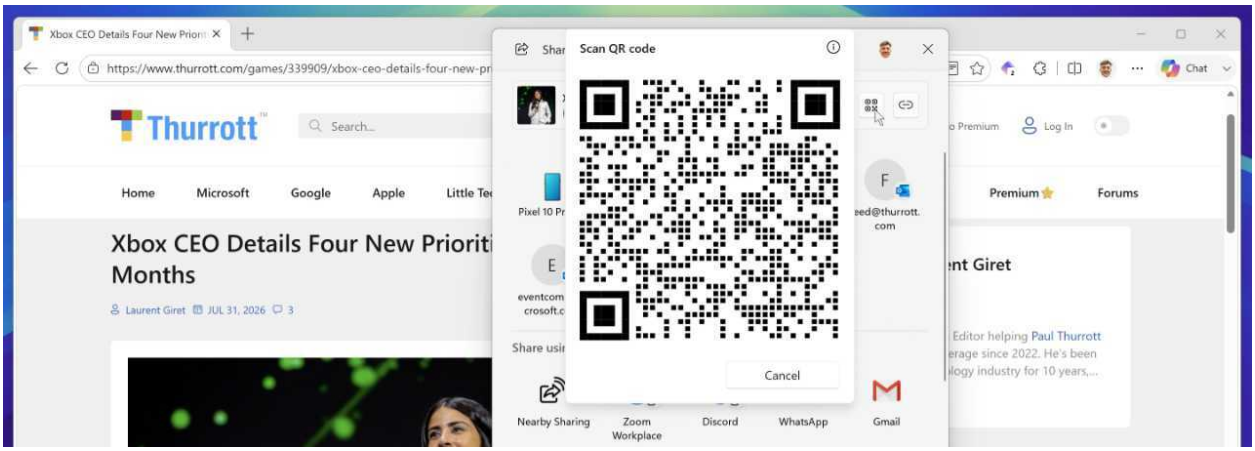
You can share any webpage you view with Microsoft Edge. To do so, click the “Settings and more” (“…”) button in the toolbar and then choose “More tools” and then “Share” from the menu that appears.



The Share sheet that appears has two unique buttons next to the webpage title.

They are:

- **Generate QR code**. When you select this option, the Share sheet displays a QR code in a window that you can scan using the camera on your phone. When you do, that page opens in your default web browser on your phone.



- **Copy link**. This is the option most would expect, it just copies the URL of the webpage you're viewing to the Clipboard so you can paste it elsewhere (perhaps in an email message in a web-based email service.)

Nearby sharing

Windows 11 introduces a new way to share files and other items–like website links and photos–called *Nearby sharing*. It's likely that you've never even heard of this feature, let alone used it before, but it's the simplest way to share compatible items between two PCs that are near each other.

Defaults

Nearby sharing is off by default.

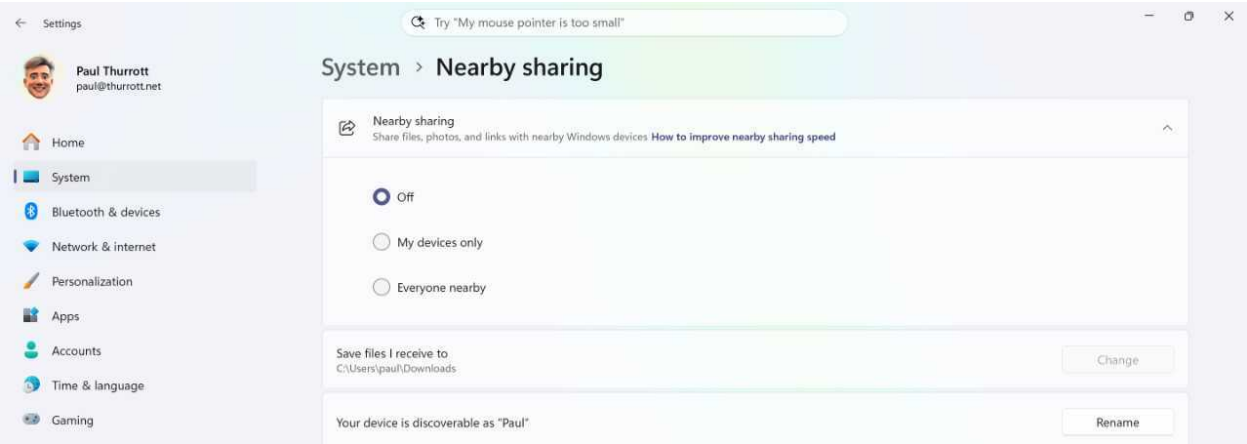
This feature uses a combination of Bluetooth and Wi-Fi to discover other PCs with which it can share and then, when directed, initiate and accept share requests on your behalf. When you're done sharing, the two PCs are no longer connected.

> **Tip**: Nearby sharing will use Wi-Fi for file transfers when both PCs are connected to the same Wi-Fi network. But it can actually work using just Bluetooth if the two PCs are very close together. Bluetooth-based file transfers are much slower than those using Wi-Fi.

With Nearby sharing, the PC that initiates the share request is called the *sending PC*, and the PC that is sent the request is called the *receiving PC*.

Customize

Nearby sharing is configured in the Settings app at System > Nearby sharing.



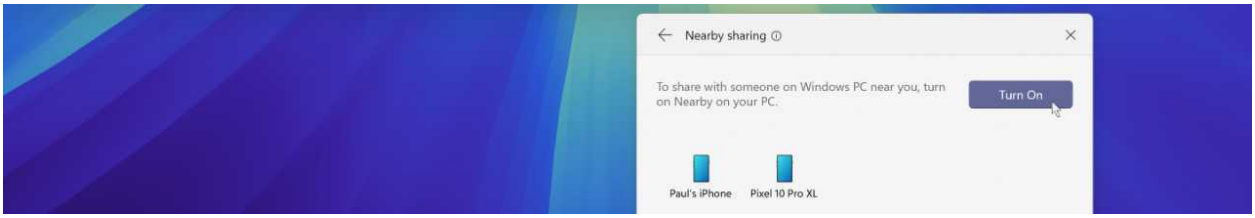
The following options are available here.

- **Nearby sharing**. Here, you configure the *visibility* of your PC to other PCs that try to share over Nearby sharing. It's set to "Off" by default, but you can configure this option to:
  - **My devices only**. Here, your PC will only be visible to other PCs on which you've signed in using the same Microsoft account. This is the right option if you're just sharing files with yourself between two or more PCs.
  - **Everyone nearby**. Here, your PC will be visible to anyone connected to the same Wi-Fi network or paired with your PC via Bluetooth.
- **Save files I receive to**. By default, Nearby sharing will save any incoming files to your Downloads folder (C:Users*username*Downloads) by default. You can click the "Change" button next to this option to change this to a different location.
- **Your device is discoverable as *name***. Windows 11 selects a name to identify your PC when other PCs share files using Nearby sharing that's based on the PC name or your username. You can click the "Rename" button next to this option to change the PC name that other PCs see when using Nearby sharing.

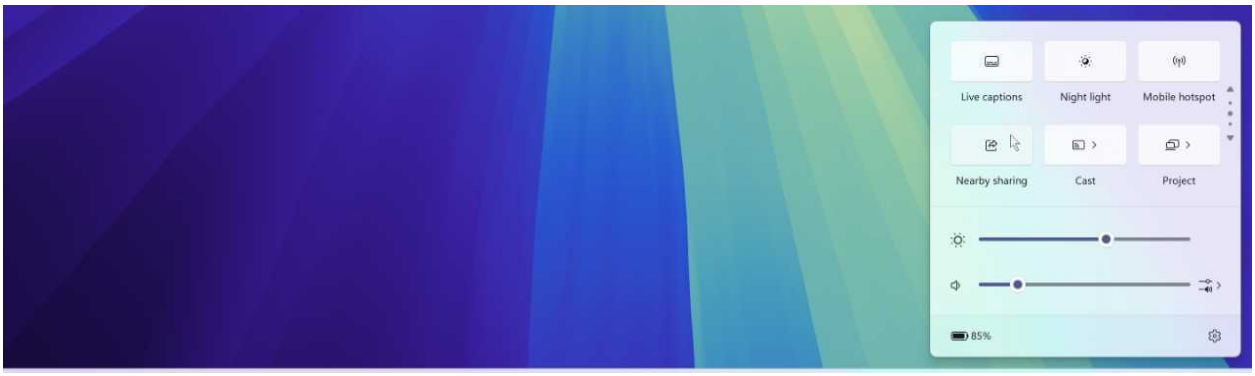
> **Tip**: Unlike with the PC rename feature in Settings, *this* name can uses spaces. How sophisticated.

There are two other ways to enable Nearby sharing, though its visibility will silently be configured to "Everyone nearby" in both cases. They are:

- **Share sheet**. This is the most obvious way. If you attempt to share one or more items using Windows Share, select "Nearby sharing" in the Share sheet, and if Nearby sharing isn't enabled, you will be prompted to enable this feature. Nearby sharing will be configured to be visible to "Everyone nearby" if you do this.



- **Quick settings**. Open Quick settings, scroll down to find the "Nearby sharing" quick settings button, and click it to enable Nearby sharing. When you do so, Nearby sharing will be configured to be visible to "Everyone nearby."



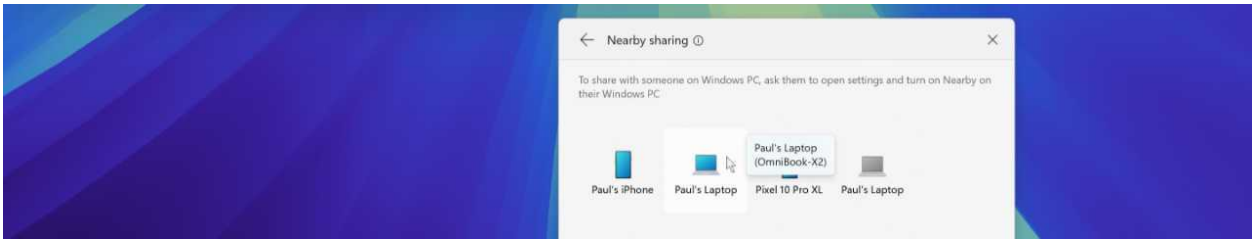
> Learn more: Quick settings

Share one or more files with Nearby sharing

To share one or more files with Nearby sharing, locate the item(s) you wish to share in File Explorer, select them, and then click the "Share" button in the File Explorer command bar.

> **Tip**: Alternatively, right-click the selected file(s) and then click the "Share" items in the context menu that appears.

In the Share sheet that appears, click "Nearby sharing." The Share sheet displays a "Nearby sharing" page with visible PCs and, if configured for use with Phone Link, phones.



> **Tip**: Though each PC displays with a name, you will sometimes see multiple PCs with the same name. You can mouse-over a PC icon here to see its PC name (as opposed to its Nearby sharing name.)

When you click a PC to initiate the share, a banner notification will appear, indicating that it is waiting for the other PC to accept this request.

On the receiving PC, a banner notification will appear and explain that the sending PC wants to share with you.

Here, you can click:

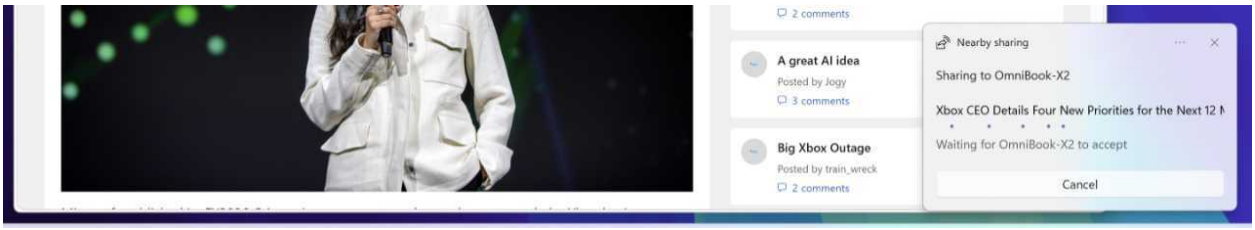
- **Save & open**. This option is only available when the sending PC is sharing a single file. When clicked, your PC accepts the share request, downloads the file, and then opens it using the default app for that file type.
- **Save**. This accepts the share request and downloads the file(s). When the download is complete, a new banner notification appears with “Open” and “Open folder” options; the latter opens the default save location for Nearby sharing in File Explorer.
- **Decline**. This cancels the share request, which displays a notification to that effect on the sending PC.

> **Tip**: If you wait too long to acknowledge the request, it will automatically time out and cancel.

When the share is complete, a banner notification appears on the sending PC indicating whether the action was successful, a failure, or declined.

Share a webpage link using Nearby sharing

Microsoft Edge supports Nearby share similarly to how it supports Windows Share more broadly: Just navigate to a webpage you want to share, click the "Settings and more" ("...") button in the toolbar, choose "More tools" and then "Share" from the menu that appears, and then select "Nearby sharing" in the Share sheet that appears. As with the file sharing example above, you then select the PC, and a banner notification appears indicating that this (sending) PC is waiting for the receiving PC to accept the share request.



On the receiving PC, a banner notification appears and explains that another PC is trying to share a link with you.

Here, you can click:

- **Open**. This will open the shared link in a new tab in your default web browser.
- **Decline**. This cancels the share request, which displays a notification to that effect on the sending PC.

> **Tip**: If you wait too long to acknowledge the request, it will automatically time out and cancel.

A banner notification will then appear on the sending PC indicating whether the action was successful, a failure, or declined.

Share a photo using Nearby sharing

You can use Nearby sharing to share one or more photos using the Photos in-box app in Windows 11. This works similarly to using Nearby sharing to share sharing one or more files with File Explorer, with a twist: It works with any photo you can see in the Photos app, including those that are stored in OneDrive (or, if enabled, iCloud) but not synced locally to your PC.

The steps are the same as above:

- Select one or more photos in the Photos app.
- Click the “Share” button and then choose “Nearby sharing” in the Share sheet that appears.

- Click the PC with which you would like to share the photo(s).
- On the receiving PC, click “Save & open” (which is only available if you share a single photo), “Save,” or “Decline.”

Accounts

Like any modern personal computing platform, Windows 11 requires you to sign in to the system using an *account* that represents your identity on the PC and the settings, documents, and apps associated with that identity.

Defaults

Increasingly, that Windows 11 sign-in account is a so-called *online account*, which can be a *Microsoft account* (MSA, used by individuals) or a *Microsoft Work or School* account (MWSA, used by businesses, schools, and other managed organizations). Microsoft makes this difficult, but you can still sign in with a *local account* that is only available on that one PC. There are pros and cons to each.

Windows 11 sign-in accounts consist of some or all of the following:

- **Account name**. This is an email address like thurrott@outlook.com for online accounts or any alphanumeric name like *paul* for a local account.
- **Friendly name**. This is typically your real name, like *Paul Thurrott*.
- **Password**. This may have complexity and length requirements for online accounts but is optional for local accounts.
- **Permission level**. The first sign-in account you create on a PC is given *Administrator* privileges so that person can complete any tasks, including those that may be destructive and could impact other users on the PC. Subsequent sign-in accounts are given *Standard account* privileges by default. This type of account can install some apps and configure the environment to their liking, But they cannot complete tasks that might be destructive or impact other users without getting authorization from someone on that PC with administrator privileges.
- **PIN**. If you sign in to Windows 11 with an online account or a local account with a password, you must make a *PIN* for additional security. It's also easier to sign in with a PIN than a password, since a PIN is usually shorter and easier to remember.
- **Biometric authentication**. Optionally and depending on the capabilities of your PC, you can enroll in *Windows Hello* fingerprint and/or facial recognition, biometric authentication methods that make it even easier to sign in.
- **Passkey**. When you sign in to a PC using an online account–again, an MSA or MWSA–Windows 11 creates a *device-bound passkey*, a simple and secure alternative to a password. This passkey is used to simplify *passthrough authentication* so you can open apps like Microsoft Edge, Microsoft Store, OneDrive, and others and immediately use your identity in Windows with those apps without having to sign in again each time.

Learn more: Passkeys

When you perform a clean install of Windows 11 on a new or recently reset PC, you have to sign in to an online account or create a local account during the Out-of-Box Experience (OOBE) to complete the process and begin using Windows.

If you are setting up Windows 11 Home, you only presented with a single option, to sign-in with a Microsoft account. This begins with the "Unlock your Microsoft experience" step.

But if you are setting up Windows 11 Pro, you will see the "How would you like to set up this device?" step.

Here, you can choose to sign in to Windows 11 with a:

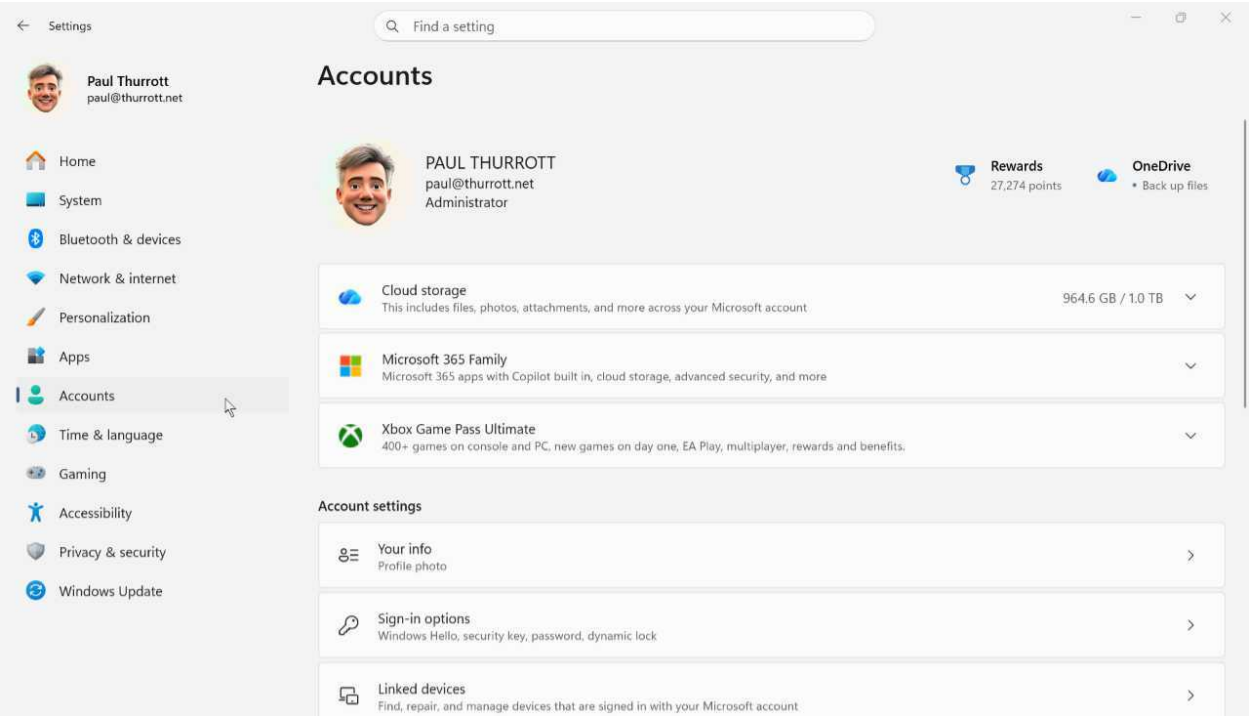
- **Microsoft account**. Select "Set up for personal use," the most common choice for individuals and then sign in to this online account and authenticate as necessary.
- **Microsoft Work or School account**. Select "Set up for work or school" and then sign in to this online account and authenticate as necessary.

However, you can also sign-in using a local account–with Windows 11 Home *or* Pro–though this option is not available by default. I explain how to sign in this way in the Install chapter, but you must supply an account name and, optionally, a password.

The type of account you sign in with impacts future OOBE steps. For example, while you will configure your privacy settings with each account type, only online accounts are given the option to restore the PC from a previous backup. When you complete the OOBE, you will land on the Windows 11 Desktop and from there, you can perform various initial configurations, some of which might be account-related, like doing the basics to secure your sign-in account.

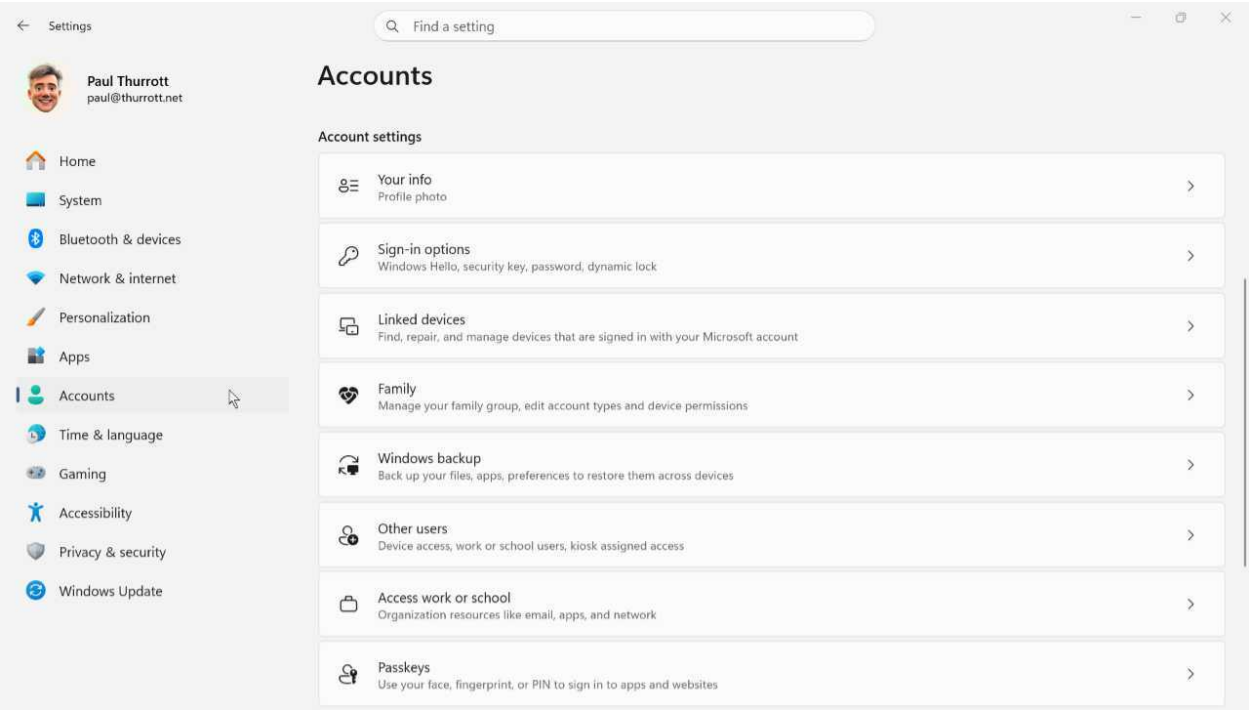
Customize

Account customization occurs in the Settings app by navigating to Accounts.



What you see here will vary a bit by account type. If you sign in with a Microsoft account, there will be an expandable "Cloud storage" item at the top below the account information that lets you check in on your OneDrive usage, plus items for Microsoft 365 and other Microsoft subscriptions you have. But if you sign in with a local account, you will see an expandable "Microsoft account" item because Microsoft *really* wants you to sign in with an MSA.

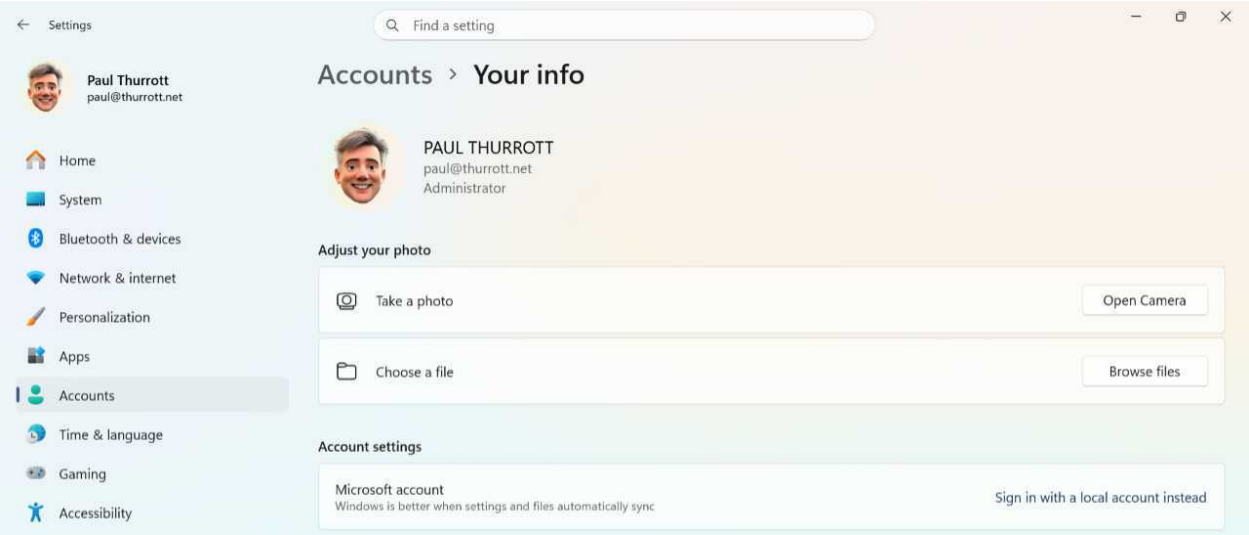
The important account-related settings are below that.



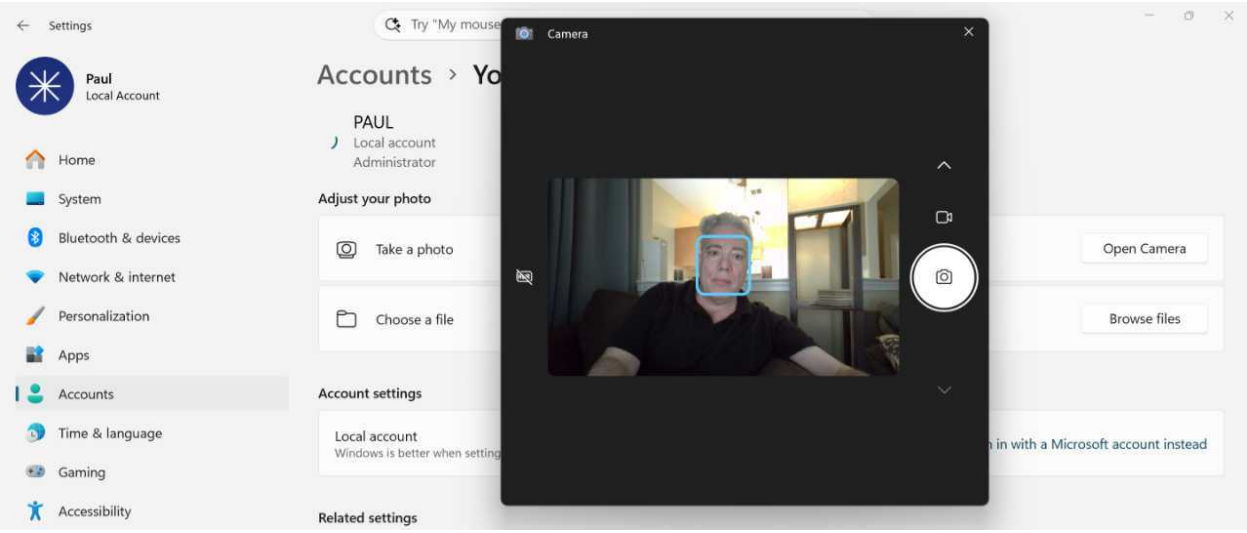
The key settings to consider here are covered in the following sections.

Your info

If you sign in with an MSA or MWSA, there's not much to do here as your profile picture are configured on the web and should appear correctly in Windows 11.



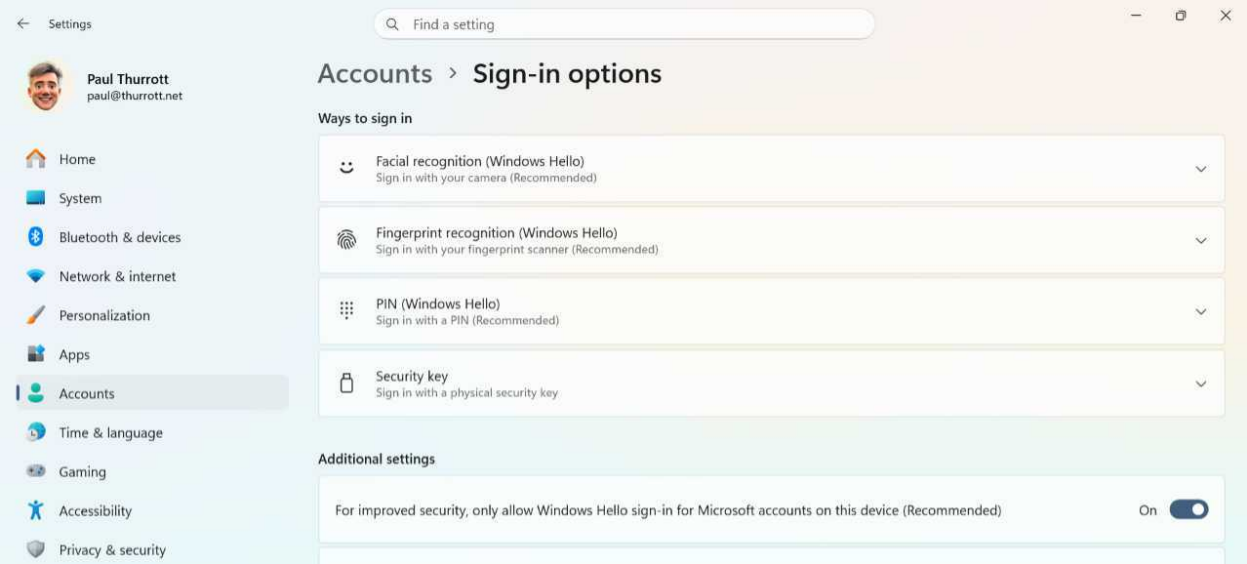
But if you sign in with a local account, you can use the Camera app or an image file you have on the PC to change the profile picture that appears for your account in Windows 11.



> **Tip**: This page also provides an option to switch a Microsoft account sign-in to a local account or vice-versa, depending on how you signed in.

Sign-in options

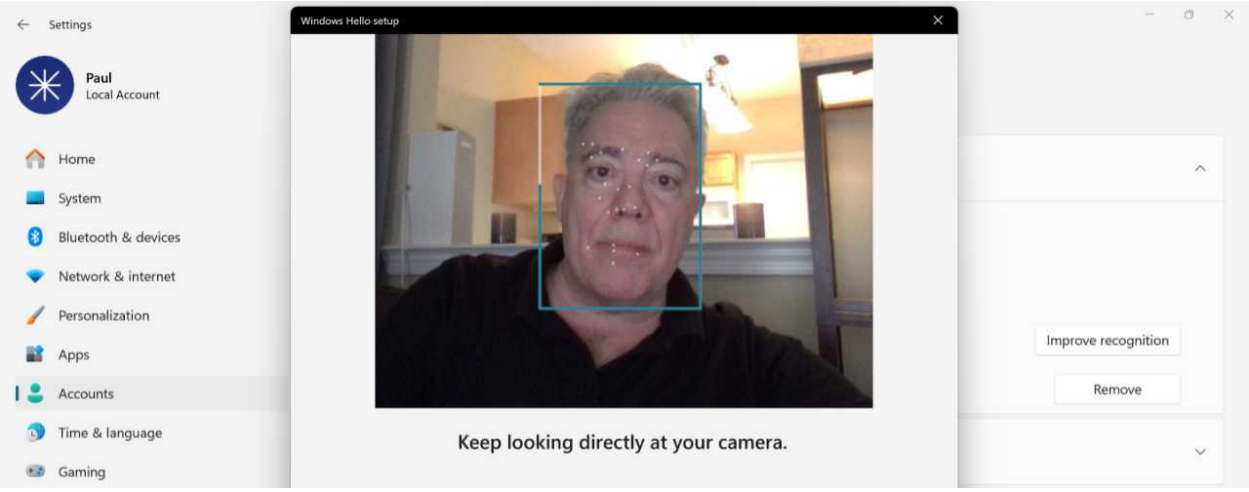
This is one of the more important pages in the Settings app.



Here, you can configure:

Facial recognition (Windows Hello). If your PC supports Windows Hello facial recognition and you've already created a PIN, you can expand this item and enroll. If you sometimes wear glasses,

be sure to click "Improve recognition" after you're done to enroll again with or without glasses. And enable "Enhance facial recognition protection" when done (which requires a reboot).



Fingerprint recognition (Windows Hello). If your PC supports Windows Hello fingerprint recognition and you've already created a PIN, you can expand this item and enroll. When you're done, consider enrolling at least one more finger using the "Add a finger" button.

PIN (Windows Hello). If you sign in to Windows 11 using any kind of account that has an associated password, you were forced to create a PIN during initial setup. But if you created a local account with no password, signed in that way initially, and then later added a password, you can create a PIN now. You can also use this interface to change your PIN

Password. This item only appears when you sign in with a local account. Here, you can create or change your password.

> **Tip**: If your PC supports *presence sensing* functionality, you will find a link to Presence Settings setting at the bottom of this page, under "Related." This is a set of capabilities that can make your PC more secure by locking Windows when you walk away and then waking it up again when you come back so you can authenticate more quickly and get back to work.

Your accounts

If you sign in to Windows 11 with a local account, you can use this page to configure one or more Microsoft accounts (MSAs) or Microsoft Work or School accounts (MWSAs) as *app accounts*. You can't sign in to Windows 11 with an app account. Instead, it's used to sign in to apps like Microsoft Store that support a sign-in and can provide access to additional rights or features. By signing in to Microsoft Store this way, for example, you get access to your purchases, downloaded app history, and more.

To add an app account, click the "Add a Microsoft account" or "Add a Work or school account" link and sign-in and authenticate as prompted. Once this is done, you can then click the "Profile" or similar button in any compatible app and sign-in to that app using the app account.

You can also expand this item in Your accounts to expose a "Sign in options" setting that's configured to "Microsoft apps can ask me to sign in" by default. You can change this to "All apps need to ask me to use this account" to prevent apps from automatically just signing in with this MSA if desired.

> **Tip**: While it's not clear why this Settings page is unavailable when you sign in to Windows 11 with an MSA, you can still add an app account at any time. To do so, sign out of an app like Microsoft Store that's already signed in with your MSA, sign in again, and choose the "Use a different account" option in the "Let's get you signed in" dialog that appears. Then, sign-in and authenticate when prompted. Oddly, doing this doesn't add the Your accounts page to Accounts settings in the Settings app.

Windows Backup

If you sign in with a Microsoft account (MSA) or Microsoft Work or School (MWSA), Windows 11 will automatically configure Windows Backup to sync certain system settings through that online account so you can *restore* from the most recent backup when you later sign in to Windows 11 on a different PC (or after you reset this PC). This page lets you configure Windows Backup to some degree.

> **Learn more**: Windows Backup

Other users

This page lets you configure one or more other sign-in accounts on this PC. Each sign-in account is typically associated with a unique individual–a person in a family, for example–each has its own settings, documents, and apps, and each is given a specific permission level, meaning they have Administrator privileges or are a Standard user.

A: **Learn more**: Use multiple sign-in accounts with a single PC

Access work or school

If you have a Microsoft Work or School account (MWSA) through a workplace, educational institution, or some other managed organization, you can use this page to *connect* that account to your personal PC without having to sign in with it and potentially allow that organization to manage the PC in some way. When you connect your MWSA here, you can optionally use those credentials to sign in to individual apps and, if available, access your company's VPN (virtual private network) so you can remotely access work data.

> **Learn more**: Use a Microsoft Work or School account with your Microsoft account sign-in

Why you should consider signing in to Windows 11 with a Microsoft account

While Microsoft does use your Microsoft account (MSA) to upsell you and control your experience in some ways, this is still the safest and best way for most individuals to sign in to Windows 11. Some key benefits include:

- **It's more secure**. Because you can configure your Microsoft account to require secure *two-step verification* and *passwordless* authentication methods, there's no need to remember complicated passwords. Indeed, you can even remove the password from your Microsoft account if you'd like. Once it's properly configured, a Microsoft account is more secure than a local account.

> **Learn more**: Secure your Microsoft Account

- **Some Windows 11 experiences require a Microsoft account**. Some of the built-in experiences in Windows 11, like OneDrive file system integration, require a Microsoft account. If you sign in to the PC with a Microsoft account, Windows will pass through your sign-in credentials and these experiences will work seamlessly. If you don't, you may need to sign in to them individually.
- **Many in-box apps require a Microsoft account**. Many of the in-box apps that come bundled with Windows 11–like the Microsoft Store and Xbox–require a Microsoft account as well, as do many apps you download from theMicrosoft Store. Yes, you can manually sign in to those apps as needed or create an app account, but when you sign in to Windows 11 with your Microsoft account, those apps work seamlessly.
- **Backup and settings sync capabilities**. With a Microsoft account, you can automatically sync key user folders like Desktop, Documents, Music, Pictures, and Videos with OneDrive. And some of your settings–including accessibility settings, saved passwords, language preferences, and more–are synced from PC to PC via your Microsoft account, providing a more consistent experience. There's even a Windows Backup app in Windows 11 to help you manage these capabilities.

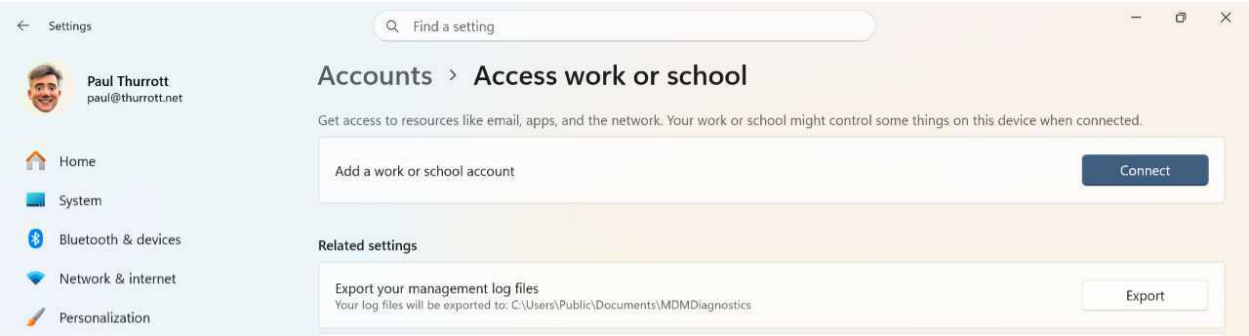
> **Tip**: Some in-box Windows 11 apps don't require a Microsoft account at all. For example, while the new Outlook app does require you to connect it with at least one online account, it doesn't have to be a Microsoft account. In fact, you can use it exclusively with a Gmail account if you'd like.

Use a Microsoft Work or School account with your Microsoft account sign-in

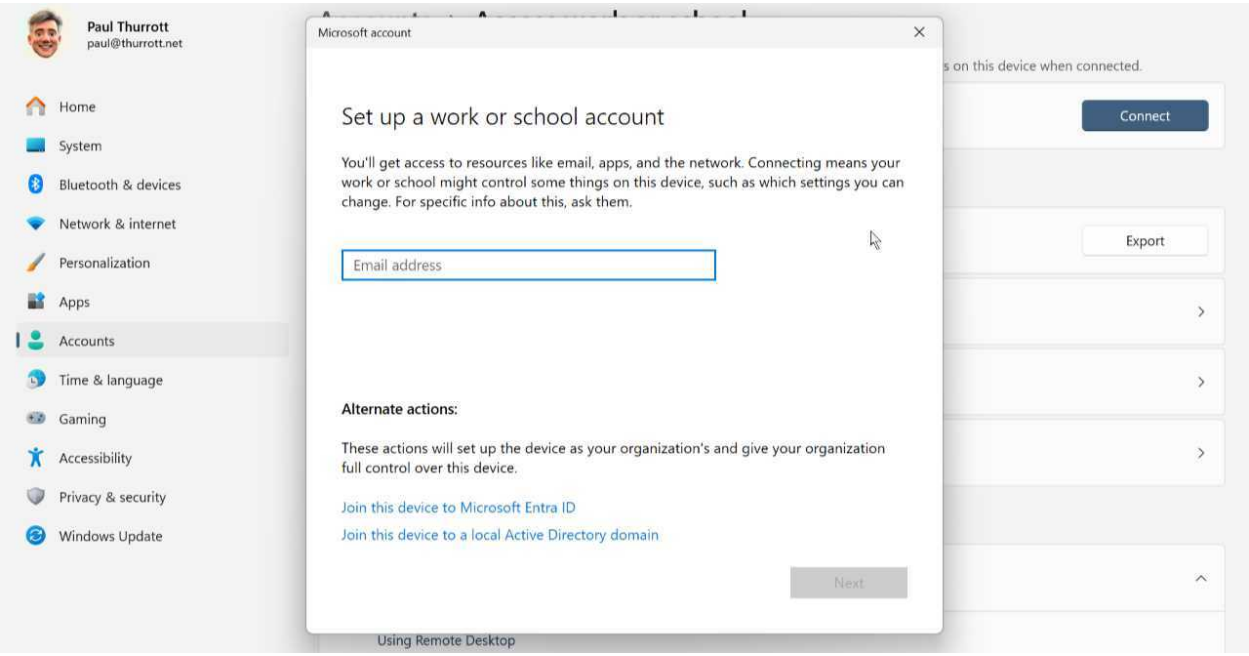
While you *can* sign in to Windows 11 using a Microsoft Work or School account (MWSA), I focus on individuals in this book, not those using a PC that's managed by an employer, school, or other organization. But those who sign in to Windows 11 with a Microsoft account (MSA) can *connect* their MWSA to their MSA in what's called a "bring your own device" (BYOD) scenario. That is, you can use your personal PC with your personal MSA but still access your work or school resources on that PC by *connecting* your Microsoft work or school account. So you will sign in with an MSA, but you will also configure your MWSA to work within that personal sign-in account.

Connect to your MWSA

To get started, open the Settings app and navigate to Accounts > Access work or school.

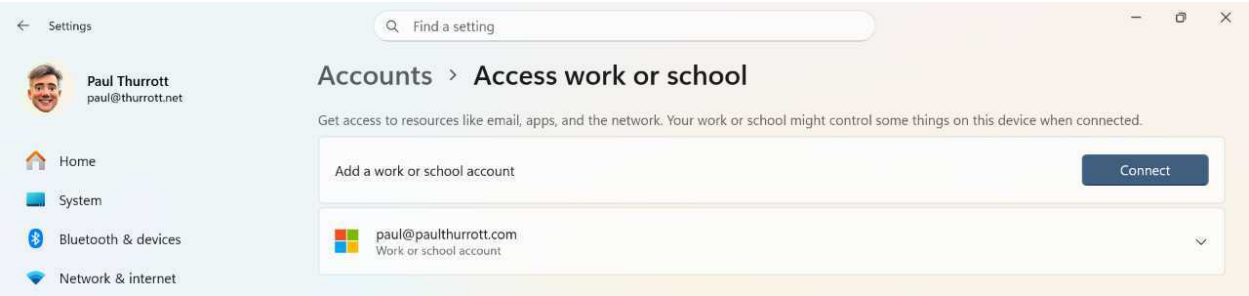


Then, click the "Connect" button next to "Add a work or school account" to set up your WMSA.



Enter your work or school email address and password as prompted and then perform whatever other authentication is required. (Most MWSAs require some form of multi-factor authentication, or MFA, in addition to your account credentials.) Windows 11 will register your PC with your organization and apply some basic management policies so that your work or school has some control over its data.

When you click "Done," your work or school account will now appear on the Access work or school page in Settings.



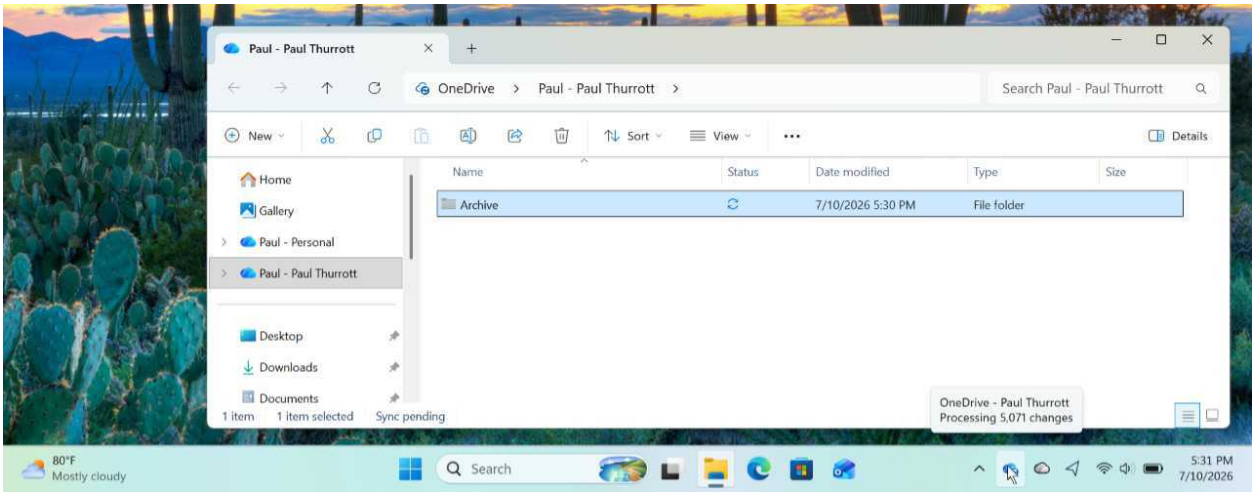
> **Tip**: To later remove this connection, navigate to this page in Settings, click the MWSA item to expand it in place, and then click "Disconnect."

With that complete, your organization can remotely deploy applications to your PC.

Use your MWSA with Windows 11 apps and experiences

And you can perform other tasks to connect with your work or school's OneDrive (for Business) storage, email, and other apps. For example:

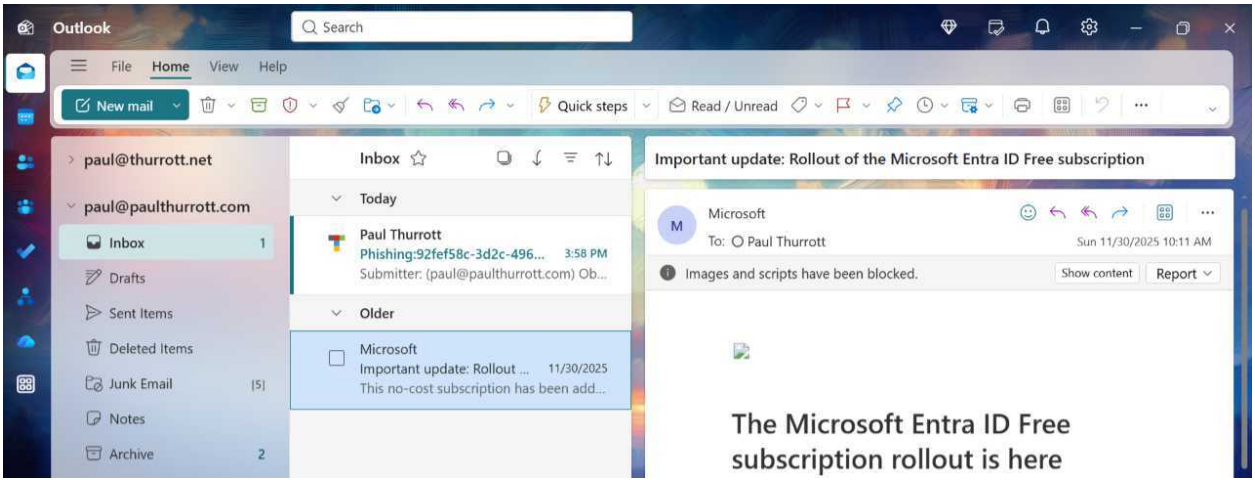
- **Connect to your work or school OneDrive**. OneDrive in Windows 11 supports multiple accounts, so you can configure it to work with your MSA *and* your MWSA. To do so, open the "Account" page in OneDrive settings, click "+ Add an account," and sign-in to and otherwise authenticate your MWSA. After stepping through the OneDrive setup wizard and optionally enabling Folder backup, you will see two OneDrive icons in the system tray–the blue one is associated with your MWSA–and two OneDrive entries in the navigation bar in File Explorer. From here, the OneDrive files from each account will be available normally, side-by-side, in File Explorer and in other apps.



Tip: You can only use OneDrive's Folder Backup feature with one account.

Tip: The two OneDrive items in File Explorer can look annoyingly similar. The personal account will usually be named something like "*Username* - Personal" while the school or work account will be named something like "*Username - Organization name*."

- **Connect Outlook to your MWSA**. If you want to access the email, contacts, calendar, and tasks associated with your MWSA, you can configure this account in the Outlook in-box app. To do so, launch Outlook, click the "Settings" (gear) button in the title bar, and then click the "Add account" button in the "Settings" window that appears. Your MWSA will be pre-configured in the dialog that appears, so just click "Continue." Now, you can access your MWSA data by selecting it in the navigation pane.



- **Use an app with your connected Microsoft Work or school account**. Though compatible apps like those provided by Microsoft 365 and others will automatically connect to your Microsoft account (if that's how you sign-in), you can optionally connect any of them to your MWSA too. How you do so varies by app, but signing in is usually straightforward.

Use a local account safely and securely

A local account is a Windows 11 sign-in account that exists only on the PC on which it is created. Microsoft sometimes refers to this type of account as an *offline account* because it can be created and managed even when the PC is offline: When you initially sign in to Windows 11 with a Microsoft account or Work or school account, you must be online so that you can authenticate your user credentials with Microsoft or your organization.

I recommend that most people do not sign in to Windows 11 with a local account as you will have a better–and safer–overall experience using a Microsoft account. But more sophisticated users who know what they're doing can use a local account securely. And doing so can eliminate some of the bad behaviors we see in Windows 11.

For the most part, Windows 11 looks and works much the same whether you sign in with a local account or a Microsoft account (MSA). But there are some key differences:

- **No password required**. You are not required to protect a local account with even a simple password, though doing so is obviously insecure. This is a particularly serious problem if you give the local account administrative capabilities, as a thief could access content in other Microsoft accounts or work or school accounts configured on that PC. We strongly recommend configuring a password, at which point you can configure a PIN and, if supported by your PC, Windows Hello PIN or facial or fingerprint recognition.
- **No automatic device encryption**. When you sign in to Windows 11 with an MSA, the PC's storage is automatically protected with Device encryption, a *full-disk encryption* solution

that helps protect the documents and other data it contains from being stolen or otherwise accessed by others. You can enable it after the fact when you sign in with a local account, but it's easier if you're using Windows 11 Pro.

> **Learn more**: Device encryption

- **No settings sync**. When you sign in to Windows 11 with an MSA, it uses a feature called Windows Backup to sync a limited set of settings–accessibility settings, saved passwords, language preferences, and more–to that account in the cloud so that they can be restored when you sign in with that same account on a different PC. This functionality is not available with a local account.

> **Learn more**: Windows Backup

- **No automatic sign-in to apps and Windows 11 experiences**. When you sign in to Windows 11 with an MSA, you are automatically signed in to the Microsoft Store, OneDrive, Widgets, and other Windows 11 experiences. You can't use some apps and experiences with a local account, and while you can sign in to them with a Microsoft account later, you must do so manually–one app at a time–or configure that Microsoft account as an *app account* in the Settings app under Accounts > Your accounts.

> **Tip**: Some Microsoft Store apps work without a Microsoft account, and some provide a subset of the functionality you receive when you're signed in with a Microsoft account. For example, the Microsoft Store app runs without a Microsoft account, and it even lets you download free apps and games without first signing in.

Use multiple sign-in accounts with a single PC

Windows 11 supports multiple sign-in accounts. This can be useful in many situations, the most obvious being a family in which one or more parents or caretakers and/or one or more children can each have their own account, each with its own customized Windows 11 experience.

Add a new sign-in account

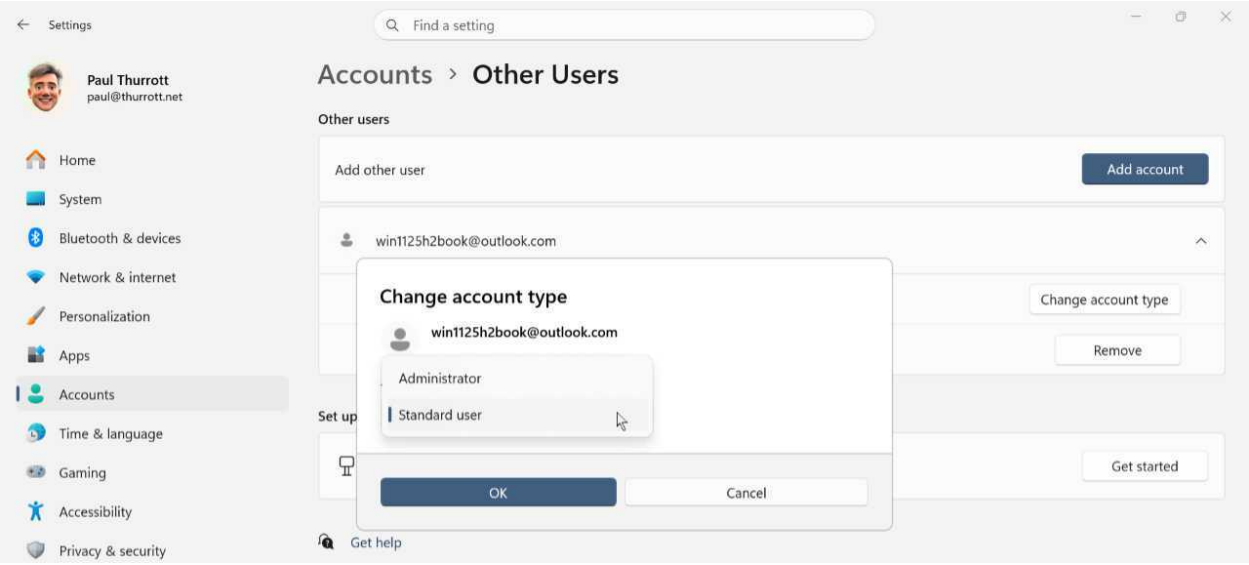
Anyone with Administrator privileges can add additional sign-in accounts. These can be Microsoft accounts, Microsoft Work or School accounts, or local accounts. To do so, open Settings and navigate to Accounts > Other users. Then, click the "Add account" button next to "Add other user" in the "Other users section." The Microsoft account window appears. From here you can:

- **Add a Microsoft account sign-in**. Enter the email address and authenticate against Microsoft's servers as prompted.
- **Add a local account sign-in**. Click the "I don't have this person's sign-in information" link and then select the "Add a user without a Microsoft account" link in the Create account window that appears. Then add a username and, optionally, a password, as prompted.

Configure a sign-in account's permissions level

Any user with Administrator privileges can change the *account type*–meaning the permissions level–for any other MSAs and local accounts that are configured on the PC. But be careful configuring other users as an Administrator, as doing so will give them full control over the PC, including access to any documents and other files in *your* account.

To do so, locate the account you wish to change to an Administrator in Other users settings and select it to expand the view. Then, click the "Change account type" button. The "Change account type" window appears. Select "Administrator" from the "Account type" drop-down and click OK.



Tip: Adding a Microsoft Work or School account sign-in is a bit trickier. To do so, open Settings and navigate to Accounts > Access work or school. Then, click the "Connect" button next to "Add a work or school account." In the "Set up a work or school account" window that appears, click the

> "Join this device to Azure Active Directory" link and then sign-in and authenticate against your work or school account as prompted. Because work and school accounts are managed by your organization, there's not much you can do locally on the PC: All you can really do is remove it from the PC.

> **Tip**: There must always be at least one sign-in account with Administrator privileges in Windows 11.

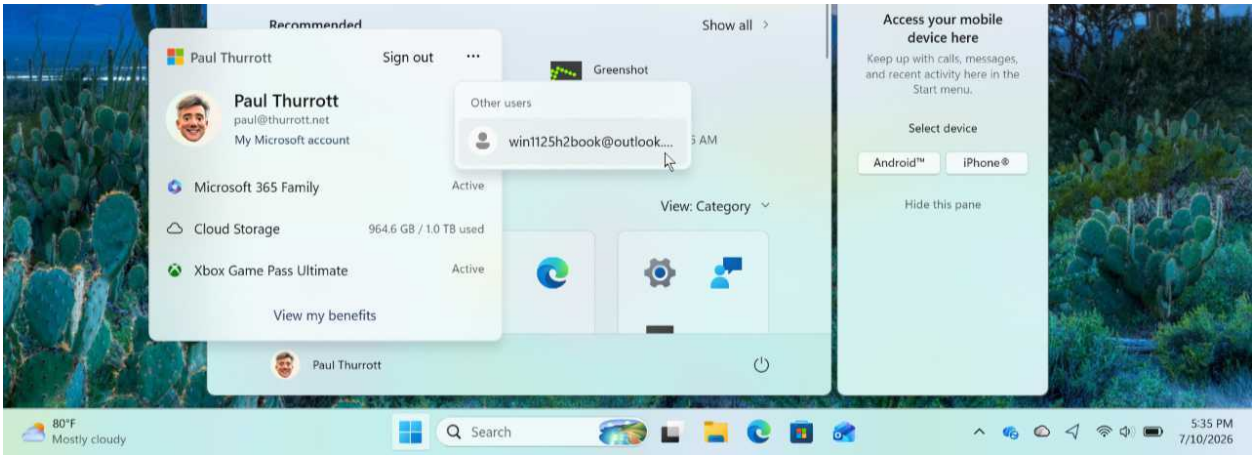
Switch between available sign-in accounts

Windows 11 lets you or another configured user sign in to the PC at any time. You can even do this while a current user account is still signed in, so that multiple sign-in accounts are active concurrently. Or, you can optionally sign out of one account first so that another user can sign in.

> **Tip**: Only one sign-in account can be used interactively at a time.

There are three key ways to juggle multiple accounts:

- **Switch**. To *switch* user accounts–that is, sign in with a different account while leaving the current account signed in as well–open Start and click the "Profile" button (your user picture and name) in the bottom-left of Start. Then, click "More" ("...") and select the user account you wish to use from the drop-down list. In the Sign-in screen that appears, select the user account you wish to switch to.



- **Lock the screen**. Windows 11 lets you "lock" the screen to prevent others from accessing your data when you're away from the PC while retaining your user session. But you can also use this method to switch sign-in accounts. To do so, click the "Power" button at the bottom of Start and choose "Lock" from the pop-up menu that appears. The Lock screen will appear, and you can tap any key to select the sign-in account you wish to use in the bottom left of the Sign-in screen.

> **Keyboard shortcut**: You can more quickly lock the PC by typing Windows key + L.

- **Sign-out**. If you want to sign out of the current account and sign in again with a different account, open Start, click the "Profile" button, and then click "Sign out." The Lock screen will appear, and you can tap any key to select the sign-in account you wish to use in the bottom left of the Sign-in screen.

Presence sensing

Presence Sensing is a set of features that uses one or more *hardware proximity sensors* to improve security, save battery life, and make it easier and quicker to sign in to Windows 11. It isn't supported on all PCs, but it offers features like turning off the display and locking the PC when you walk away, turning on the screen and waking up the PC when you return, dimming the screen when you look away, and detecting when others are looking at your screen.

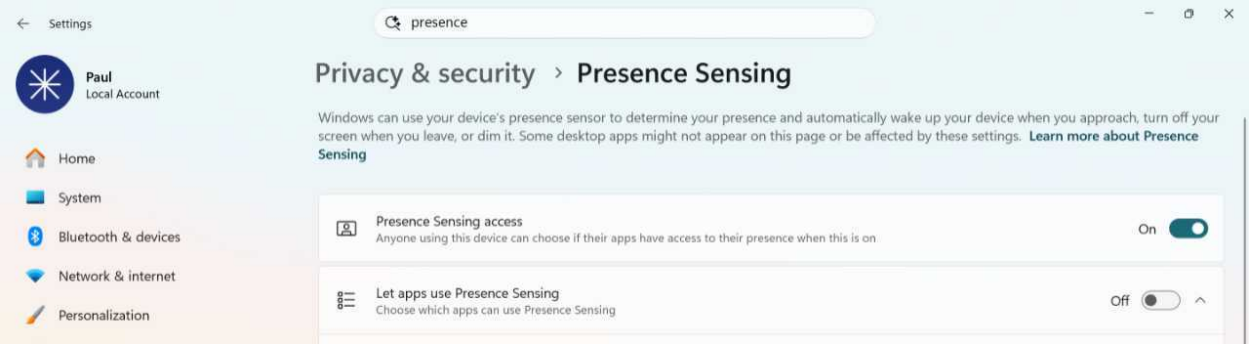
> **Tip**: Presence Sensing is best used in tandem with Windows Hello facial recognition as it will speed the process of signing into your PC: The PC can wake up as you approach and then the IR sensor will start scanning for your face as soon as possible.

Defaults

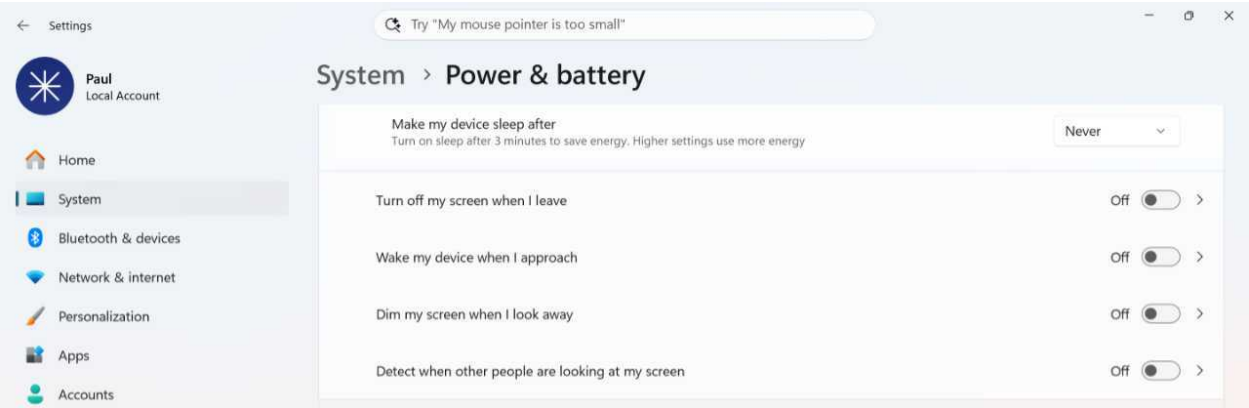
If your PC supports Presence sensing, you will see a "Presence sensing" option in the "Choose privacy settings for your device" stage in the Out-of-Box Experience (OOBE) during Windows Setup when you first set it up. Unless you configure it otherwise at that time, this feature is enabled by default.

Customize

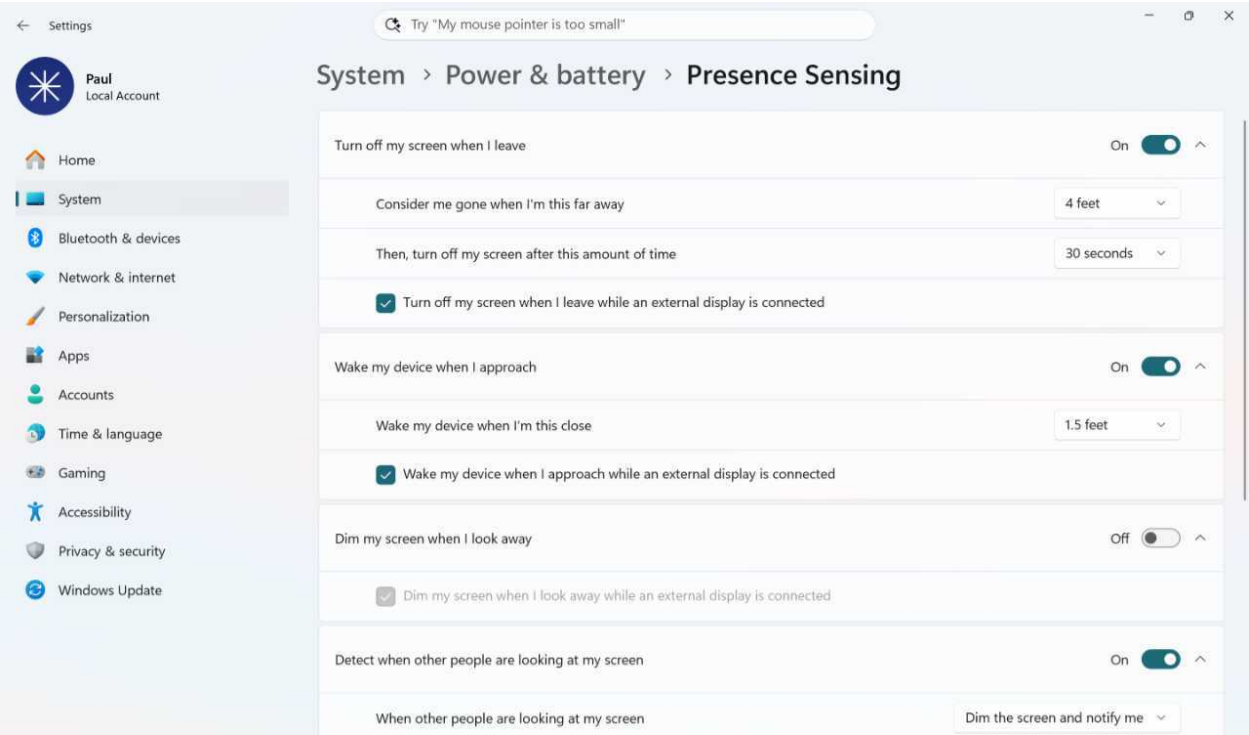
Presence sensing is well hidden in the Settings app. You can toggle Presence sensing on or off globally–and determine whether individual apps can use Presence sensing–by navigating to Privacy & security > Presence Sensing.



Then, you can navigate to System > Power & battery, and expand the "Screen, sleep, & hibernate timeouts" item to see which Presence sensing features are available and toggle each on/off individually if desired.



To display Presence Sensing settings, click "Turn my screen off when I leave."



The following options are available:

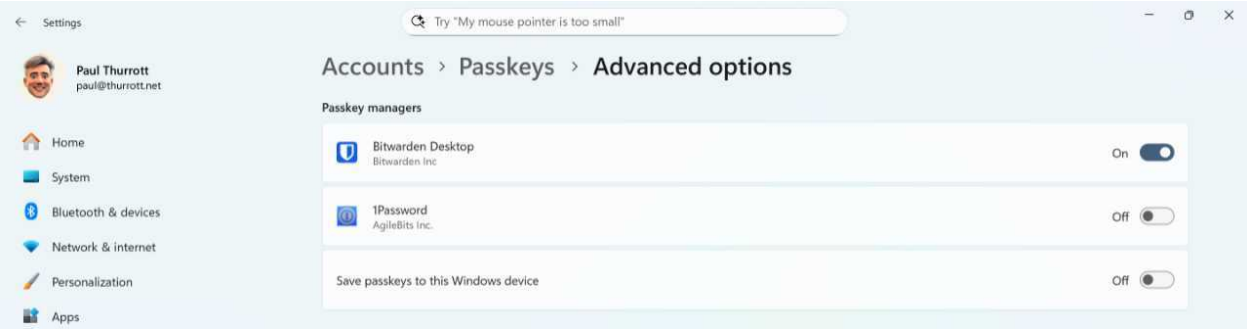
- **Turn my screen off when I leave**. When enabled, Windows 11 will turn off the display and lock the PC when you walk away from it. You can configure the distance and time frame individually, as well as one option related to multi-display configurations.
- **Wake my device when I approach**. When enabled, Windows 11 will wake the PC and turn on the screen as you approach. You can configure the distance and one option related to multi-display configurations.
- **Dim my screen when I look away**. Not available on all PCs with Presence sensing capabilities, this feature will dim the display if you look away from it to help preserve battery life

and make it more difficult for those around you to see what's on-screen. There is a single option related to multi-display configurations as well.

- **Detect when other people are looking at my screen**. Not available on all PCs with Presence sensing capabilities, this feature detects when other people are looking at your PC's display. When enabled, Windows 11 will dim the display and notify you that there's an onlooker. But you can configure it to just notify you, if you prefer.

> **Tip**: Windows 11 provides a related feature called *Dynamic lock* that uses a Bluetooth-paired smartphone to automatically lock your PC when you walk away from it. Because this feature is unreliable, I don't recommend enabling or using it. And if your PC supports Presence Sensing, Dynamic lock is superfluous as Presence sensing is far more reliable and secure. You can configure Dynamic lock in the Settings app if needed: Navigate to Accounts > Sign-in options > Dynamic lock.

Passkeys



Passkeys are a simpler and more secure alternative to the passwords we use with our online accounts.

Windows 11 includes native support for passkeys but they're limited to being *device-bound*, meaning they can be used only on the PC on which they were created. And so Windows 11 version 25H2 now lets you integrate this system with third-party *passkey providers* that make your passkeys *portable* so they can be used on all your devices.

Why passkeys?

The passwords we use with our online accounts are insecure. They are easily guessed, can be stolen or leaked in a data breach, and most people reuse the same passwords across multiple accounts, opening us up to further hacks.

To combat these problems, we can use a *password manager* to manage our passwords and create unique, complex passwords for each online account. And security organizations and online account platform makers have collaborated on adding additional layers of identity verification to online accounts, including multi-factor authentication (MFA) technologies like one-time passwords (OTPs) and Authenticator apps.

> **Tip**: The most common MFA methods are often described as *two-factor authentication (2FA)* or *two-step verification*. For our purposes, these terms are interchangeable.

These techniques are all useful and effective. But to more fully secure online accounts, we need to eliminate passwords entirely. And so the same industry players have collaborated to create

passkeys as a simpler and more secure alternative to passwords. Unlike passwords, passkeys are phishing resistant and impervious to data breaches. And they require the use of the PIN or biometric authentication method you configured on your PC or other device.

Passkeys are also broadly adopted across the industry. Online account makers are adding support for passkeys at a rapid clip and most password managers can now be used to manage passkeys too.

> **Tip**: For this reason, I use the terms passkey manager and password manager interchangeably in this chapter.

The advantages are obvious. From a convenience perspective, passkeys can help you can achieve a passwordless experience today when you sign in to online accounts or have to verify your identity. But the end game is to reduce and then remove our reliance on passwords across all our online accounts.

> **Tip**: Few online account platforms let you create a passwordless account today or remove an existing password. One notable exception is your Microsoft account (MSA): Once you set up the correct alternative identity verification methods for your MSA, you can optionally delete the password.

Types of passkeys

Passkeys can be saved to a phone, PC, or other device. Or they can be saved to a password manager (or other passkey manager) and used on multiple devices.

Passkeys stored only on a single device are called *device-bound* passkeys.

Passkeys stored in a password/passkey manager are *portable* passkeys because you can access the underlying service (and the passkeys it stores) on any device.

Windows 11 and passkeys

Microsoft supports passkeys in its online accounts, including the Microsoft account (MSA) and Microsoft Work or School account (MWSA).

Windows 11 version 23H2 added basic support for device-bound passkeys that are managed in the Settings app and protected by Windows Hello PIN and whichever biometric authentication methods (facial or fingerprint recognition) your PC provides.

Windows 11 version 25H5 includes a plug-in system so that you can bypass the in-box passkey functionality and use an external, portable passkey manager instead. External passkey managers are also protected by Windows Hello.

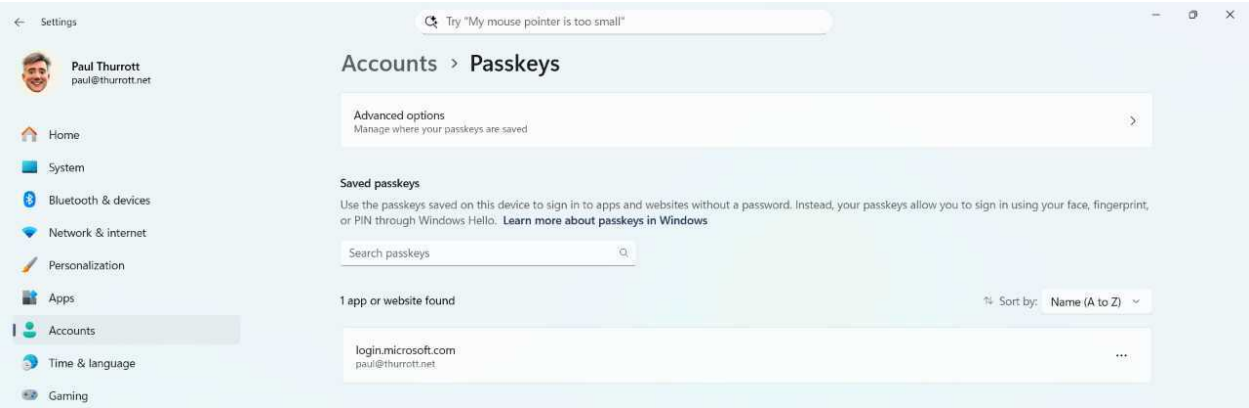
As of this writing, compatible passkey managers include the Microsoft Password Manager that comes with the Microsoft Edge web browser, 1Password, and Bitwarden.

> **Tip**. I feel strongly that you should use a third-party passkey manager, and there's no reason to worry about integrating with Windows 11 as all good password managers provide web browser extensions and native Windows apps. In addition to the 1Password and Bitwarden, both of which are excellent, I recommend (and use) Proton Pass for passkey (and password and identity) management.

> **Tip**: You will also install this password manager on your phone and, if desired, an iPad or other tablet too. On these mobile devices, the password manager works as a password autofill and passkey provider in apps and on the web. In Windows 11, a web browser extension is usually enough, but you can optionally install the password manager's desktop app, too. But I just stick with the browser extension on my PCs.

Defaults

There isn't much to passkey management in Windows 11, but you can find what's available in the Settings app by navigating to Accounts > Passkeys.

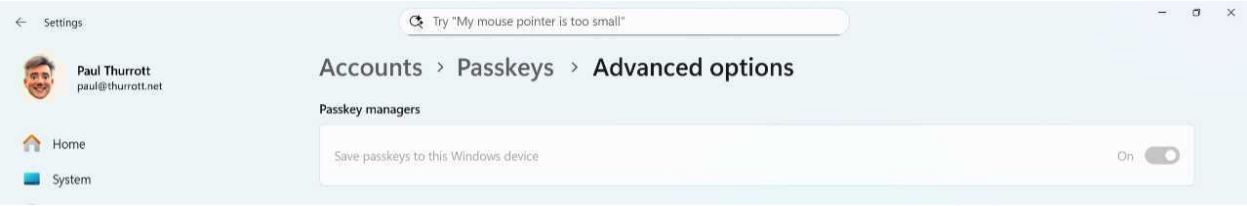


If you sign in to Windows 11 using a Microsoft account (MSA) or Microsoft Work or School account (MWSA), the system creates a device-bound passkey for that account that provides *single*

sign-on (SSO) capabilities (sometimes called *passthrough authentication*) for Microsoft Edge, Microsoft Store, OneDrive, and other in-box apps that use that type of account. This is obviously convenient, but it's also secure because Windows 11 confirms your identity using Windows Hello.

> **Tip**: You can't delete this passkey because it's required by the system. If you create other device-bound passkeys as described later in this chapter, you can delete those passkeys here if desired.

The Advanced options choice opens a separate page in Settings that's only useful when you install a third-party passkey manager that integrates with Windows 11's passkey functionality. Otherwise, there's only a single option, and it's grayed out (and thus unavailable).



If you install a compatible third-party passkey manager, it will be listed here. And the "Save passkeys to this Windows device" option will be made available but configured to Off by default.

Customize

Passkey management in Windows 11 is minimal, regardless of which passkey solutions you use.

If you use the native device-bound passkey system in Windows 11, you will see your saved passkeys in the Settings app at Accounts > Passkeys. Each passkey has a "More options" ("...") link that offers a single option, "Delete passkey." That's all you can do to customize this feature.

Choose a passkey manager and configure Windows 11 and your web browser correctly

There are several ways in which you can authenticate your identity with a passkey in Windows 11:

- Your phone, using the passkey manager app installed and configured on that device
- An *extension* for whichever web browser(s) you use
- Windows 11's native, in-box support for device-bound passkeys
- A desktop app for a compatible third-party passkey manager that integrates with Windows 11

If you are using the Microsoft Password Manager in Microsoft Edge or a third-party password/-passkey manager with any web browser, you will configure that to work with Windows 11, your phone, and perhaps other devices.

If you are using a third-party passkey manager, as I recommend, it will be installed on your phone and you should install its extension in whichever web browser you use. You can also optionally install its desktop app in Windows 11 and, if it's compatible, configure it for use by the system in the Settings app.

Use your phone and a web browser extension

The most common scenario for using passkeys across your phone and PC is to install the app for your passkey manager (typically a password manager) on your phone and install the extension for your passkey manager in the web browser(s) you use in Windows 11.

To find the correct interface on Android, iPhone, or iPad, open the Settings app and search for *autofill*. Then, be sure to disable any other password and passkey autofill providers.

In your web browser in Windows 11, after installing the extension and signing in to it, open the browser settings interface and locate the passwords and autofill interface. Then, do the following:

- Disable the web browser's built-in password manager. In Microsoft Edge, you can find this in Edge settings > Passwords and autofill > Microsoft Password Manager.
- Disable any options related to the browser and passwords and passkeys. In Microsoft Edge, navigate to Edge settings > Passwords and autofill > Microsoft Password Manager > More settings and uncheck "Ask to save passwords and passkeys" and "Autofill passwords and passkeys."

Use the native Windows 11 passkey management

While it is unlikely that you will use only the native Windows 11 passkey functionality, you can do so. You will only need to configure your web browser to not ask to save passwords and passkeys and autofill passwords and passkeys, as described in the previous section.

Use the Microsoft Password Manager

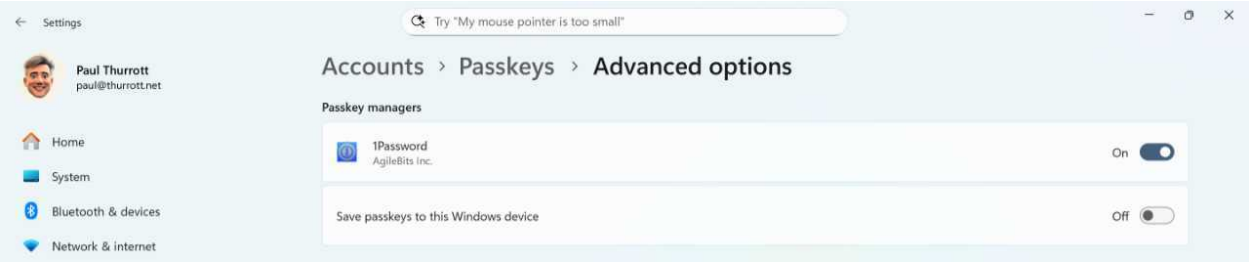
To use the Microsoft Password Manager for passkeys in Windows 11, you have to also use the Microsoft Edge web browser. Then, just make sure that the following options are enabled in Microsoft Edge settings:

- "Ask to save passwords and passkeys" in Passwords and autofill > Microsoft Password Manager
- "Ask to save passwords and passkeys," "Autofill passwords and passkeys" in Passwords and autofill > Microsoft Password Manager > More settings

Integrate a third-party passkey manager with Windows 11

To use a compatible third-party password manager that can integrate with Windows 11, install 1Password or Bitwarden and sign in.

Then, open the Windows 11 Settings app and navigate to Accounts > Passkeys > Advanced options. Locate the passkey manager you wish to use under Passkey managers and configure it to On.



Also, make sure that the option "Save passkeys to this Windows device" remains configured to Off.

Next, open the web browser you use in Windows 11 and disable any password and passkey-related functionality as described earlier in the chapter.

Save a passkey

The experience you see when you save a passkey for an online account using a web browser in Windows 11 will vary according to which passkey management systems are currently configured on that PC.

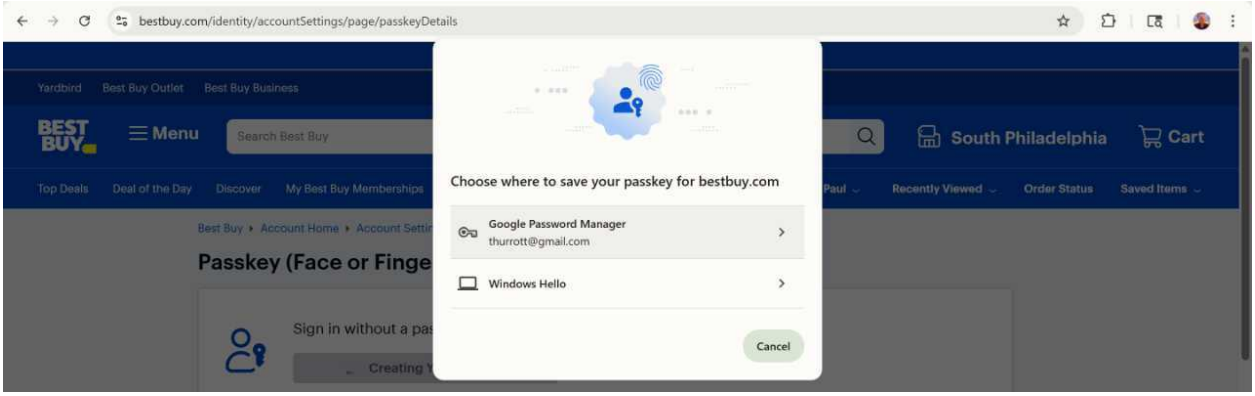
But the outcome will be consistent. Unless you changed the configuration, all these choices will prompt you to authenticate yourself using Windows Hello. And when you do so, the passkey will be saved to the method you chose.

Available methods can include:

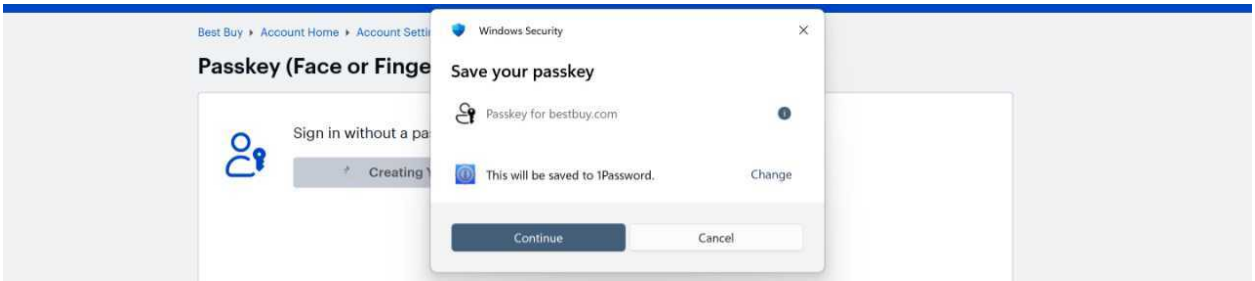
- **Save a passkey to a third-party passkey manager with a browser extension**. If you installed a browser extension for a third-party passkey manager, it will override all other choices and appear first. The UI you see here will vary by extension, but here is what it looks like using Proton Pass.

> **Tip**: You can close the passkey manager's UI to view other options as noted below.

- **Save a passkey to a browser-based passkey manager**. If you didn't install a browser extension (or you canceled/closed that UI when it appeared) and your web browser's password manager is enabled, you will typically see a dialog with two choices, for the browser-based password manager (Microsoft Password Manager in Edge, Google Password Manager in Chrome, and so on) and Windows Hello, meaning the native, in-box device-bound passkey manager. To save the passkey to your browser-based password manager, select that option. What you see next will vary by browser, but the process is straightforward.

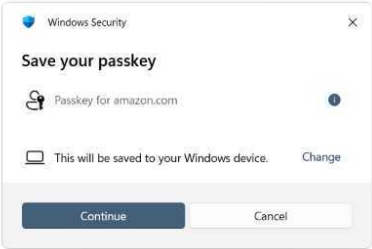


- **Save a passkey to a third-party password manager integrated with Windows 11**. If you didn't install a browser extension, disabled the browser's password manager, and installed and enabled a third-party password manager that integrates with Windows 11, a Windows Security dialog titled "Save your passkey" will appear with the text "This will be saved to [Passkey manager name]."



> **Tip**: If there are other options, you can click "Change" to switch to a different passkey manager, including, interesting, one that is installed on your phone.

- **Save a passkey to the native Windows 11 device-bound passkey manager**. If you didn't install a browser extension and disabled the browser's password manager, a Windows Security dialog titled "Save your passkey" will appear with the text "This will be saved to your Windows device."



> **Tip**: If there are other options, you can click "Change" to switch to a different passkey manager.

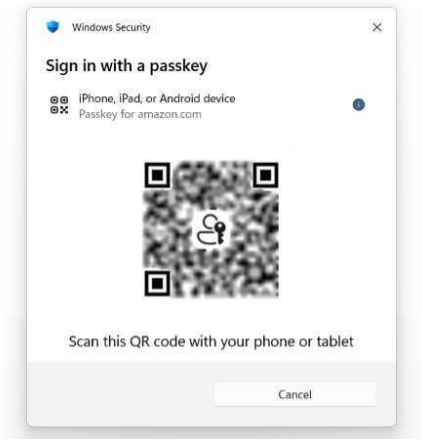
Sign in to a website using a passkey

The benefits of passkeys are apparent when you need to sign in to an online account on the web. Though there are differences in how online accounts handle this, this experience will be seamless and convenient, no matter how you manage passkeys.

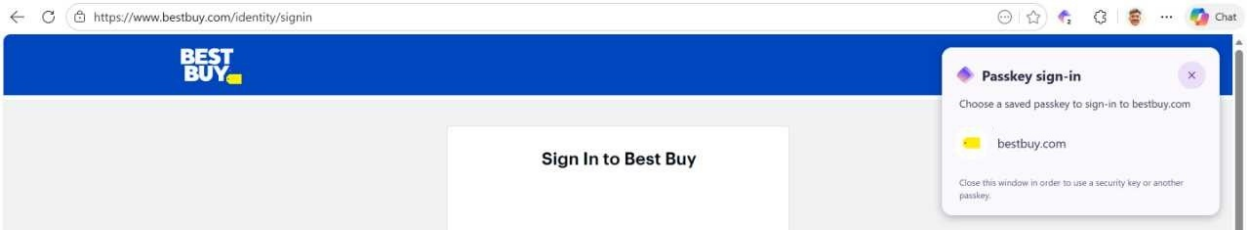
Available options include:

- **Sign in to a website using a passkey saved on your phone**. If the site you're signing in to knows you've previously saved a passkey to a phone-based passkey manager, or if your

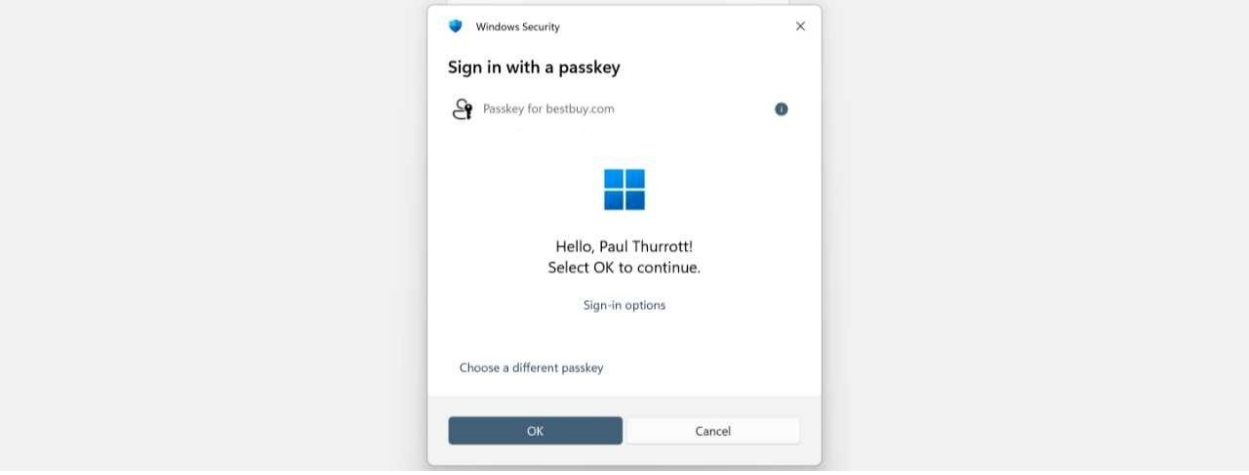
configured passkey manager doesn't contain a passkey for the site, it will display a "Sign in with a passkey" dialog displaying a QR code. You then scan the code using your phone's camera and use the PIN or biometric authentication method you configured on that device to prove your identity and continue.



- **Sign in to a website using a web browser extension**. While this will vary by extension and service, you will typically see a dialog from your passkey manager extension asking you to verify which passkey to use. To sign in, just select the correct (or only) entry.

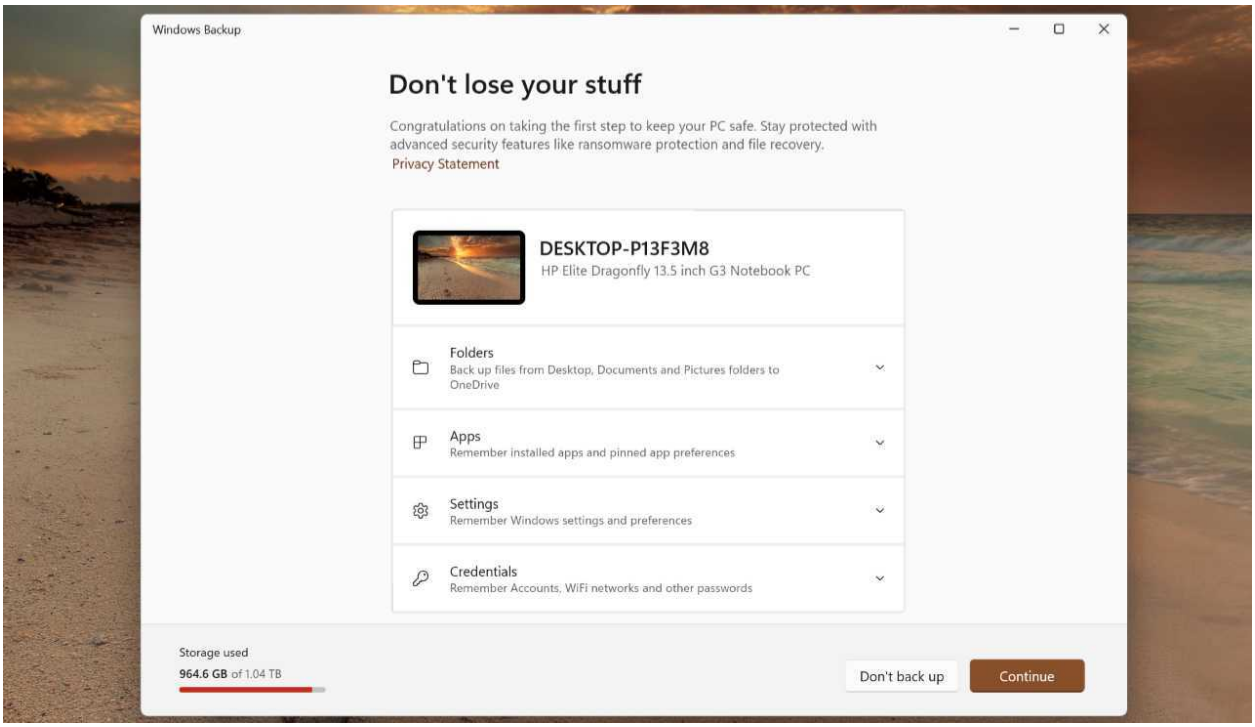


- **Sign in to a website using a device-bound passkey in Windows 11**. If your system is configured to use a device-bound passkey, you will be prompted to authenticate with Windows Hello when you sign in using a passkey.



Sign in using a third-party passkey manager. If you have configured a third-party passkey manager extension in your web browser, you will be prompted with a "Sign in with a passkey" dialog and then will authenticate with Windows Hello.

Windows Backup



Despite its name and Microsoft's posturing, *Windows Backup* is not a comprehensive PC backup and restore solution. Instead, it is a collection of longtime Windows features with a newly centralized user interface that does very little and requires you to sign in with a Microsoft account (MSA).

Defaults

Microsoft claims that Windows Backup allows you to back up a wide range of items, including files, themes, settings, installed apps, and Wi-Fi information. But all of that is incorrect or exaggerated, and none of it is new to Windows Backup.

Here's what Windows Backup–or, really, Windows 11 when you sign-in with an MSA–does with that information.

- **Files**. You can optionally *sync*–not back up–some of your important files with OneDrive, Microsoft's cloud storage service. To do so, you must enable OneDrive Folder backup and work within the confines of the small set of folders that feature uses. Or, you must work within the OneDrive file system structure and manually configure files to sync.

- **Themes**. When you sign in to Windows 11 with an MSA, it saves details about the theme you've configured, including the background, the sound scheme, the color scheme, and the mouse cursor.
- **Settings**. When you sign in to Windows 11 with an MSA, it saves some of the many Windows 11 settings you configured, but it's a tiny subset of the available settings.

> **But wait, there's more**: Microsoft documents the settings it backs up on the Microsoft Support website.

- **Installed apps**. Windows 11 does not back up your apps. When you sign in to Windows 11 with an MSA, it saves a list of the names of the apps you installed and those apps you've *pinned* to Start or the Taskbar.
- **Wi-Fi information**. When you sign in to Windows 11 with an MSA, it saves the *credentials*–the name (SSID) and associated password–for each secure Wi-Fi network you successfully connect to.

If you sign in to Windows 11 with an MSA, most of that will happen automatically. The one exception is files backup, which occurs via a OneDrive feature called Folder backup. In some cases, Windows 11 may try to enable this feature automatically, in which case your Desktop, Documents, and Pictures folders, and all their contents, sync between that PC and the OneDrive cloud storage service. If OneDrive Folder backup is enabled, then that sync also happens automatically.

Storage may be a concern. Microsoft provides just 5 GB of free cloud storage in OneDrive, and that may not be enough to store your backups. If you have a Microsoft 365 Personal, Family, or Premium subscription, you have 1 TB of OneDrive cloud storage available to you.

> **Learn more**: OneDrive and OneDrive Folder backup

Of course, backing up the PC–or just some of the information on the PC, as is the case with Windows Backup–is only half the job. The other half is *restoring* that data. And here, Windows Backup also falls flat: There is no way to arbitrarily restore any of the files, themes, settings, installed apps, or Wi-Fi information that Windows Backup protects. Instead, you can only restore this data when you set up a new Windows 11 PC or reset an existing PC: This happens in the Windows Setup Out-of-Box Experience (OOBE) and at no other time.

Likewise, you can't see, manage, or change anything in your "backups." All you can do is overwrite the current backup with a new one and customize what gets backed up at a very high level.

Don't get me wrong, Windows Backup isn't entirely useless. It's just borderline useless.

Customize

You can customize what Windows Backup backs up in the Settings app by navigating to Accounts > Windows backup.

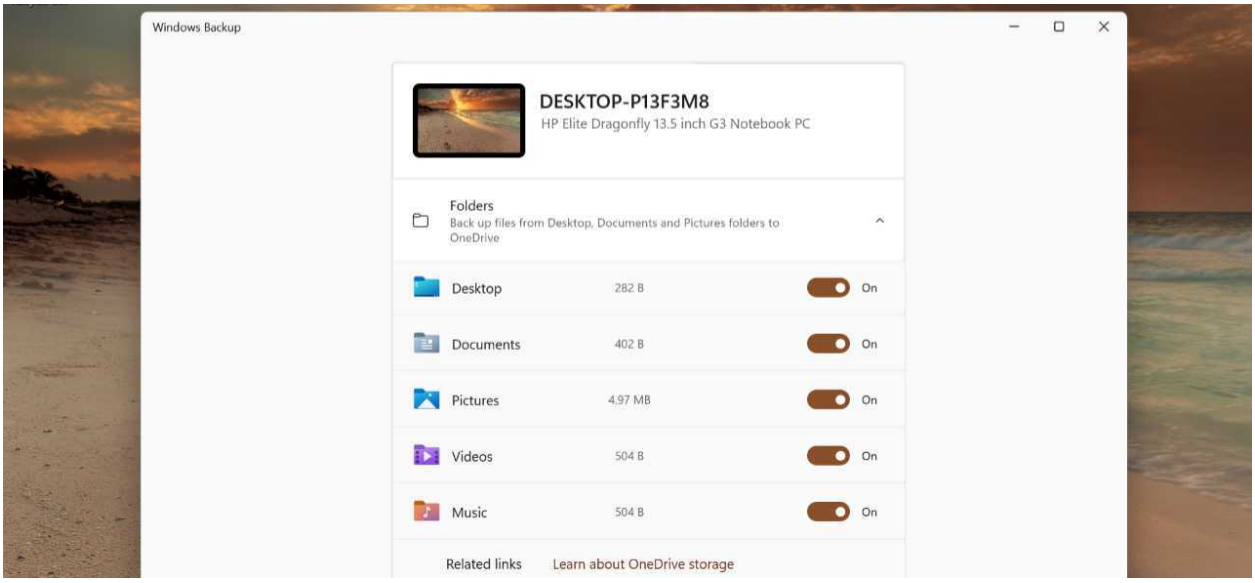
There are only three relevant options here:

- **OneDrive folder syncing**. Click the "Set up syncing" button to open the "Back up folders on this PC" dialog from OneDrive and determine which, if any, of the five folders OneDrive Folder backup *can* sync is synced to the cloud.
- Remember my apps. This option determines whether your Microsoft account remembers which apps you installed and pinned on this PC.
- Remember my preferences. This option determines whether Windows 11 saves some settings configurations and Wi-Fi credentials to your Microsoft account. You can also expand this option to configure whether accessibility; accounts and Wi-Fi networks and passwords; personalization; language preferences and dictionary; and other Windows settings sync individually.

Create a backup

You can only store one backup for each PC you use. So when you create a backup or the system makes one automatically, it overwrites the previous backup.

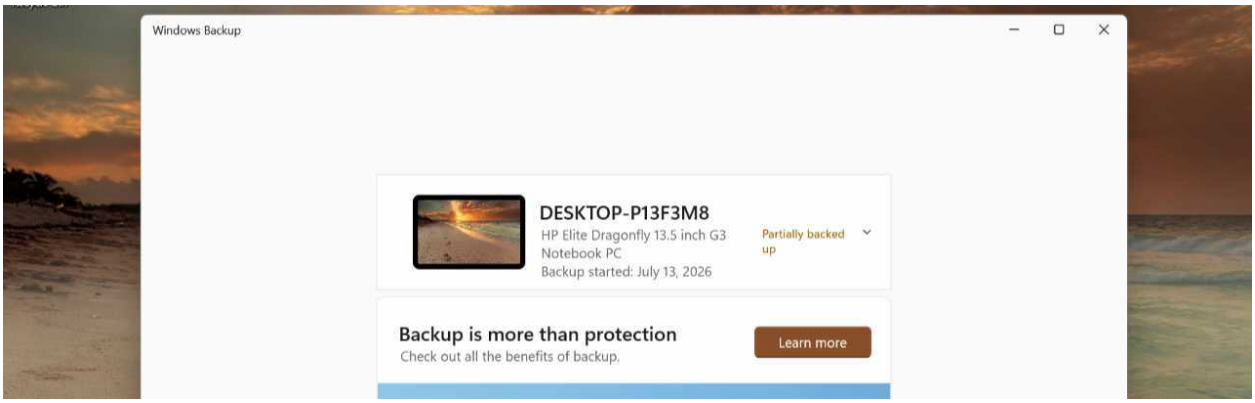
To create a backup manually, open Windows Backup. Before continuing, be sure to expand the "Folders" group as Windows Backup will attempt to enable sync with *five* of your folders–not just Desktop, Documents, and Pictures, but also Music and Videos for some reason–and you may not want that.



The other three groups, for Apps, Settings, and Credentials, cannot be configured here. For that, you must first navigate to Windows backup settings in the Settings app as noted previously.

If you are ready to make a backup, click "Continue." Windows Backup will display a "Backing up

your PC…" screen while it monitors the backup. When it's done, Windows Backup will report that you are backed up or, if you disabled one or more folder backups, "partially backed up."



Click "Close" to move on with your life. Or, briefly ponder what it is you just did here. After all, Windows 11 automatically syncs your OneDrive folders and backs up your apps, settings, and credentials anyway. What advantage is there to creating a backup with this app?

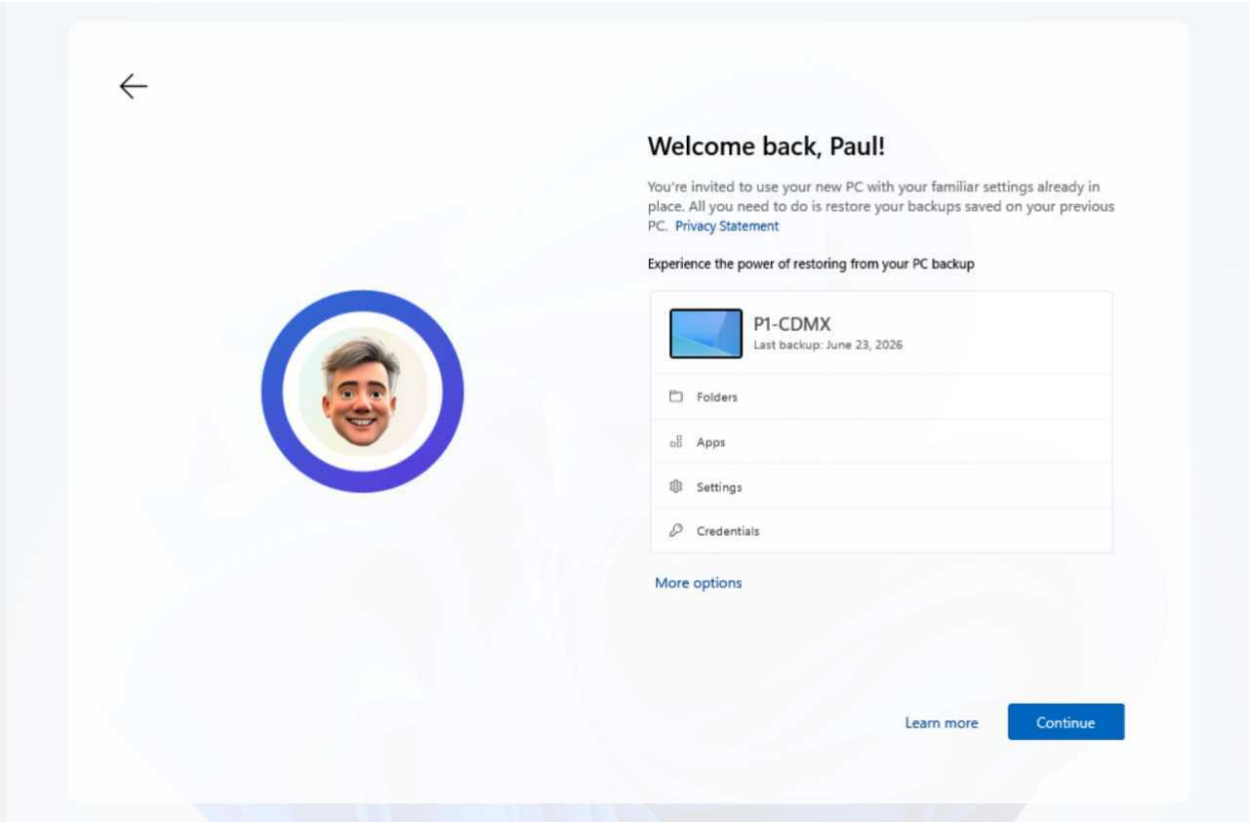
There are two, both minor.

- There is a peace of mind element, as noted in the app itself, because making a backup explicitly means you don't need to worry about it happening automatically in the background.
- It's not clear *when* things happen automatically in the background: When you click "Back up," you know the backup is there now and is up-to-date.

Restore from a backup

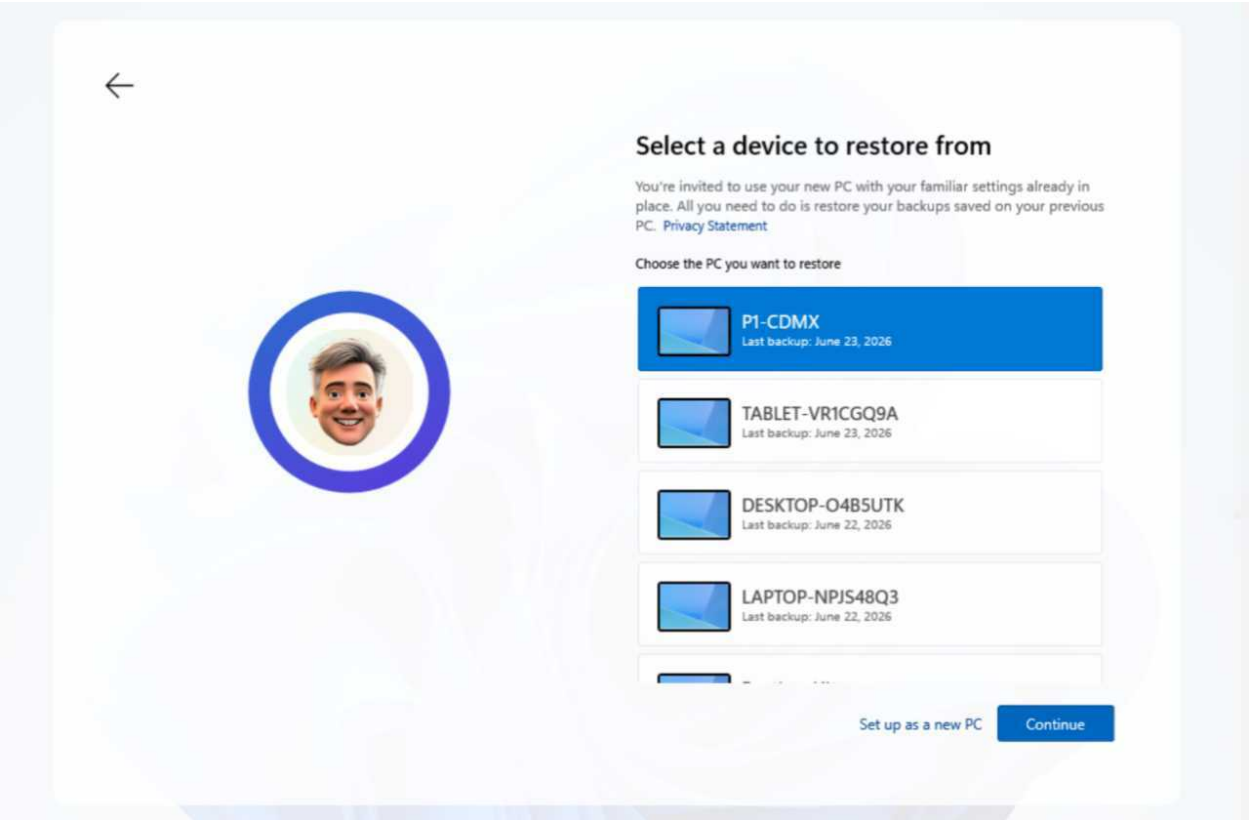
There is no way to use Windows Backup or any other interface to *restore* any of the backed-up data while using Windows 11. Instead, you restore from a backup when setting up a new PC or any other time when you find yourself stepping through the Windows Setup Out-of-Box Experience (OOBE).

If you sign in to Windows 11 using your Microsoft account (MSA), the OOBE will prompt you to "restore your backups saved on your previous PC," which is wrong twice: You can restore from a single backup and that backup is saved in the cloud, not on your previous PC.

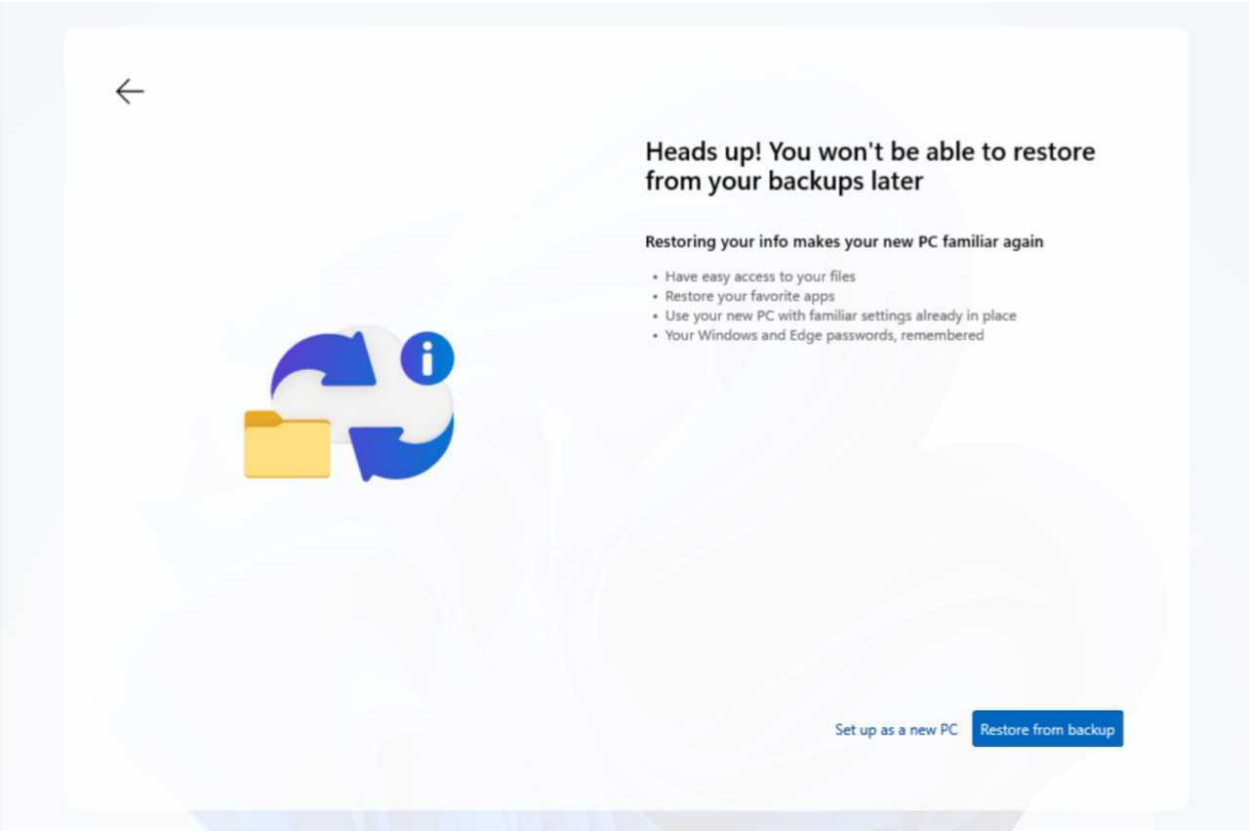


This initial screen displays your most recent backup. From here, you can:

- **Restore from the current backup**. Click "Continue" to accept the selected backup and restore its folders, apps, settings, and credentials.
- **Restore from a different backup**. Click "More options" to select a different backup from a collection of your PC backups listed in reverse chronological order.



- **Set up the PC without restoring from a backup**. Click "More options" to display the same screen as above, but then click "Set up as a new PC." In this case, Windows Setup will warn you that you won't be able to restore from your backups later.



This raises an interesting point: Since your Microsoft account automatically syncs the contents of your OneDrive storage via your Microsoft account and automatically backs up your apps, settings, and credentials information anyway, what's the difference between restoring from a backup and setting up as a new PC?

There is only one difference unless you go to the trouble of configuring Windows Backup differently on different PCs: Setting up as a new PC will *not* restore your installed apps and their pin preferences. To gain this one benefit, you need to restore from the appropriate backup. It's the only way.

And to be clear, there is nothing about a backup that is literally specific to a certain PC. If you own a PC and back it up with Windows Backup, you can restore from that backup using any other PC with no worries. It will work fine.

Manage your backups

There's no way to manage backups in the Windows Backup. But there are three other places you can visit to do so:

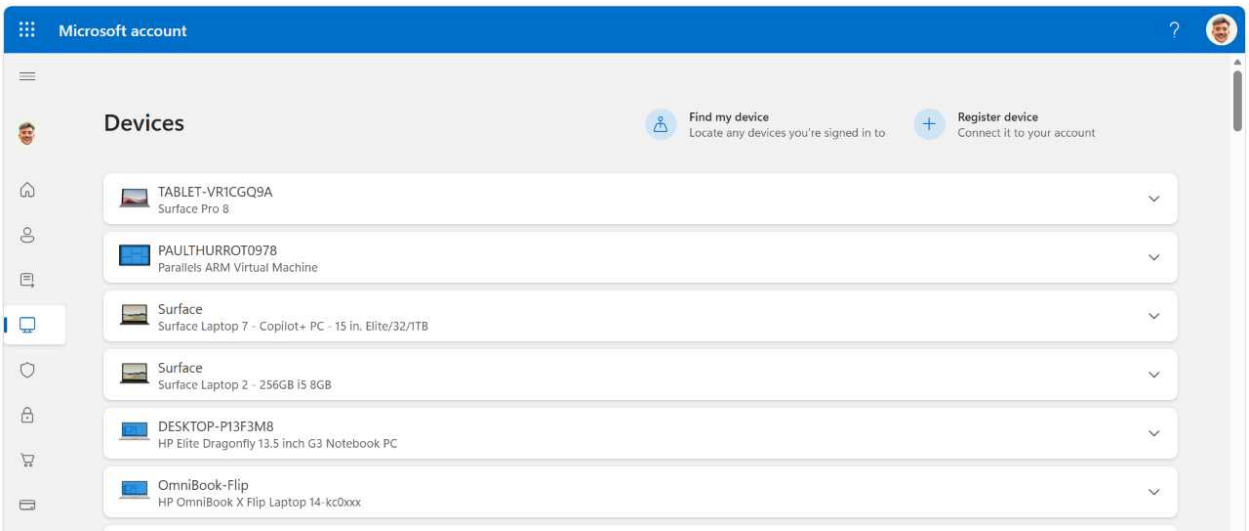
- **OneDrive settings**. OneDrive Folder Backup is configured in OneDrive settings: Navigate to "Sync and backup" and click the "Manage backup" button to see which folders are being

synced and, optionally, configure it as you prefer.

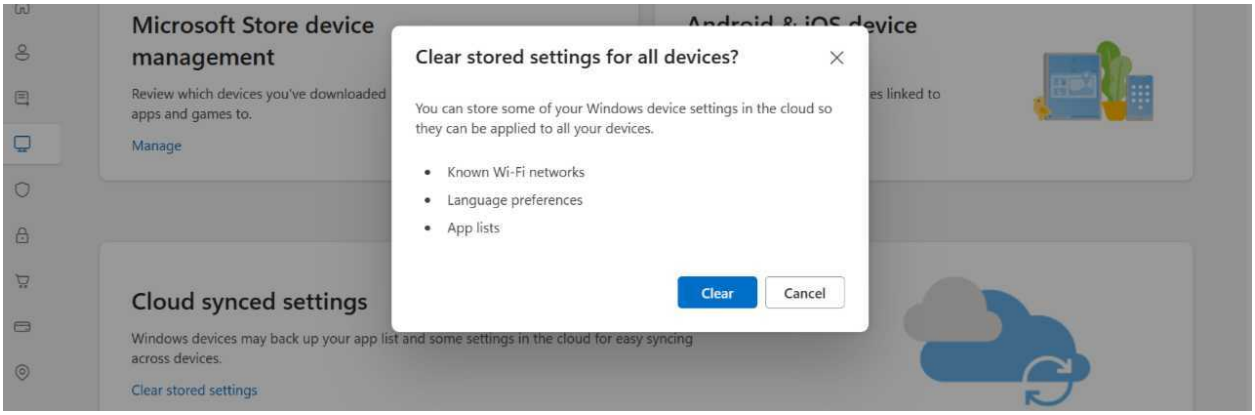
- **Windows backup settings**. Apps, settings, and credentials backup are all configured here. Open the Settings app and navigate to Accounts > Windows backup.

> **Tip**: Any changes you make here will reflect in the Windows Backup app and in the resulting backup, of course. For example, if you expand "Remember my preferences" and set "Accessibility" to "Off," and then open Windows Backup and expand "Settings," the Accessibility item will display with an On/Off toggle, hopefully set to "On," so you can change it back if desired.

- **Microsoft account website**. To view your backups, sort of, open the Microsoft account website with a web browser, sign in, and navigate to the Devices page. Here you will see a list of the PCs that are linked to your Microsoft account, each of which has an associated backup. All you can do here is remove a device from your account, which deletes its associated backup. To do so, expand the PC in the listing and click "Remove device."



The Devices page on the Microsoft account website noted above also has a *Cloud synced settings* area down at the bottom that lets you remove certain settings–saved Wi-Fi credentials, language preferences, and app lists–from your MSA and thus from *all* your PCs. If you wish to clear all this data, click "Clear synced settings."


Microsoft Store device management
Review which devices you've downloaded apps and games to.
Manage
Clear stored settings for all devices?
You can store some of your Windows device settings in the cloud so they can be applied to all your devices.
Known Wi-Fi networks
Language preferences
App lists
Clear
Cancel
Cloud synced settings
Windows devices may back up your app list and some settings in the cloud for easy syncing across devices.
Clear stored settings

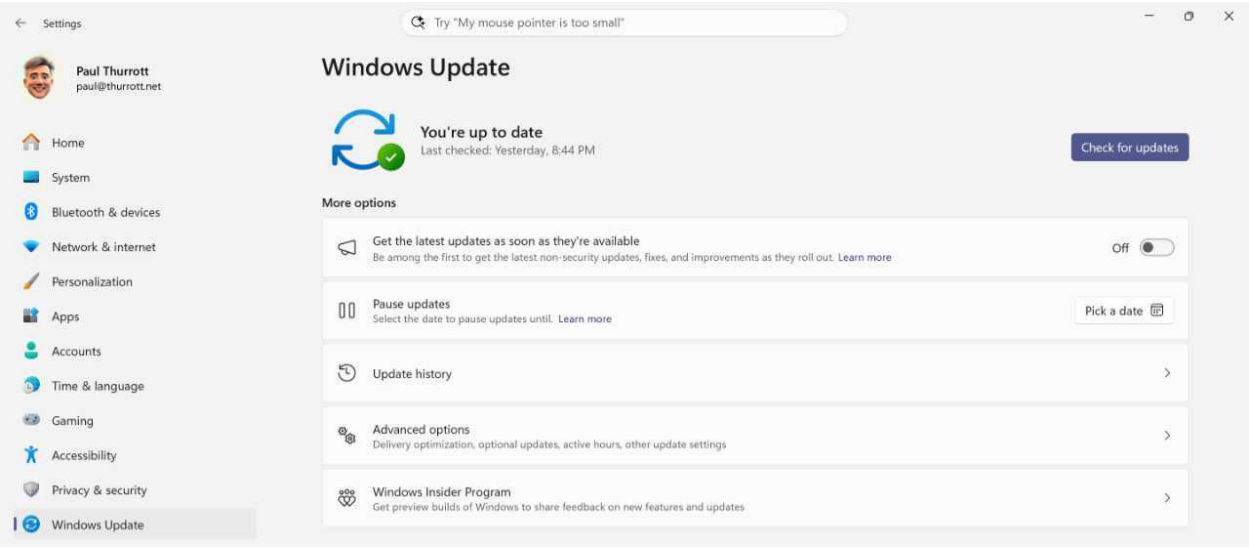
Security

Windows 11 includes a full suite of security utilities and services, most of which work automatically with no intervention on your part. But there are a few configurations to consider in each that will lead to even better overall security.

Windows Update

Windows Update is a Microsoft-hosted online service that automatically keeps your PC up-to-date with security and bug fixes, OS version upgrades, driver updates, and Windows Defender antivirus updates, and more. In some ways, the rate at which these updates arrive has increased dramatically in recent years, but Microsoft has worked to reduce reboots and other interruptions this year while giving users more control over how and when to update the system.

In Windows 11, the interface you use to interact with Windows Update is found in the Settings app by navigating to Windows Update.



Defaults

Windows 11 connects to Windows Update automatically and will download and install pending updates as needed on different schedules.

Key updates delivered through Windows Update include:

- **Feature updates**. This a version upgrade, usually delivered annually in the second half of the year, typically in October. Feature updates include new features and bug and security fixes, and they are *cumulative*, meaning that they include the contents of all previous feature updates and quality updates. You must reboot your PC to fully install a feature update.

> **Tip**: Each supported version of Windows 11 typically includes the same features and security fixes. But feature updates can be major upgrades in which a new version of the OS is installed over the current version, or they can be minor upgrades with a smaller enablement package (eKB) installer that install more quickly than major upgrades. Windows 11 version 24H2 was a major upgrade, but Windows 11 version 25H2 is a minor upgrade, as will be 26H2.

- **Quality updates**. This is a cumulative update with new features and bug and security fixes. Quality updates are typically delivered once each month, on the second Tuesday of the month, and though they can be smaller than feature updates, they also require a reboot to fully install.

> **Tip**: Though this term is not official, the second Tuesday of each month has called *Patch Tuesday* since Microsoft first introduced this schedule in 2003.

- **.NET updates**. Microsoft updates the legacy .NET Framework and related technologies integrated into Windows 11 along with more modern .NET releases via Windows Update. This typically occurs once each month, and they require a reboot. But these updates are timed to coincide with the monthly quality update so that both can be fully installed during the same reboot.
- **Driver updates**. Though some PC makers still provide custom support applications that, among other things, install new driver updates, most driver updates install through Windows Update. Some of these updates–including firmware updates–require a reboot, but some do not. If a reboot is required, Windows 11 will typically schedule the install to coincide with the monthly quality update.
- **AI component updates**. If you have a Copilot+ PC, Windows Update will download and install updates for Phi Silica and other on-device local AI models on a rolling basis. These updates do not require a reboot and there is no set schedule. But it's typical to get at least one or two each month.
- **Microsoft Defender antivirus updates**. Microsoft Defender protects your Windows 11 PC from viruses and other online threats, and Windows Update downloads *security intelligence updates*–previously called *definition updates*–multiple times each time to keep it up-to-date. These updates are small and do not require a reboot.

- **Preview updates**. Microsoft also offers *preview updates* via Windows Update that are not downloaded and installed by default unless you enable the option "Get the latest updates as soon as they're available." There are preview feature updates and quality updates, and both typically arrive on the fourth Tuesday of each month, or two weeks after the most recent Patch Tuesday. Tied to that, these preview updates are, per the name, previews of the next feature update or Patch Tuesday quality update and offer the same features and security and bug updates.

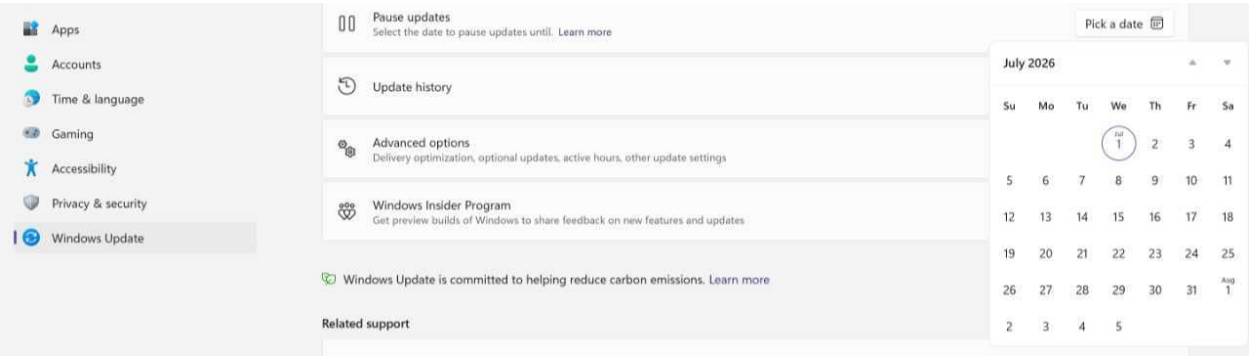
By default, Windows 11 will:

- Download and install feature updates, quality updates, .NET updates, and driver updates and then reboot the PC to complete installation outside your *active hours*. Unless you configure this setting otherwise, active hours is between 7:00 am and 12:00 am each day.
- Download and install AI component updates and Microsoft Defender antivirus updates as needed in the background without disrupting your work.
- Ignore the various updates if your PC is using a metered network that might incur additional costs from the downloads unless there is a serious security update, in which case it will download and install the update and reboot as necessary.

Customize

You customize how Windows Update interacts with your PC in Windows Update settings in the Settings app. Key features to consider here include:

- **Get the latest updates as soon as they're available**. Disabled by default, this option will download and install preview updates like other updates when enabled and increase the typical number of reboots each month from one to two.
- **Pause updates**. This option lets you pause updates for up to 35 days by selecting the end date for pausing on a pop-up calendar control. This is a temporary delay to prevent interruptions, not a permanent stop. But you can also extend the pause to a maximum of 35 days, at any time. If you do nothing, Windows Update will return to its normal updating schedule when the pause period ends. You can also choose today's date to exit the pause.



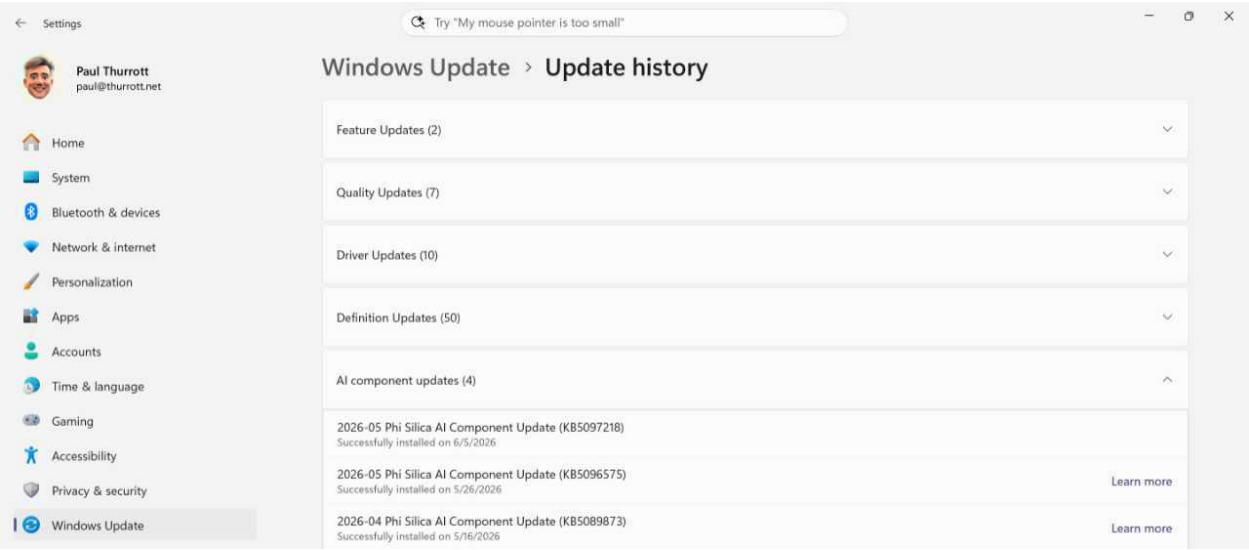
- **Receive updates for other Microsoft products**. Disabled by default, this option in Advanced options lets you use Windows Update to update other Microsoft products installed on your PC, including Microsoft Office and Visual Studio.
- **Get me up to date**. This option in Advanced options is disabled by default. When enabled, Windows 11 installs pending updates immediately and restarts the PC as soon as possible, even if it's during active hours. You will be notified before the PC reboots.
- **Download updates over metered connections**. This option in Advanced options is disabled by default, but you can enable it to download updates normally over a metered connection.
- **Notify me when a restart is required to finish updating**. By default, Windows 11 will automatically reboot your computer outside active hours when a pending update requires it. If you enable this option in Advanced options–it's disabled by default–you will be prompted with a notification banner before the PC reboots and finishes an update.
- **Active hours**. This option in Advanced options lets you configure active hours manually if desired and then specify custom start and end times with a maximum length between the two of 18 hours.
- **Optional updates**. This link in Advanced options opens a page where you can view timely pending software updates, such as driver updates. Here, you can expand any groups–like Driver updates–if necessary, select the updates you wish to install, and then click "Download and install" to add them to the current download queue. If you ignore these updates, they will install automatically in the future.
- **Delivery Optimization**. By default, Windows Update uses peer-to-peer networking capabilities to allow PCs on your home network to deliver software updates to each other over that network, reducing your overall Internet bandwidth usage. But you can configure this option in Advanced options to also enable this capability with other PCs over the Internet too, or just disable it entirely. I recommend leaving it configured as-is.

Check for updates manually

Windows Update is configured to run automatically in the background and it will prompt you if a pending update requires you to reboot your PC to complete the installation. But you can, open this page in Settings at any time to check for updates manually. If that doesn't happen when you navigate to this page, click the "Check for updates" button to get it going.

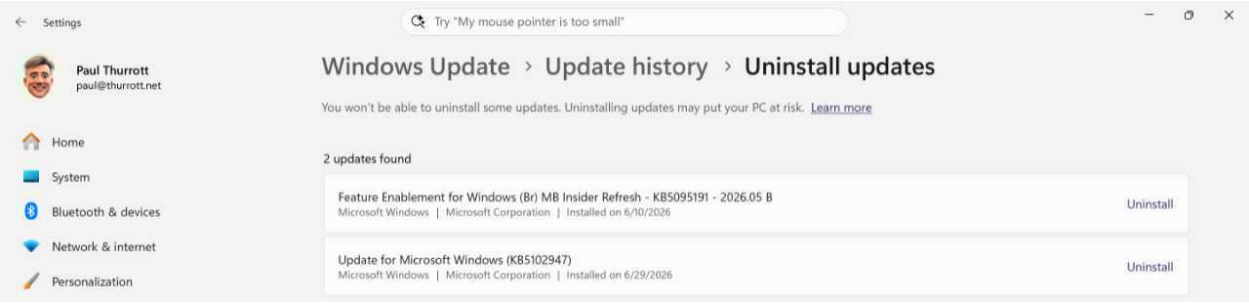
View your update history

The Update history link displays a page where you can view previously-installed updates, and it's neatly organized to display feature updates, quality updates, driver updates, definition updates, and other updates separately in their own collapsible and expandable sections.



The two options below that–"Uninstall updates" and "Recovery"–are useful if you experience reliability issues after installing an update:

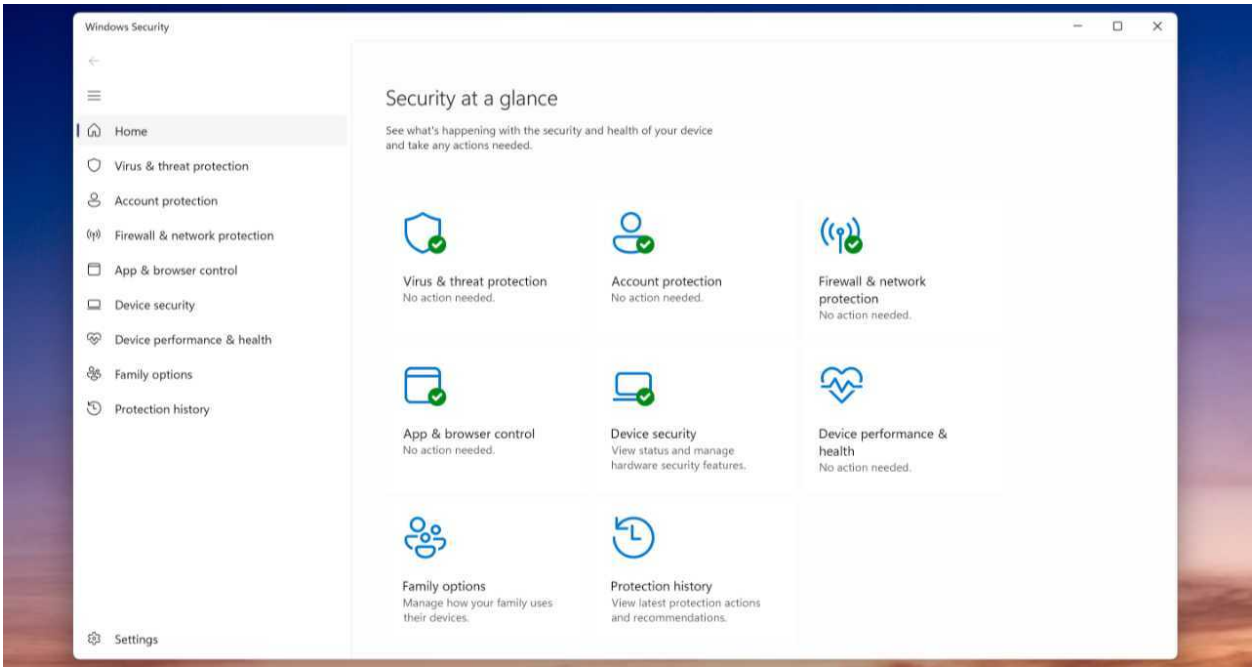
Uninstall updates. This option displays a Settings page listing the updates that you can still uninstall. (You can uninstall some, but not all, quality updates.)



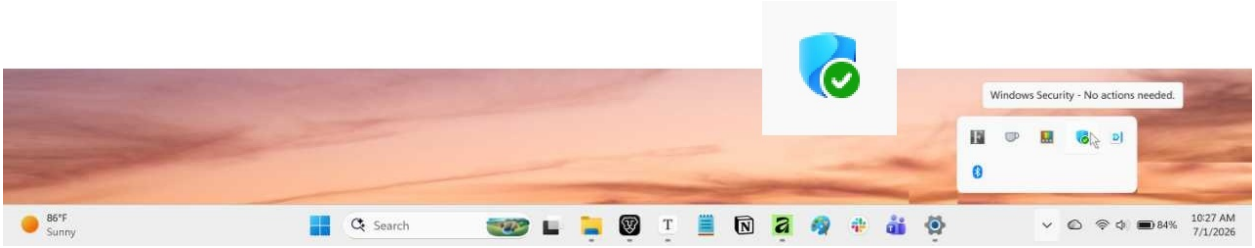
Recovery. This option is one of several throughout Settings that brings you to System > Recovery, where you can access the Windows 11 recovery tools.

Windows Security

Though Windows provides numerous features that help protect you, your data, and the PC itself, most work automatically in the background and few of them are interactive. One exception is *Windows Security*, a dashboard-like app that helps you quickly assess whether your PC is protected from threats and make some configuration changes.



You can quickly check that your PC is correctly secured by opening the app, as above, or you can open the overflow area of the Taskbar, where you will see a Windows Security icon that resembles a blue shield.



With this tray icon and the individual items on the Windows Security home page, Microsoft displays a colored badge overlay to indicate their relative health. You're looking for a green checkmark, which means all is well. But if you see a yellow exclamation point (bang) or red "x" badge, you will need to make a configuration change or perform some task–like manually running an antivirus scan–to improve matters.

Defaults

Windows Security provides an at-a-glance view of the security and health of your PC, with 8 major areas of concern. Green check marks next to each area on the main page indicate that the system is healthy, secure, and up-to-date. But you may also see yellow bangs next to those areas that need attention.

Available items here include:

Virus & threat protection. This page provides a front-end to Windows Defender, the anti-virus and anti-malware solution that comes with Windows 11.

Account protection. This page provides links to various parts of the Accounts area of the Settings app related to your user account: Account info, Windows backup, Sign-in options, and Dynamic lock.

Firewall & network protection. Here, you will see a friendly interface to the *network firewall* that Microsoft provides with Windows 11. For the most part, you will never need to change any of the settings you see here.

> **Tip**: While you will not usually need to access the legacy interface to the firewall, called *Windows Defender Firewall with Advanced Security*, you can do so by selecting the "Advanced settings" link here.

App & browser control. This page lets you configure three Windows 11 features that can help protect you against malicious and unknown apps, files, and websites. *Smart App Control* determines how Windows behaves when you download potentially unsafe applications from the web. *Reputation-based protection* helps protect you against malicious downloads, files, and websites that attempt phishing attacks to steal your identity. And *Exploit protection* lets you customize advanced technologies in Windows that are designed to protect the system from being compromised.

> **Tip**: Smart App Control is not enabled by default, but Windows 11 will sometimes enable it, and it will notify you if that happens. In 2026, Microsoft updated Smart App Control to allow users to arbitrarily enable or disable this feature on the fly. If you find that it blocks your access to apps you know and trust, you can disable it.

Device security. Here, you can view but not edit the condition of whichever hardware-based security features–*Core isolation* (for preventing memory-based attacks), *Security processor* (the trusted platform module, or TPM), *Secure Boot* (which prevents offline attacks during reboots), and *Data encryption*–your PC supports. This will vary from PC to PC.

> **Learn more**: Device encryption

Device performance & health. This page provides a mini-dashboard related to the health of your PC, plus a link to *Fresh start*, a deprecated external tool.

> **Tip:** The Fresh start commentary found on this page is a bit odd, as this feature is not part of Windows 11. Please refer to Reset this PC in the Recovery chapter to learn more about the Windows 11 equivalent of Fresh start.

Family options. This page provides links to Microsoft's parental control functionality on the web. Family options is not a Windows 11 feature.

Protection history. If everything goes accordingly, this page will be blank, noting only that there are "no recent actions." However, if Windows 11 encountered any threats, they will be listed here.

Customize

By default, Windows 11 doesn't automatically enable a few features surfaced in Windows Security because of their privacy implications. You should make sure these features are enabled.

They are:

Reputation-based protection. This feature helps block potentially unwanted apps (PUAs) while you're downloading or using them. It's off by default in Windows 11 Home and Pro because this feature integrates with cloud-based machine learning capabilities that examine app behaviors rather than using lists of trusted and untrusted apps. To enable this feature, select "App & browser control" and then click "Turn on" under "Reputation-based protection."

Standard hardware security. Depending on the capabilities of your PC, Windows 11 can use a range of Core isolation, Security processor, Secure boot, and Data encryption features to help protect your PC using hardware-backed enhancements. Whichever of these features is available, all should be configured to "On." But I occasionally see some PCs with a Core isolation feature called Memory integrity disabled. If so, enable this feature by selecting "Device security" and selecting the "Core isolation details" link under "Core isolation."

> **Tip:** In 2026, Microsoft added a new security feature called *Administrator protection* to Windows 11. This is a new level of protection in which user accounts with administrator privileges behave much like Standard accounts and require you to verify your identity with Windows Hello before completing potentially dangerous tasks. This sounds like a good idea, but in practice, it's incredibly annoying. There are too many verification prompts and clearing them is tedious and requires too many steps. So for now, I don't recommend enabling this feature. But you may want to experiment with it. If so, you can enable it in Windows Security > Account Protection > Administrator protection settings.

Windows Defender

Protecting Windows 11 against viruses, malware, and other electronic attacks requires a combination of common sense and using and relying on the system's built-in security tools. Key among the latter is a service called *Windows Defender*.

Defaults

Windows Defender provides protection from online threats such as viruses, malware, and ransomware. But the best things about this service, perhaps, are that it's free, effective, and automatic. It comes with Windows 11, works in the background, and is always enabled. Unless something bad happens, the only time you'll notice it exists is when it displays a notification once each week just to let you know it's doing its thing.

Customize

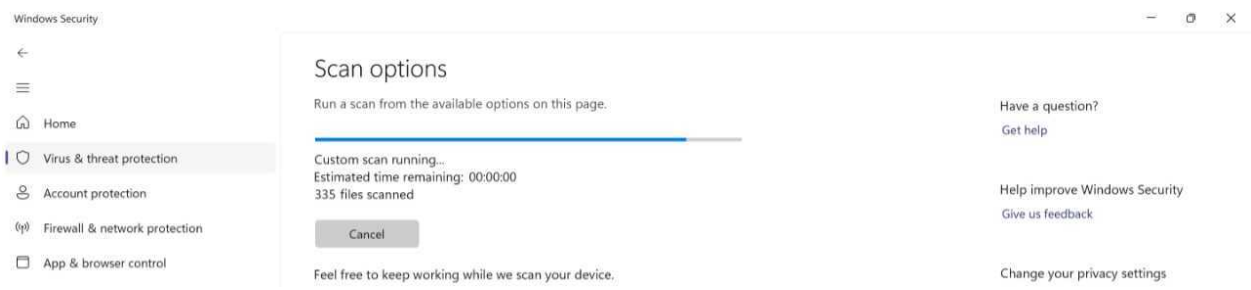
There are several Windows Defender options you could configure in Virus & threat protection settings in the Windows Security app. But you should leave that alone for the most part: Windows Defender works automatically in the background and it's configured optimally for that.

There is, however, one option you might consider disabling. But you do that in Windows Security settings: If you navigate to Notification settings in Windows Security, you will find an option under "Virus & threat protection notifications" named "Get informational notifications." It's enabled by default, and this is why Defender displays a banner notification once each week. If you find that annoying, as I do, you can just disable it here.

Scan a file or folder

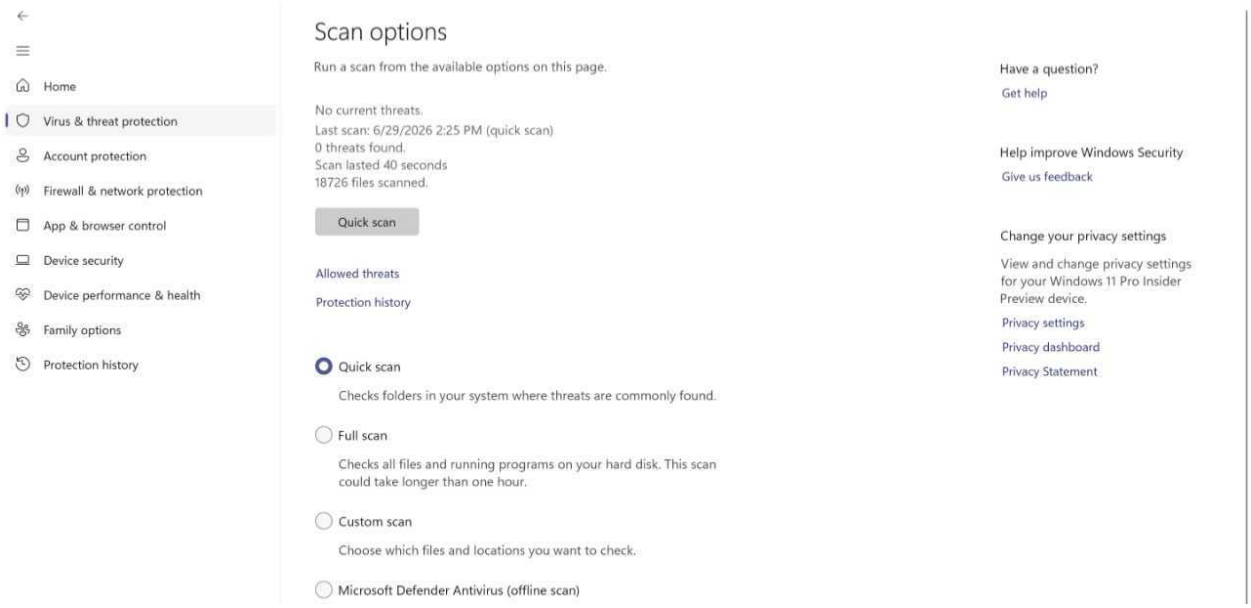
While Windows Defender usually works without any intervention, you may occasionally want to perform a manual scan of a file (or a group of files), a folder (or a group of folders) or even the entire PC.

To scan one or more files or folders–a suspicious file, perhaps–navigate to the appropriate destination with File Explorer, select the item(s) in question, right-click, choose "Show more options," and then select "Scan with Windows Defender" from the context menu that appears. When you do, the Windows Security app opens to the Virus & threat protection page and runs what's called a *custom scan* on the selected items.

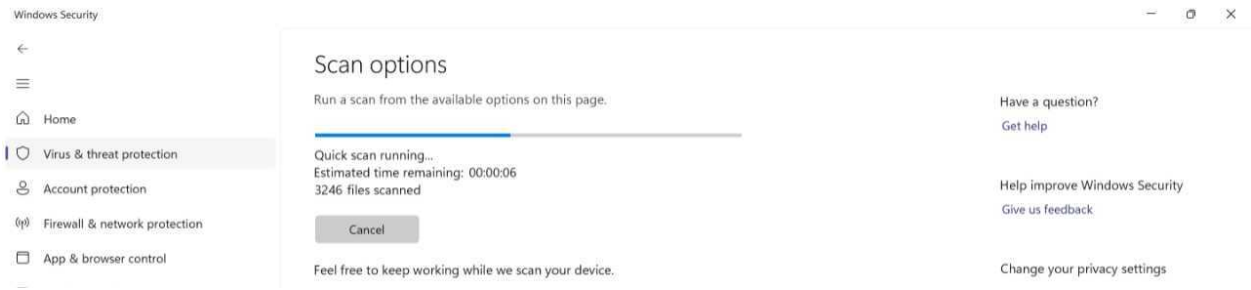


Scan your PC

You can manually run a quick, full, or custom Windows Defender scan of your entire PC at any time. To do so open Windows Security and navigate to Virus & threat protection. Click the "Quick scan" button if that's what you want. Otherwise, click "Scan options" to choose the type of scan you want.



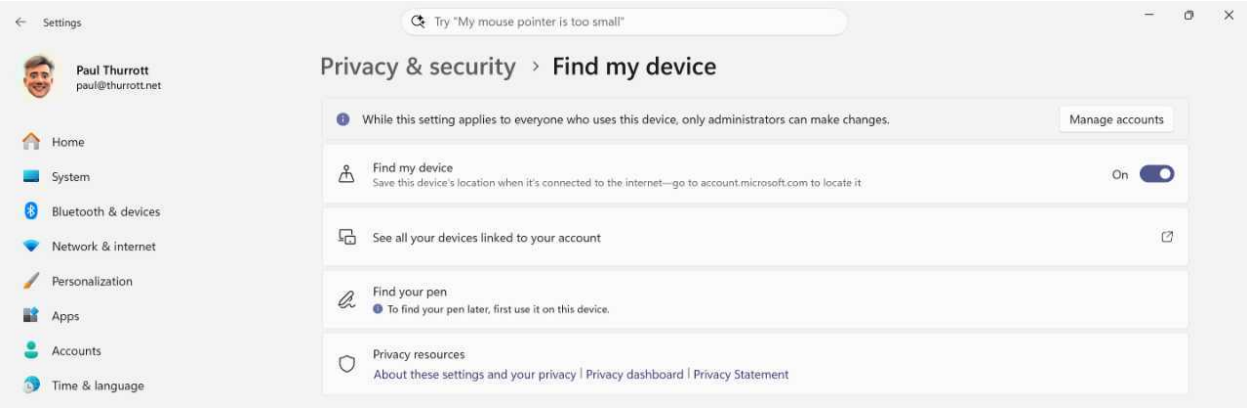
Click "Scan now" to start the scan.



> **Tip**: Select "Microsoft Defender Antivirus (offline scan)" to perform an *offline scan* of your PC outside of Windows. This option requires the PC to reboot so it can scan the disk while Windows 11 isn't running and it can take a long time.

Find My Device

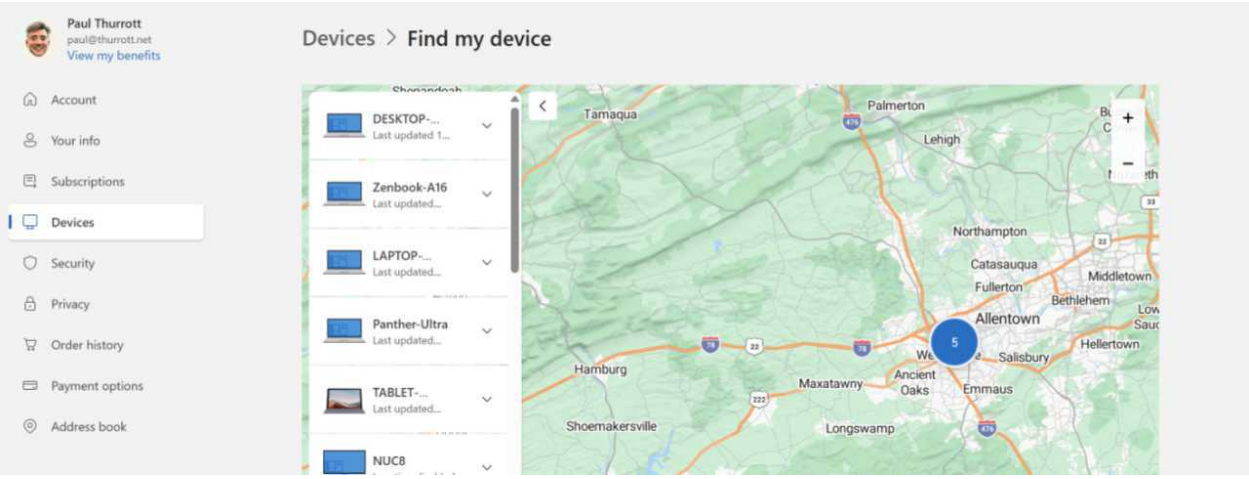
Windows 11 includes a feature called *Find my device* feature that can help you locate your PC if it's lost or stolen. This feature is located in the Settings app by navigating to Privacy & security > Find my device.



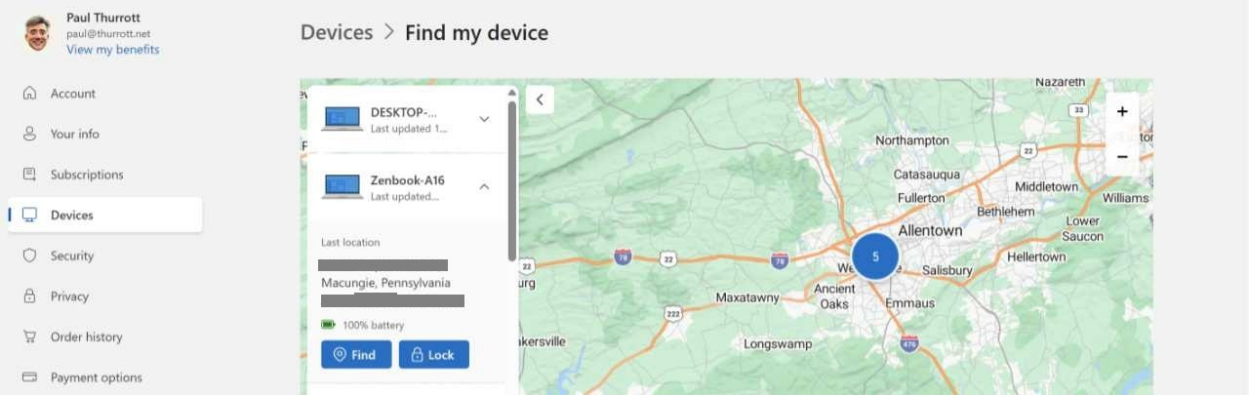
> **Tip**: Find my device requires that you sign in to Windows 11 with a Microsoft account. If you do, it is enabled by default.

> **Tip**: Find my device also requires that location settings are enabled.

You can view the location of this PC and your other PCs and devices by selecting the "See all your devices linked to your account" option. This opens your default web browser and navigates to the Devices page on the Microsoft account website. Click "Find my device" at the top of this page to display the Find my device page with a zoomable map view with a list of your PCs appears.

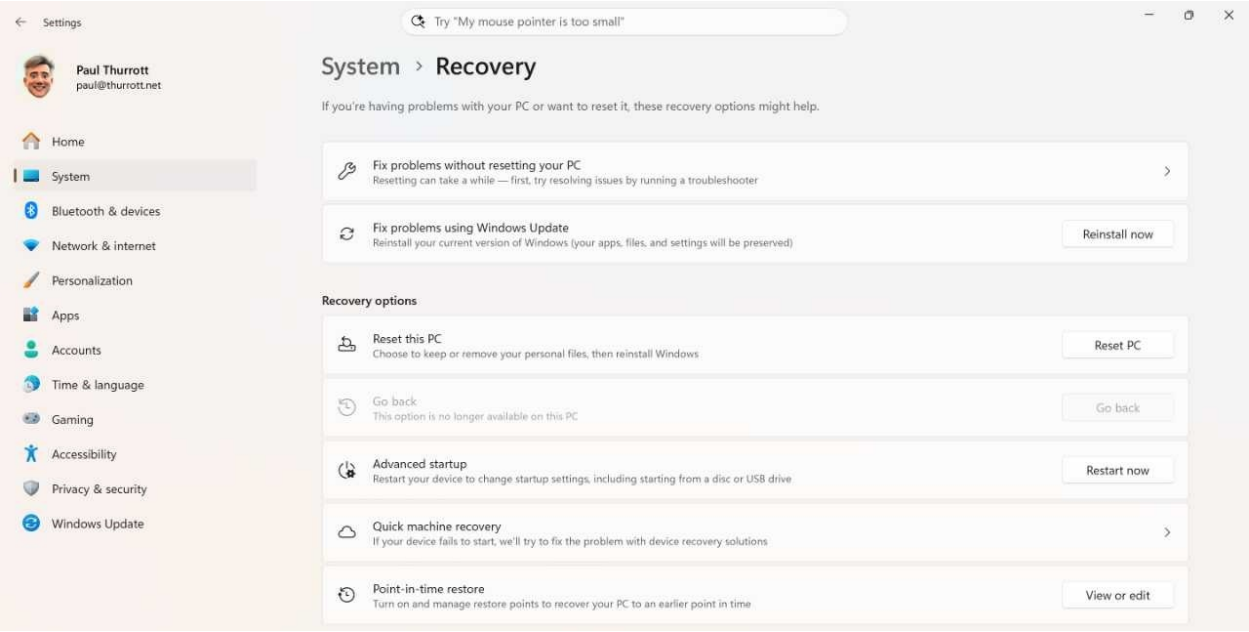


Now, select the PC you're trying to find in the list. The view expands to display more options.



From here, you can select the "Find" button to locate that particular PC on the map. Or, select the "Lock" button to remotely lock the PC, preventing anyone who finds it from accessing your data. This function will also enable location tracking so that you can continue to find it in the event of theft.

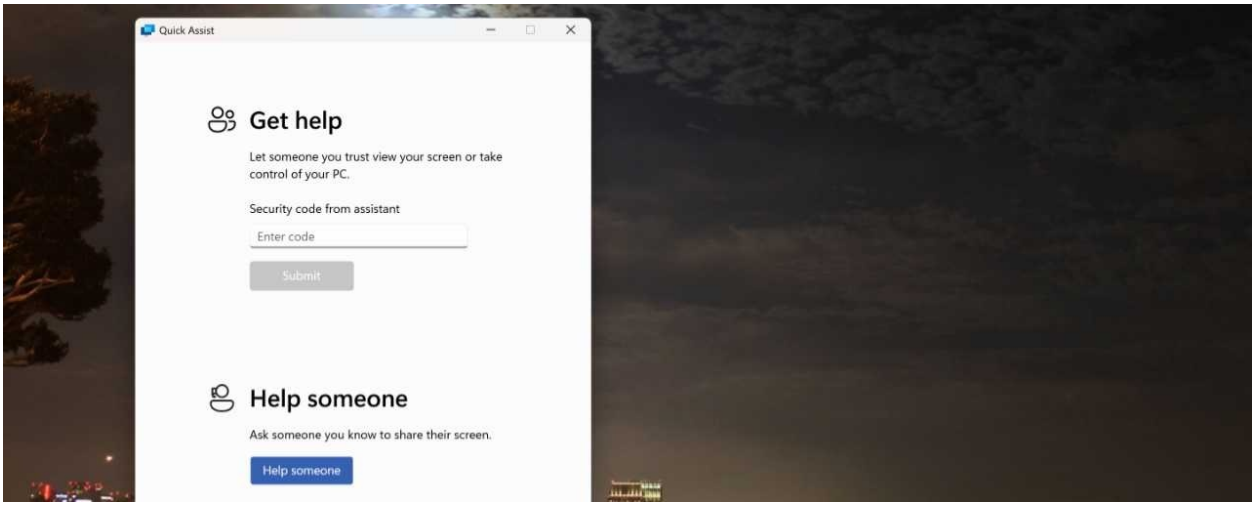
Help and Recovery



Windows 11 provides several useful help and recovery tools, including a few new entries from the past year thanks to Microsoft's Windows Resiliency Initiative. These tools let you get help from a person you know and trust, help others with the problems they are experiencing, launch into a Windows Recovery Environment that's accessible inside and outside of Windows 11, restore the PC to a previous state or reinstall Windows quickly using Windows Update if something goes wrong, and *reset* the PC and start over with a fresh install of Windows 11.

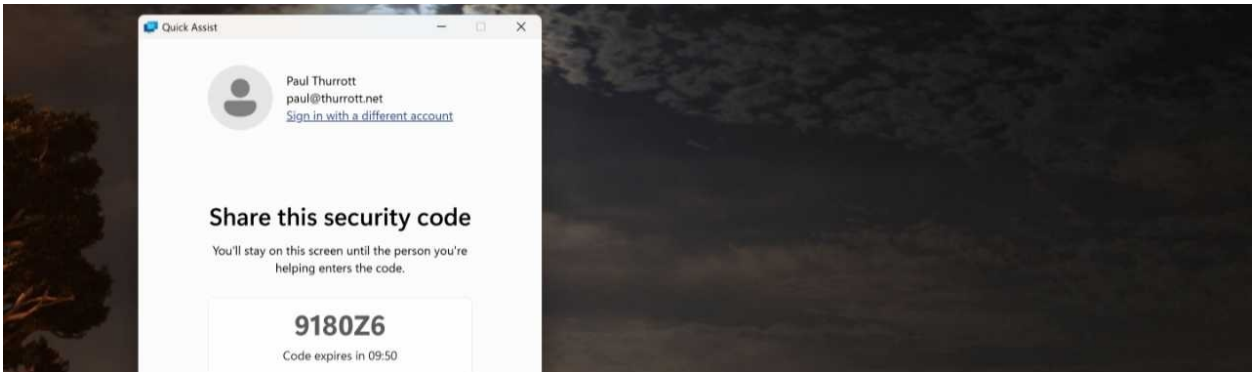
Quick assist

Windows 11 includes a *remote assistance* app called *Quick Assist* that helps a user having issues–the *sharer*–share their screen interactively with another user–the *helper*–so that the latter can troubleshoot and help them solve those problems.



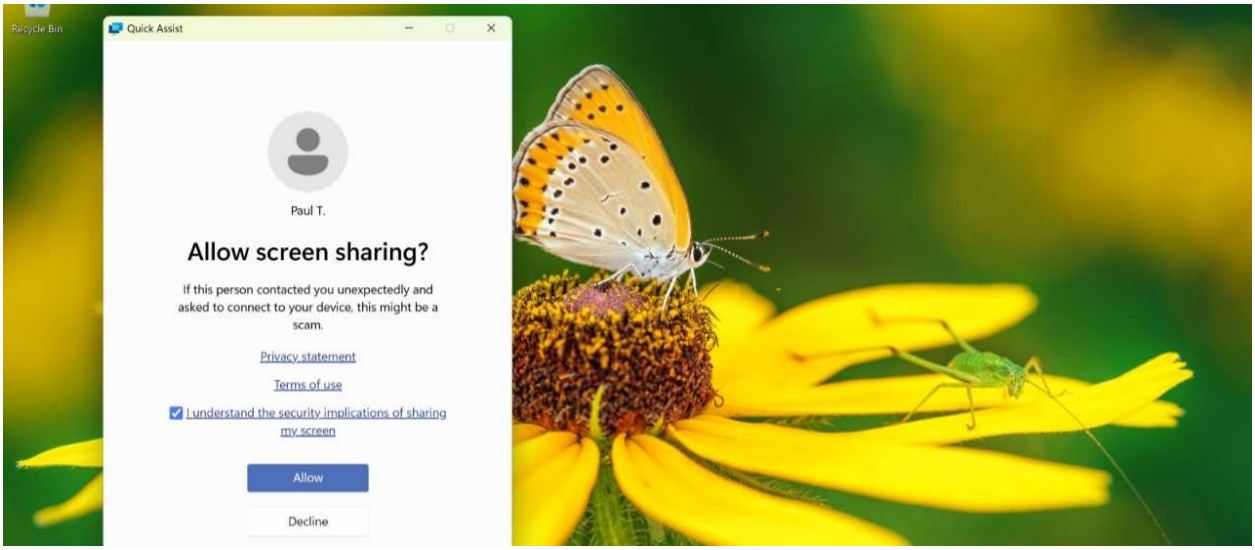
> **Tip**: Obviously, both PCs need to be connected to the Internet. Less obviously, the helper needs to use a Microsoft account, while the sharer does not.

To get started, both parties should be in communication with each other using their phones or some other means. Then, both should open Quick Assist in Windows 11 on their PCs. The helper will click "Help someone." If this is the first time they've used Quick Assist, they will be asked to sign in to their Microsoft account. Otherwise, Quick Assist will generate a short security code that the helper can give to the sharer.

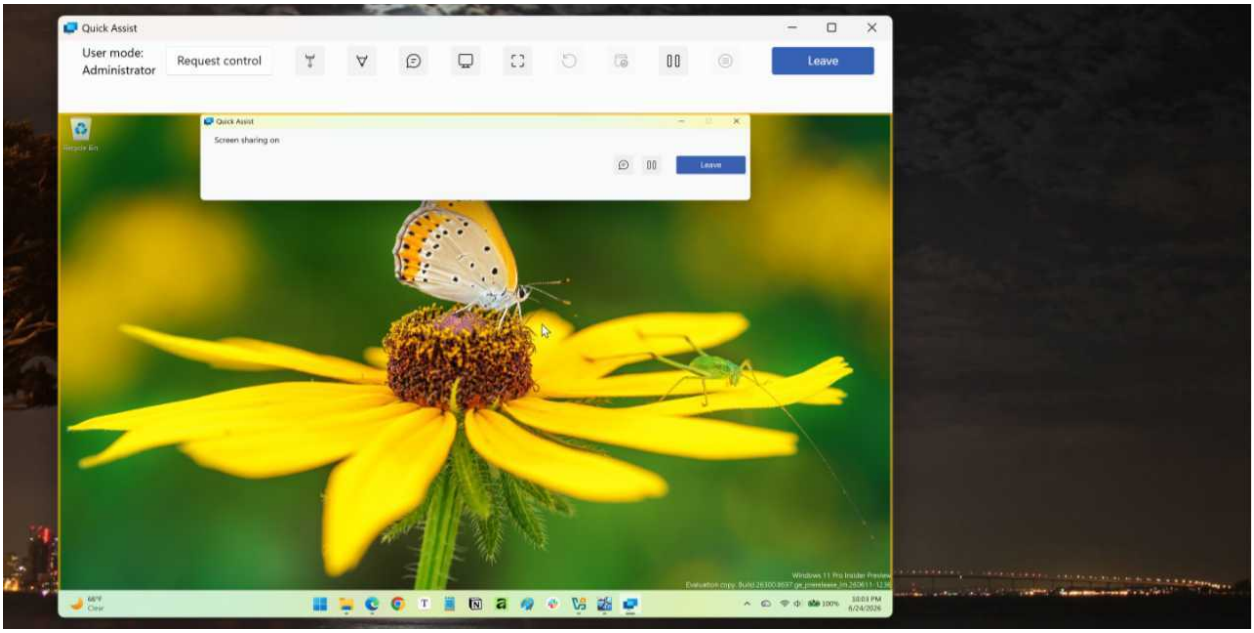


> **Tip**: The security code expires in 10 minutes. The helper will see a countdown in Quick Assist, and a new code will be generated every 10 minutes.

Now, the sharer can enter the security code in Quick Assist under "Get help" and begin the quick assistance session.

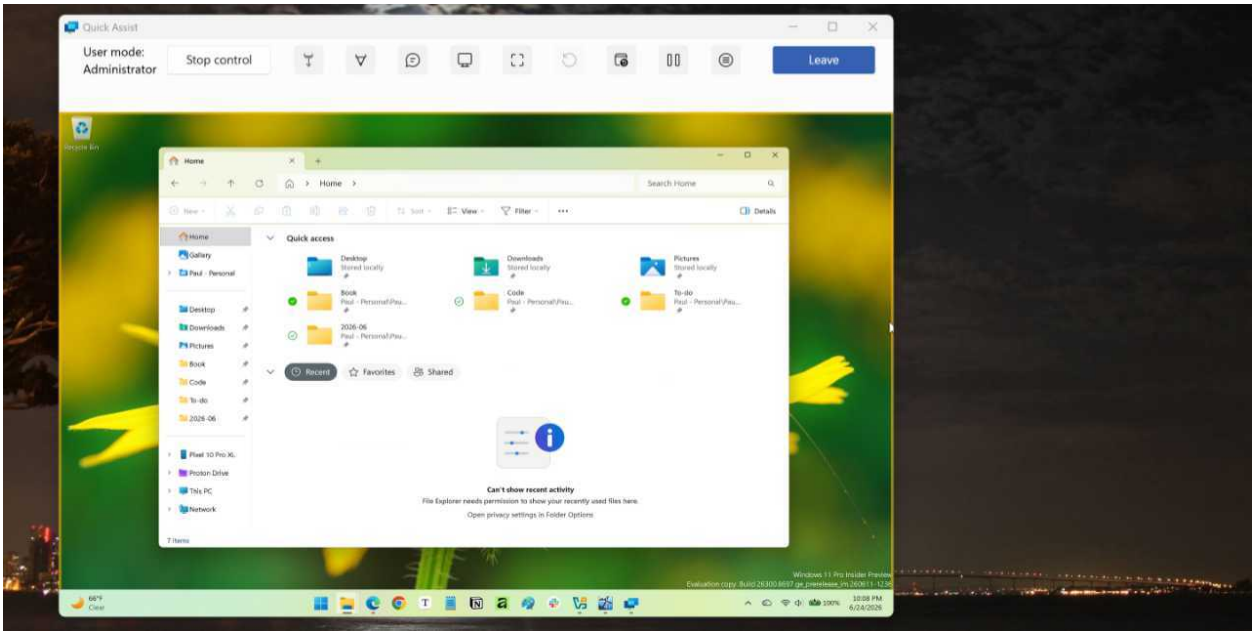


Once the connection is made, both people will see Quick Assist a bit differently. On the sharer's screen, it's a pane-like window at the top of the screen they can minimize. On the helper's screen, Quick Assist displays options–like a "Request control" button–and a resizable remote view of the sharer's screen while the two discuss the problem.

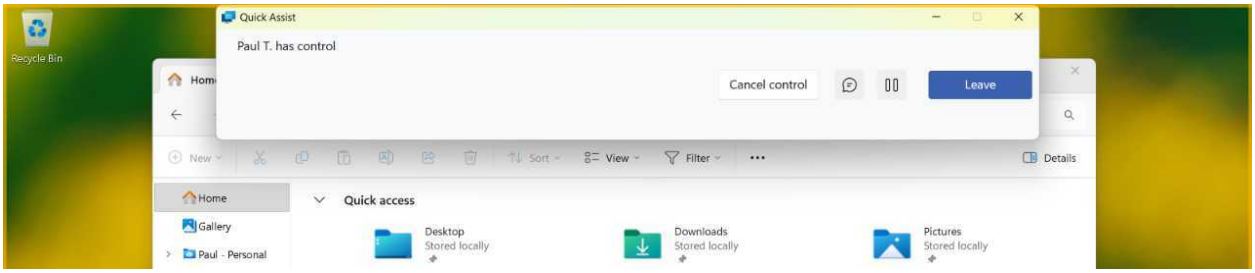


What you do here is based on the type of help being provided and whether the sharer is technical enough to take the troubleshooting steps given by the helper. If the helper is more technical than the sharer and would like to simply solve the problem, they can ask for permission to take control of the screen so that they can interact with the sharer's PC remotely.

> **Tip**: The most important thing to remember here is that the sharer is *always* in control: They can easily disconnect the helper at any time. So there's little to fear from giving someone–especially someone you know and trust–full control of your PC.



On the sharer's PC, the Desktop has a yellow border as a visual cue.



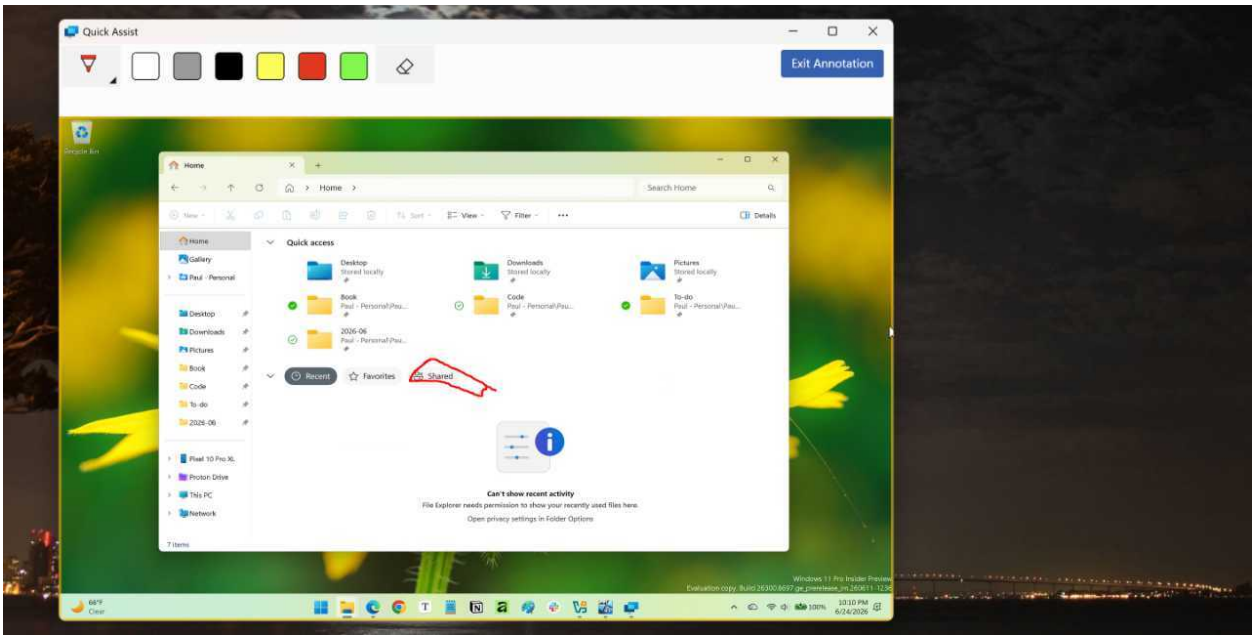
To disconnect the remote connection at any time, restore the Quick Assist window if needed and click the "Leave" button.

Control a sharer's PC

When the helper remotely controls the sharer's computer, they can also access several capabilities in Quick Assist using the buttons in the toolbar. Some of the more useful options here include:

- **Annotate**. Click this button to enter *Annotation* mode, which lets the helper write or draw on the sharer's screen in one of six colors or erase any annotations. This can be useful to

visually circle an on-screen item, perhaps. And annotations are not permanent, of course: They disappear when the helper closes Annotation mode.



- **Select screen**. Quick Assist can only display one remote screen at a time. If the sharer has multiple monitors, this button can be used to switch between them.
- **Actual size/Fit screen**. By default, Quick Assist shrinks down the sharer's Desktop so that it will fit inside its window. But you can toggle the display to "Actual size," which will cause the remote Desktop to zoom in to some degree.
- **Chat**. This button opens (or closes) a Chat panel in which the sharer and the helper can exchange text messages. (Either party can start communicating this way.)
- **Restart & reconnect**. This button will reboot the sharer's PC remotely. There's a 30-second delay so that the sharer can agree to reboot or cancel it.

> **Tip**: After the sharer's PC reboots and they have signed back into Windows, Quick Assist will run automatically and the connection between the two PCs will be restored.

- **Task Manager**. This button launches Task Manager on the sharer's PC.

Learn more: Task Manager

- **Pause**. Here, you can pause the quick assistance session, during which time the helper can no longer see the remote Desktop. (Either party can pause the session.)
- **Leave**. Click this button to end the quick assistance session.

Control a computer you're sharing

The sharer has fewer controls, but they can cancel control, open the Chat pane, pause the quick assistance session, or leave Quick Assist. This is all straightforward, though the Quick Assist window may be minimized to the Taskbar, so you need to know how to restore it to access its controls.

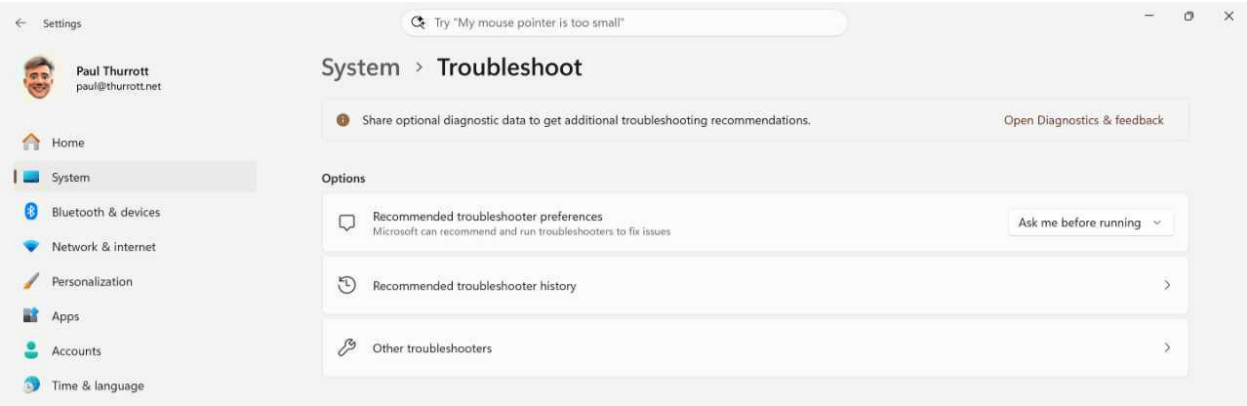
Troubleshooting

Windows 11 will try to automatically fix problems that occur on your PC. But when it cannot do so, its *Troubleshooting* platform will often present a *troubleshooter*, a built-in utility that will try to help you fix the issue. You can also manually access any of the available troubleshooters at any time.

Configure troubleshooting

By default, Windows 11 will ask whether you'd like to run a troubleshooter when an issue occurs. But you can configure this behavior.

To do so, open the Settings app and navigate to System > Troubleshoot.



There, you find just a few options.

- **Share diagnostic data to get additional troubleshooting recommendations**. This is a bold attempt to get you to agree to open up the telemetry data firehose. Do not do this.

> **Tip**: If you *do* click through an enable the sending of optional diagnostic data, you can reverse it later. Open Settings, navigate to Privacy & security > Diagnostics and feedback, and configure "Send optional diagnostic data" to "Off."

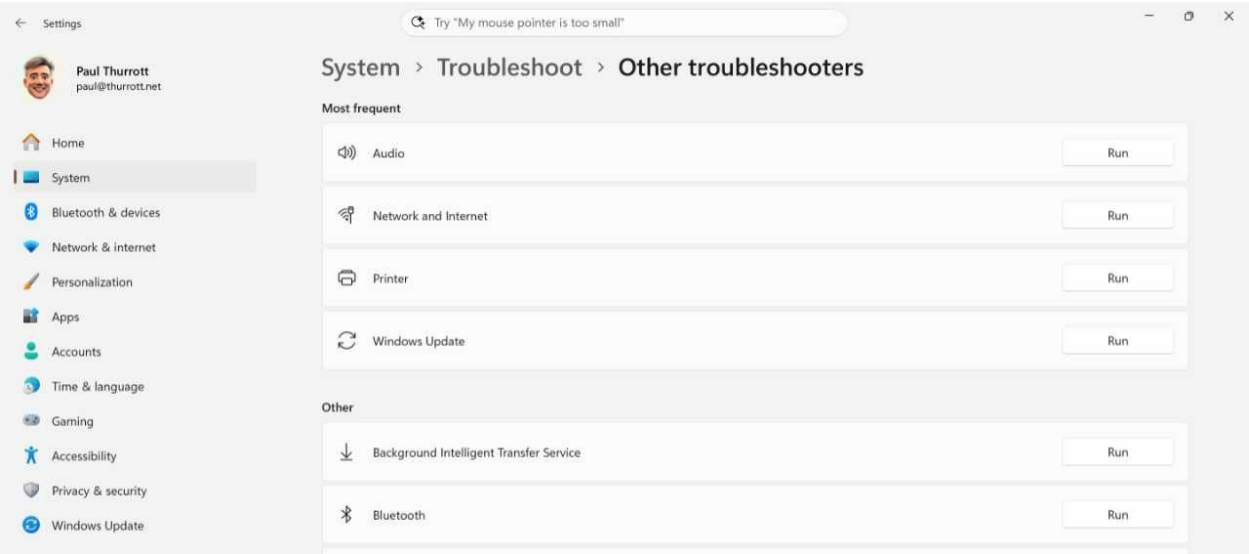
- **Recommend troubleshooter preferences**. This is set to "Ask before running" by default. You can optionally configure it to "Run automatically, don't notify me" or "Run automatically, then notify me" if you prefer. I never found a reason to make a change here, but if you're having repeated issues with Windows 11, it may be worth using one of the "Run automatically" configurations.

And that's it. The other two items you see here are tied to using the troubleshooters, not configuring them.

Find and run a troubleshooter

If Windows 11 hasn't asked you to run a troubleshooter when something goes wrong, you can find and run it manually.

To do so, open the Settings app and navigate to System > Troubleshoot > Other troubleshooters.



Here, you will find two lists of troubleshooters, "Most frequent" and "Other," which is obvious enough: Audio, Network and Internet, Printer, and Windows Update are the most commonly needed troubleshooters, but there are many others found under "Other."

Troubleshooters work the same no matter how they're triggered: Each has a set of conditions and diagnostics it can run, and it will step through each in turn, prompting you when possible to try different things. And each has links to contact support and find specific Microsoft Support articles. What differs is the details. Because of the specific nature of each troubleshooter, each has a different series of steps to perform.

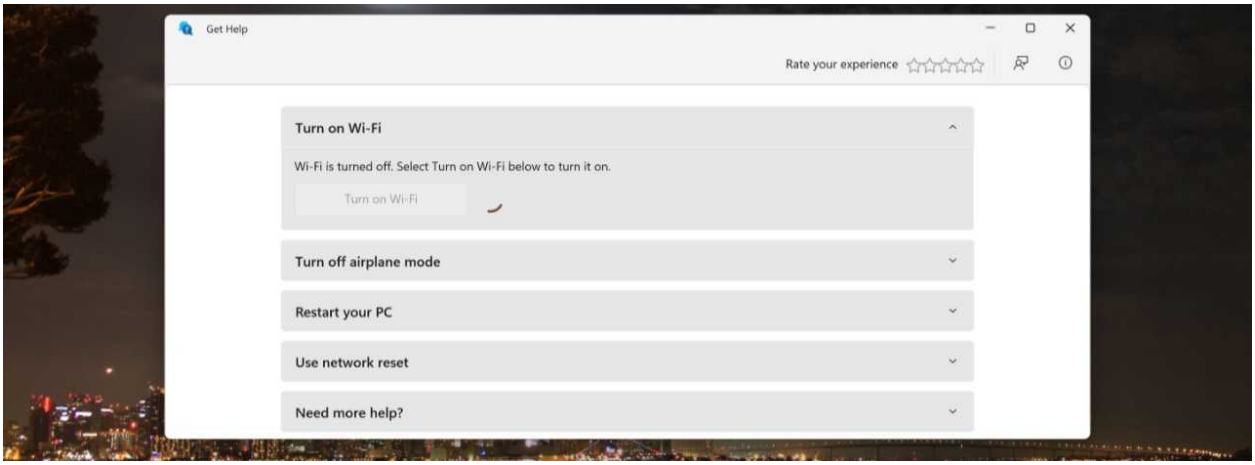
Here, I will examine two of the more common needs for this feature.

Troubleshoot your Internet connection

This is perhaps the most common issue: You try to visit a website, check your email, or perform a similar task that requires connectivity and it fails. What gives?

If this happens with Microsoft Edge, the browser will provide some recommended troubleshooting steps and provide a link for running "Windows Network Diagnostics," which is just a restyled version of the Internet Connections troubleshooter. Otherwise, you can run the troubleshooter manually in Other troubleshooters settings: Just select the "Run" button next to "Network and Internet."

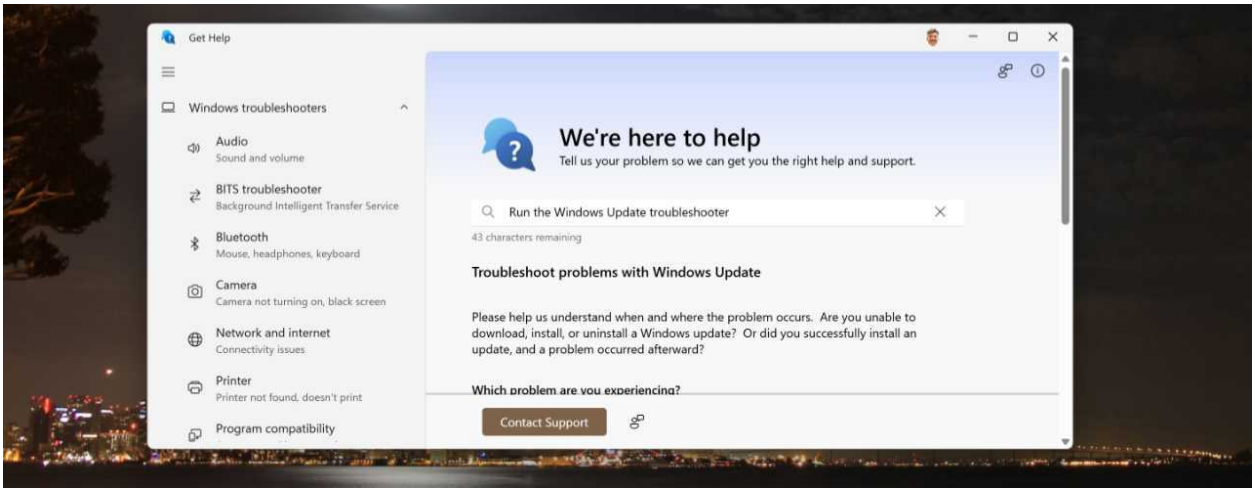
When you do, the Get Help app appears and runs a troubleshooter that examines your connectivity and steps through a series of recommended solutions ranging from the obvious–turn on your Wi-Fi adapter–to more aggressive steps, like rebooting the PC and resetting the network adapter. At each step, it will offer to run network tests to determine your connectivity, but this one is usually pretty obvious when it's working. There's also a QR-based link to visit Microsoft Support on another device that presumably does have Internet connectivity.



Troubleshoot Windows Update

Microsoft designed Windows 11 to download and install software updates in the background, and Windows Update is the primary interface for this functionality. Many users will let Windows Update do its thing and reboot the PC as prompted. But more experienced users will often check Windows Updates for updates manually. And, in doing so, they will sometimes experience issues in which an update seems to get "stuck" and never complete successfully.

These and other similar updating issues can be fixed with the Windows Update troubleshooter, which is found in Other troubleshooters: Just select the "Run" button next to Windows Update.



As with other troubleshooters, the Get Help app appears. But this one asks you about the type of problem you're experiencing–it could be an issue downloading, installing, or uninstalling an update or an installed update that is causing problems–and then follows up with a request to run an automated diagnostic. If it finds the problem, it will try to fix it automatically and then prompt you to see whether that worked. If it didn't work, the troubleshooter will continue and try other fixes.

Recovery drive

Before getting started with any of the Windows 11 recovery tools described below, you should consider creating a USB-based *recovery drive* that can be used to boot your PC into the *Windows Recovery Environment*. This is important because it can be used when your PC isn't booting normally, or at all.

To get started, you need a USB flash drive, though the size will vary depending on which method you choose. There are two choices:

- **Recovery drive**. Using the Recovery drive utility in Windows 11, you can create a bootable USB-based recovery drive. This method requires a drive with at least 32 GB of storage and the resulting drive isn't particularly versatile.
- **Windows 11 installation media**. You can use the Microsoft Media Creation Tool or a third-party utility like Rufus to create bootable USB-based Windows 11 installation media that can be used like a recovery drive *or* to install Windows 11. This method also requires you to download a Windows 11 ISO file, but you only need an 8 GB USB drive.

Given the above, I strongly recommend creating and using Windows 11 installation media for recovery purposes.

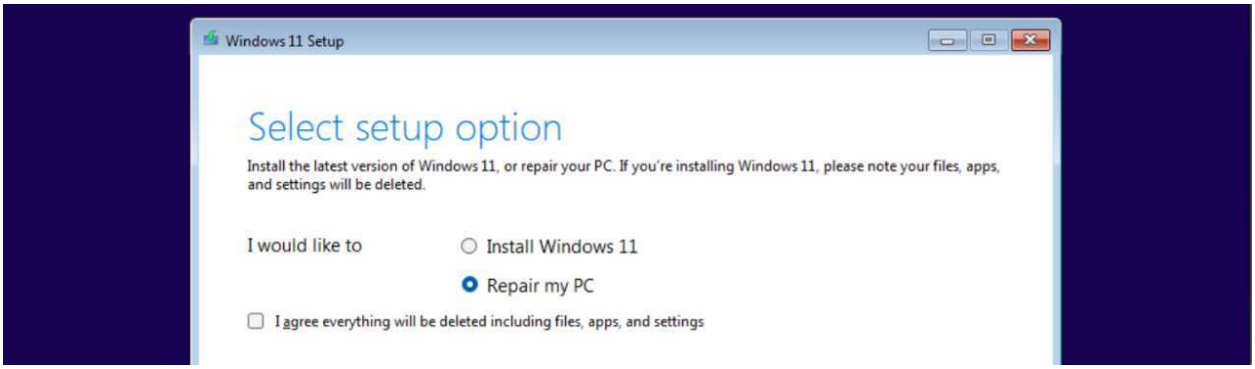
Create and use a standalone recovery drive

If you just want to create a recovery drive, it's simple enough: Find the Recovery Drive utility using Start Search, make sure the "Back up system files to the recovery drive" is checked, insert your flash drive, and let the wizard do its thing.

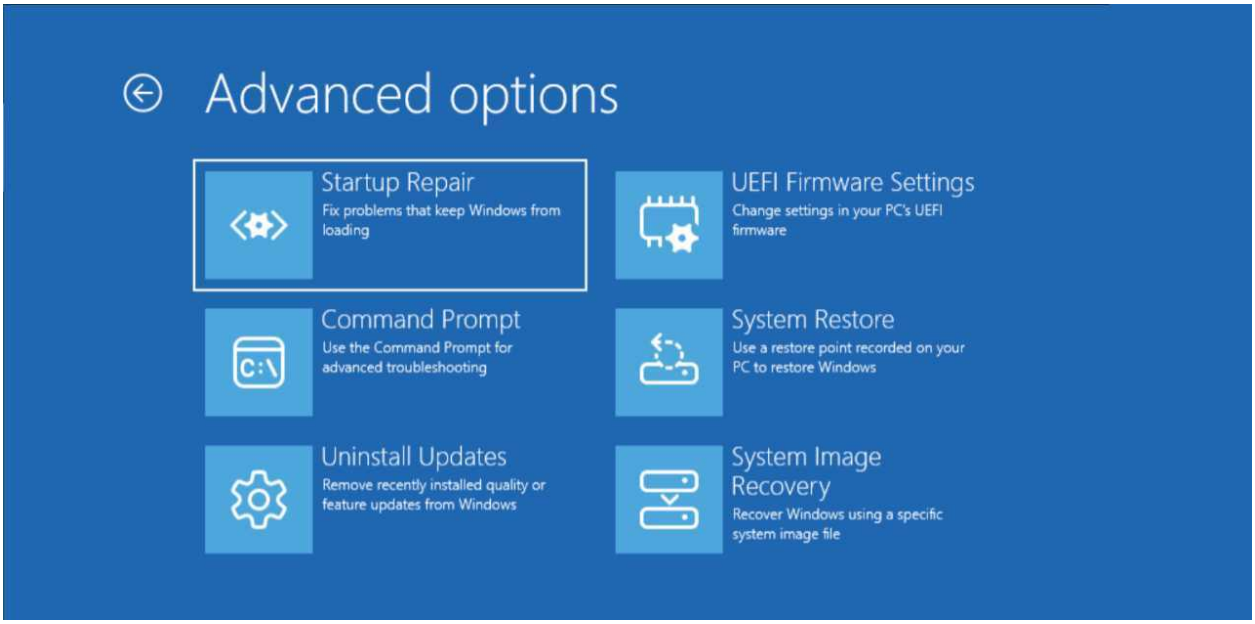
To use the recovery drive, you have to reboot the PC and somehow interrupt the normal boot process so that it boots from USB instead of the system drive. How you do so will vary by PC. But when you do boot with the recovery drive, a blue Windows Recovery Environment screen titled "Choose an option" appears. Click "Troubleshoot" to view the available repair and recovery tools or "Recover from a drive" to reinstall Windows 11 using the recovery drive

Use Windows 11 installation media as a recovery drive

I describe how to create Windows 11 installation media in the Install chapter. Using this drive is similar to using a standalone recovery drive, but there are a few additional steps: When the PC boots, Windows Setup appears. Click through the first two steps in this wizard–"Select language settings" and "Select keyboard settings"–to arrive at the "Select setup options" screen.



Here, select "Repair your computer" and then click "Next." Choose the correct keyboard layout in the next screen and then choose "Troubleshoot" in the "Choose an option" screen that appears. In the "Advanced options" screen that appears, you can select between various recovery options.



Quick Machine Recovery

Quick Machine Recovery (QMR) is a new Windows 11 recovery option that enables your PC to automatically recover from critical issues that previously would have prevented it from successfully booting. This can save a lot of time that would otherwise be spent troubleshooting the problem yourself.

Quick Machine Recovery automatically detects when your PC repeatedly fails to boot into Windows successfully, and it boots into the Windows Recovery Environment (WRE) instead, establishes a Wi-Fi or Ethernet network connection, and scans Windows Update to see whether there is a fix for the issue your PC is experiencing.

If a fix is available, Quick Machine Recovery downloads and installs it and reboots the PC.

If there's no fix, Windows will attempt to boot into the Desktop.

> **Tip**: If the PC can't connect to the Internet, Quick Machine Recovery will fall back to Startup Repair, a recovery tool available in the WRE.

> **Tip**: You can also access QMR directly from the Windows Recovery Environment. To do so, enter the WRE and navigate to Troubleshoot > Advanced options > Quick machine recovery.

Defaults

Quick Machine Recovery is enabled by default for individuals, and it is configured as described below.

Customize

For the most part, Quick Machine Recovery is something you don't need to think about. But you can review how it's configured using the Settings app by navigating to System > Recovery > Quick machine recovery and optionally making any changes you feel are necessary.

> **Keyboard shortcut**: Type Windows key + I to open Settings.

Here, you will find the following options.

Quick machine recovery. If you wish to disable Quick Machine Recovery for some reason, configure this to "Off."

> **Tip**: Leave this one alone. Hopefully, you never need Quick Machine Recovery, but you will be happy to have it if it's ever needed.

Look for solutions. This option is configured to look for a solution once by default. But you can choose to have Quick Machine Recovery check for a solution every 10 minutes, 30 minutes, 1 hour, 2 hours, 3 hours, 6 hours, or 12 hours if desired.

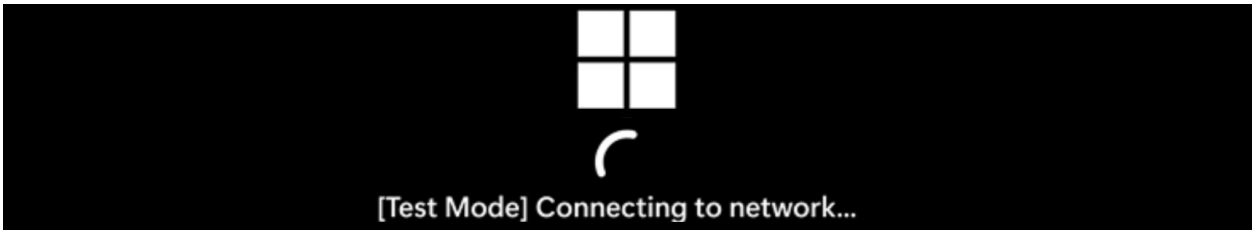
Test that Quick Machine Recovery is working

It's rare to find yourself in a situation in which your PC can't boot successfully into Windows 11, so it's unlikely that you'll ever experience Quick Machine Recovery. But you can simulate a boot issue with your PC and verify that this feature is working correctly.

To do so, run the Terminal app with administrator privileges and type the following commands one at a time (tapping Enter after each) to enable QMR's test mode and then configure Windows to boot into the Windows Recovery Environment:

```
reagentc.exe /SetRecoveryTestmode
reagentc.exe /BootToRe
```

Then, reboot the PC. It will boot into a recovery mode in which it first tries to connect to the Internet; if you're using Wi-Fi, you will need to select the network and enter its password when prompted. Then, QMR will look for solutions to this imagined problem, find one, and then attempt to repair the boot process. Since this is a test, that will always work, and then Windows 11 will boot normally, and you can sign-in when the Lock screen appears.



Point-in-time restore

Point-in-time restore is a new system recovery utility that helps you quickly return your PC to previous state.

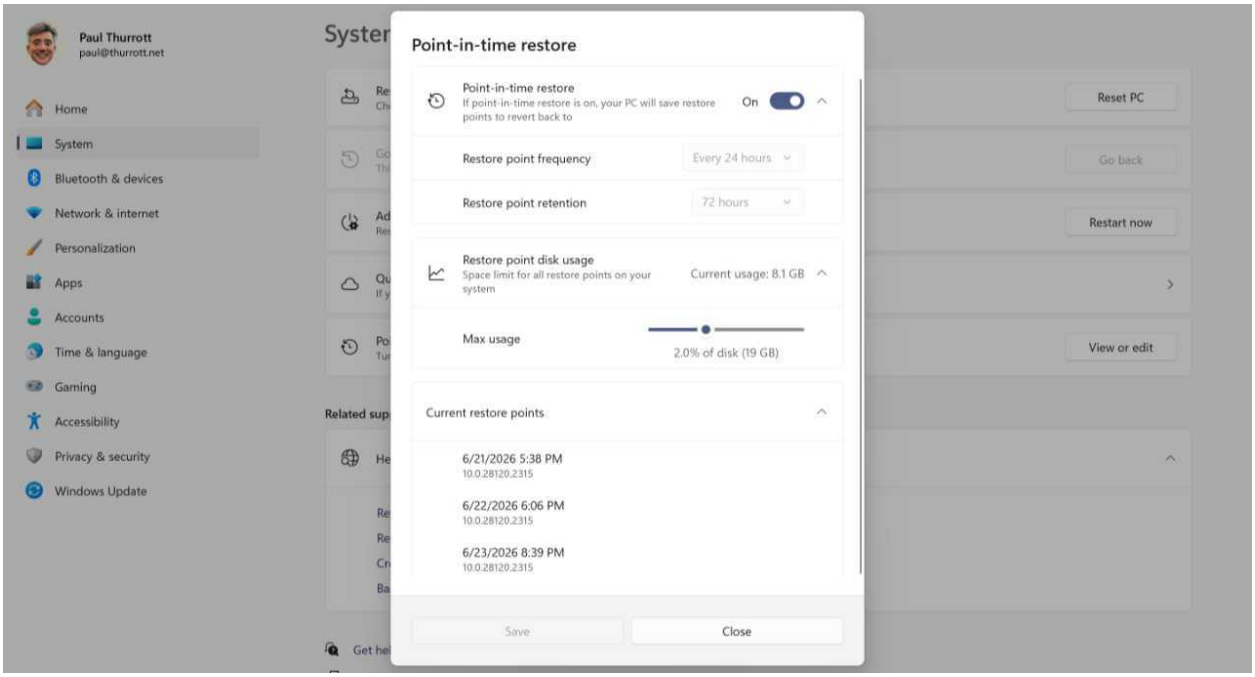
Defaults

Point-in-time restore is enabled by default. It automatically creates and stores a *restore point* on your PC every 24 hours that include the system state, all installed apps, configured settings, and all user data. Then, it continues making new restore points each day. When a restore point is 72 hours older or older, it is deleted automatically. And if the total restore point storage exceeds a limit you can configure, Point-in-time restore will simply overwrite the oldest restore point with the newest one.

> **Tip**: Yes, this is a modern replacement for the legacy System Restore feature, one that has several advantages over its predecessor. Key among them, it's automatic, includes your documents and other user data, and it minimizes disk space usage.

Configure

Point-in-time restore supports just a few configurable options for individuals using Windows 11. To see what's available, open Settings and navigate to System Recovery. There, you will find a "Point-in-time restore" option with a "View or edit" button you can click to see its options (after dealing with a User Account Control dialog).



There's not much, but you can configure:

- **Point-in-time restore**. This toggle determines whether this feature is enabled or not. Leave it on.
- **Max usage**. By default, Point-in-time restore uses 2 percent of your disk space to store its restore points. You can configure a different amount of storage using this slider with a 2 GB minimum and a 50 GB maximum.

That's it. The automatic restore point storage frequency and retention time frame can't be changed in any way. You can also can't manually create a restore point arbitrarily.

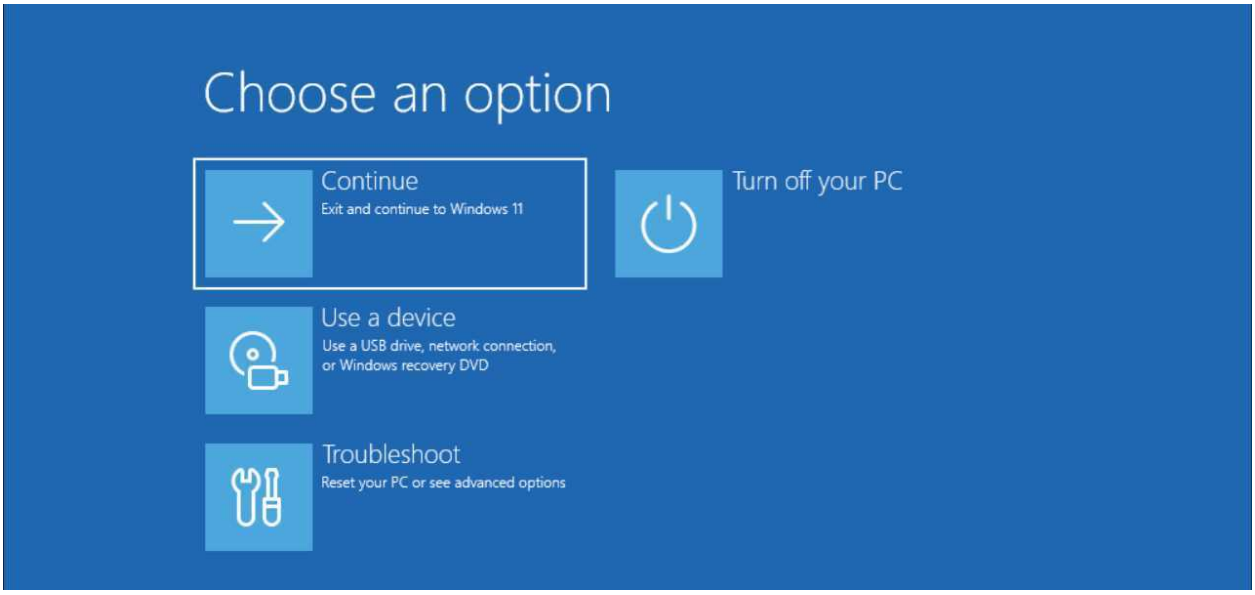
Restore your PC to a previous state

Oddly, you cannot restore your PC to a previous state from within Windows 11. Instead, you have to reboot into the Windows Recovery Environment (WRE) and trigger a restore from there. As inconvenient, you will also need to find the BitLocker recovery key for this computer to restore it to previous point in time.

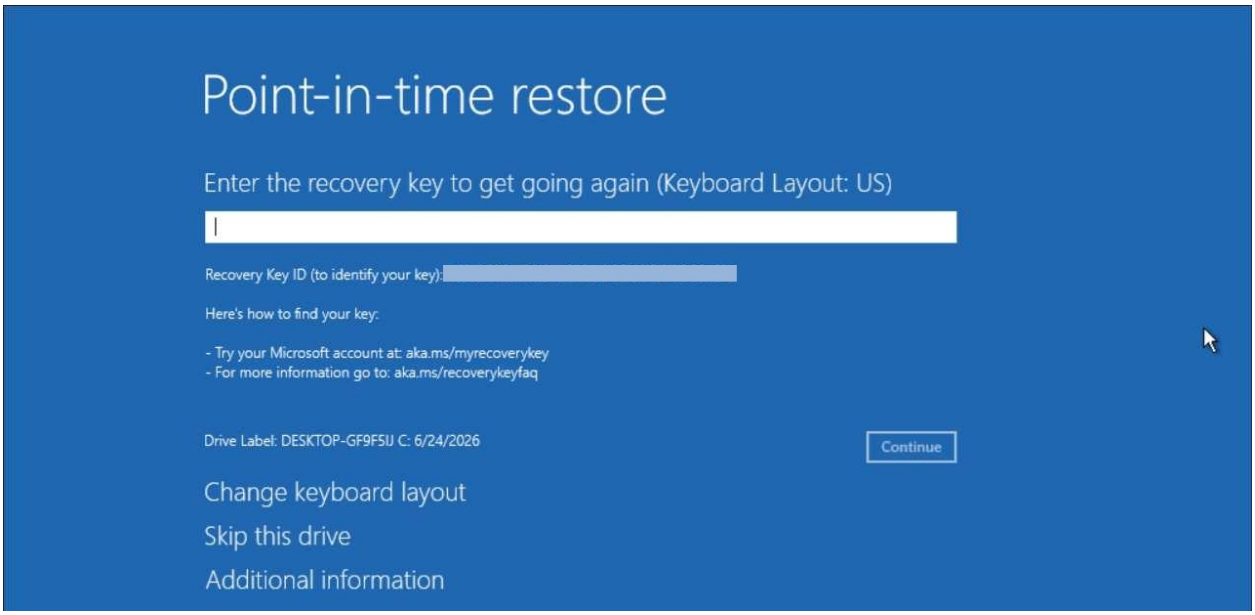
> **Learn more**: Find and use a BitLocker recovery key

To restore your PC to a previous state, close all running apps, open Settings, and navigate to System > Recovery. Click the "Restart now" button next to "Advanced startup" then click "Restart now."

The PC will reboot into the WRE.



Click “Troubleshoot.” Then, in the “Troubleshoot” screen that appears, click “Point-in-time restore.” Here, laboriously enter the 48-character recovery key and click “Continue.”



In the next screen, you select a restore point–typically the most recent one–and then click “Continue.” After reviewing the restore point and the warning about data loss, click “Restore” to restore the PC to the point in time when that restore point was created. The PC will reboot into Windows 11 normally when this is done.

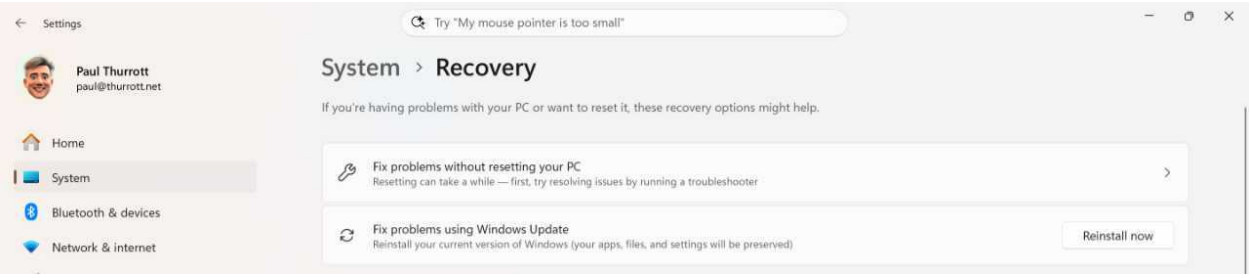
> **Tip**: The only data loss risk is that Point-in-time restore cannot restore files that were stored or modified locally *after* the restore point you choose. But this assumes those files aren’t in cloud storage. If newer files are stored in OneDrive or some other service, they will still be present after you restore the PC.

Reinstall Windows with Windows Update

Reinstall Windows with Windows Update is a new system recovery utility that’s less destructive than Reset This PC. It works similarly to the *refresh* options in Reset this PC, but it retains *all* the apps you’ve installed, including those you acquired from the web. If the goal is to fix problems with Windows while retaining your user account, data, settings, and apps, this should be the first thing you try.

Locate Reinstall Windows using Windows Update in Settings

As with Reset this PC, this feature is found in Recovery settings in the Settings app. This is the rare instance in which using the “Find a setting” box in Settings comes up short if you just use the feature’s name. But you can find it by navigating to System > Recovery. It’s at the top, where it’s called Fix problems using Windows Update.



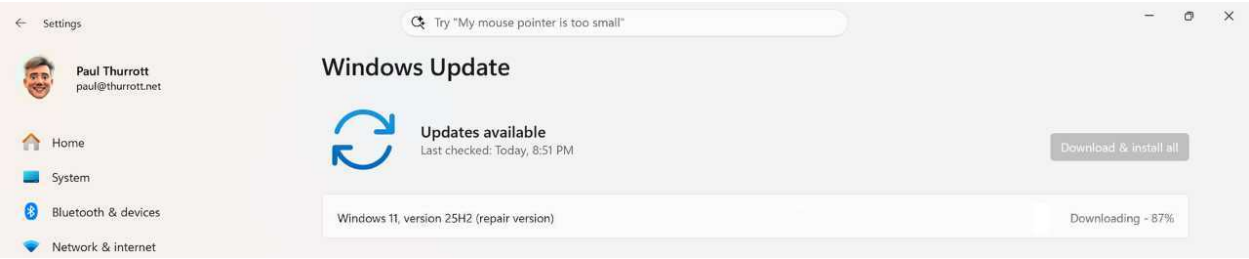
Tip: You should install any pending Windows Updates before using this repair feature.

Reinstall Windows using Windows Update

To get started, click the “Reinstall now” button next to “Fix problems with Windows Update.” The “Fix problems with Windows Update” window appears, providing a simple wizard-based interface for completing this task.

> **Tip**: Be sure to plug the computer into power as advised here.

After optionally selecting "Automatically restart my PC 15 minutes after installation," click "OK" to continue. Settings will navigate to the Windows Update settings page and check for updates. It's looking for a specific update, the repair version of Windows 11.



When Windows Update finishes downloading this file–it could take 20 to 30 minutes, depending on your Internet connection speed–it will prompt you to restart. If needed, close any open apps and windows, and then click "Restart now." Windows Setup will run between reboots, while Windows is offline and unavailable, and will reinstall the OS. After the final reboot–this process takes about 20 to 30 minutes, depending on the PC–you will be prompted to sign in normally, and you will go directly to the Desktop, as is normally the case.

And that's it. If this didn't solve a problem you're experiencing, you will need to call in the big guns, meaning Reset this PC. It's possible a full reinstallation–a reset–is required.

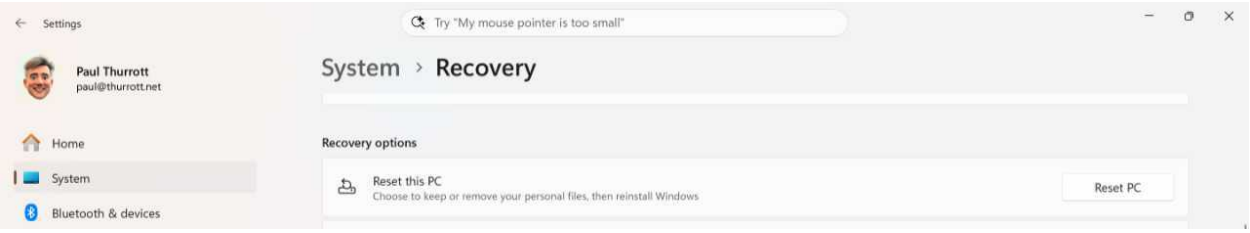
Reset This PC

Reset this PC is a system restore tool that helps you quickly reinstall Windows 11 and return it to a pristine, error-free state similar to how it was the first time you turned it on. You can do so in two ways: a *refresh,* in which Windows 11 is reinstalled but you keep your existing Microsoft account, its personal files, and any installed Microsoft Store apps, or a *reset,* in which Windows 11 is reinstalled and behaves as if used on a new PC for the first time.

Find Reset this PC

Reset this PC is available from multiple places:

- **Settings**. You can find Reset this PC in the Settings app in Windows 11: Navigate to System > Recovery and you will find a "Reset this PC" option under "Recovery options."



- **Windows Recovery environment**. Reset this PC is one of the recovery tools available in this offline troubleshooting experience. To get to it, navigate to System > Recovery, find the Advanced startup option under "Recovery options," and click the "Restart now" button. When the PC reboots, click "Troubleshoot" and then "Reset this PC."
- **Recovery drive**. If you created a recovery drive or Windows 11 installation media as described above, you can boot the PC with that drive, make your way to the Windows Recovery Environment, choose "Troubleshoot," and then "Reset this PC."

Unless your computer is not booting into Windows 11 correctly, the most typical way to access Reset this PC is via the Settings app, so I will focus on that here. But all of these methods work similarly.

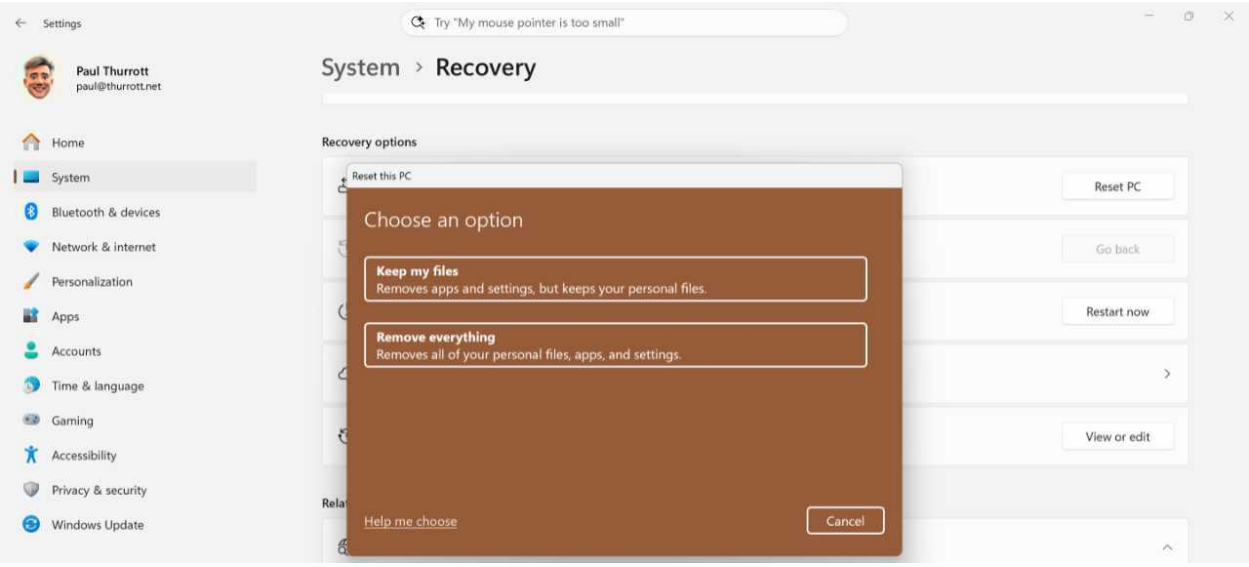
> **Tip**: Reset this PC can be customized by your PC maker so that it includes their bundled apps and utilities too. But you can override this choice if you'd like to avoid installing those programs, as noted below.

> **Tip**: Reset this PC can use a local or cloud-based Windows install image when resetting (or refreshing) Windows 11. The local image–that is, the version stored in a hidden partition on your PC's primary storage device–is updated to the latest version each time you install a feature update. The cloud-based version is always up-to-date.

Be prepared. Reset this PC is inherently destructive, since it will wipe out your current Windows 11 installation and then reinstall the system from scratch. As such, you should proceed carefully: Back up any important documents and other personal files if possible, and prepare to reinstall any desktop applications you use.

Use Reset this PC to refresh or reset your PC

When you run Reset this PC, you'll be presented with a choice.



Available options include:

- **Keep my files**. This is the *refresh* option, where Windows 11 is wiped out and then reinstalled, but your user account and, optionally, its documents and other data are retained, along with any Microsoft Store apps you may have installed. If you choose this option, desktop applications are deleted and will need to be reinstalled manually.
- **Remove everything**. Here, Windows 11 is *reset*: everything on your PC–your user account, data, settings, applications, whatever–is deleted, and Windows 11 is reinstalled, bringing your PC back to the way it was when you first received it. When it's done, you will need to sign in with a user account as if it were the first time you've ever used the PC and then reinstall any apps you wish to use.

> **Tip**: If you recently upgraded the PC from one Windows version to another, you may see a third option, "Restore factory settings," which can be used to reset the PC to the previous version. This option is only available temporarily after you install an annual Windows 11 Feature update.

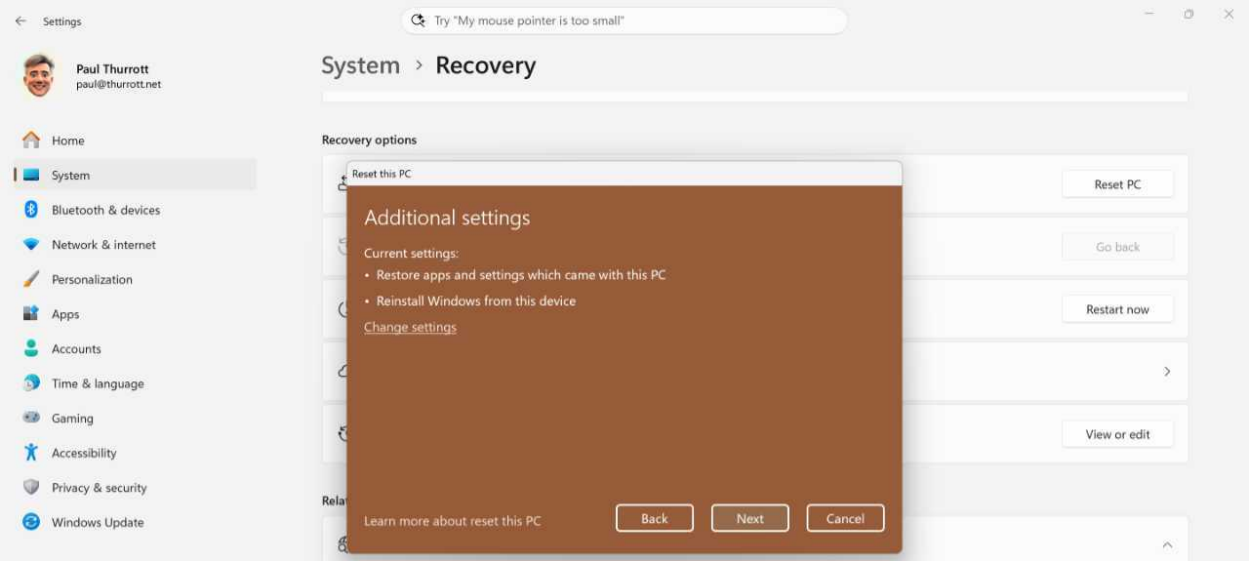
To refresh your PC, choose "Keep my files." This option reinstalls Windows 11, keeps your Microsoft account and any personal files, and removes any settings changes you've made.

To reset your PC, choose "Remove everything." This option reinstalls Windows 11, removes your Microsoft account and any personal files, removes any settings changes you've made, and removes any apps and utilities that were installed by your PC maker.

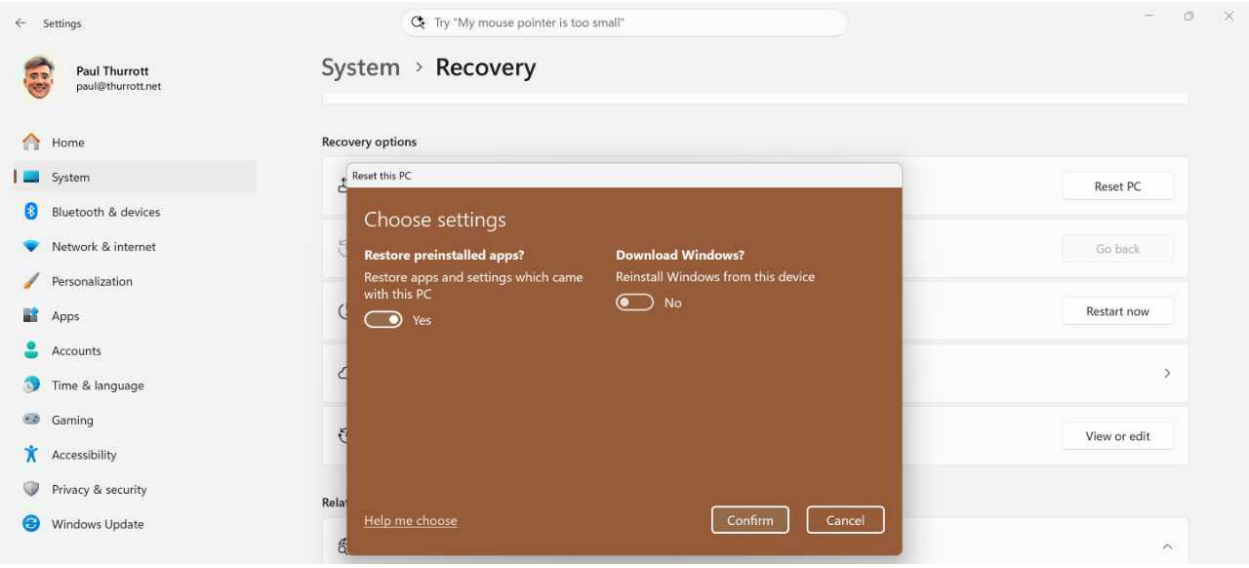
The next steps are nearly identical whether you want to refresh or reset the PC.

In the next screen, you're asked to choose between a cloud download, in which the latest Windows 11 installation image is downloaded from Microsoft, and a local reinstall, in which case it uses the Windows 11 installation image that is already on your PC. The latter option is faster.

Next, you can optionally choose additionally settings.



Be sure to click the "Change settings" link here before proceeding as you will see additional options.



Here, you can optionally enable:

- **Restore preinstalled apps?** If set to "Yes," as it is by default, Reset this PC will reinstall your PC maker's bundled apps and utilities as part of the refresh process. If you change this to "No," those programs will not be reinstalled.
- **Clean data?** Seen only when performing a reset, this option is set to "No" by default, so Reset this PC will not fully clean the disk. This is the correct setting if you are simply going to continue using the PC yourself, as it is much faster. However, if you are selling or giving away the PC to others, you should change this to "Yes." Doing so will make the reset process take longer, but your personal data will be securely wiped from the drive.

> **Tip**: If your PC has more than one physical drive, you will also be asked if you wish to remove files from all the drives. Be careful here, especially if you are using a secondary drive for data that you don't want to be erased.

- **Download Windows?** This is another chance to choose between a cloud download and a local reinstall. It should be set according to the choice you made earlier.

Click "Confirm" to continue and then "Next" to begin the restore process, which should take 20 to 30 minutes for a local reinstall or longer if you chose the cloud download. This process typically requires two reboots and includes two distinct phases: A resetting phase in which the screen has a black background and then a longer installing phase in which the screen has a medium blue background.

What you see when it's done will vary.

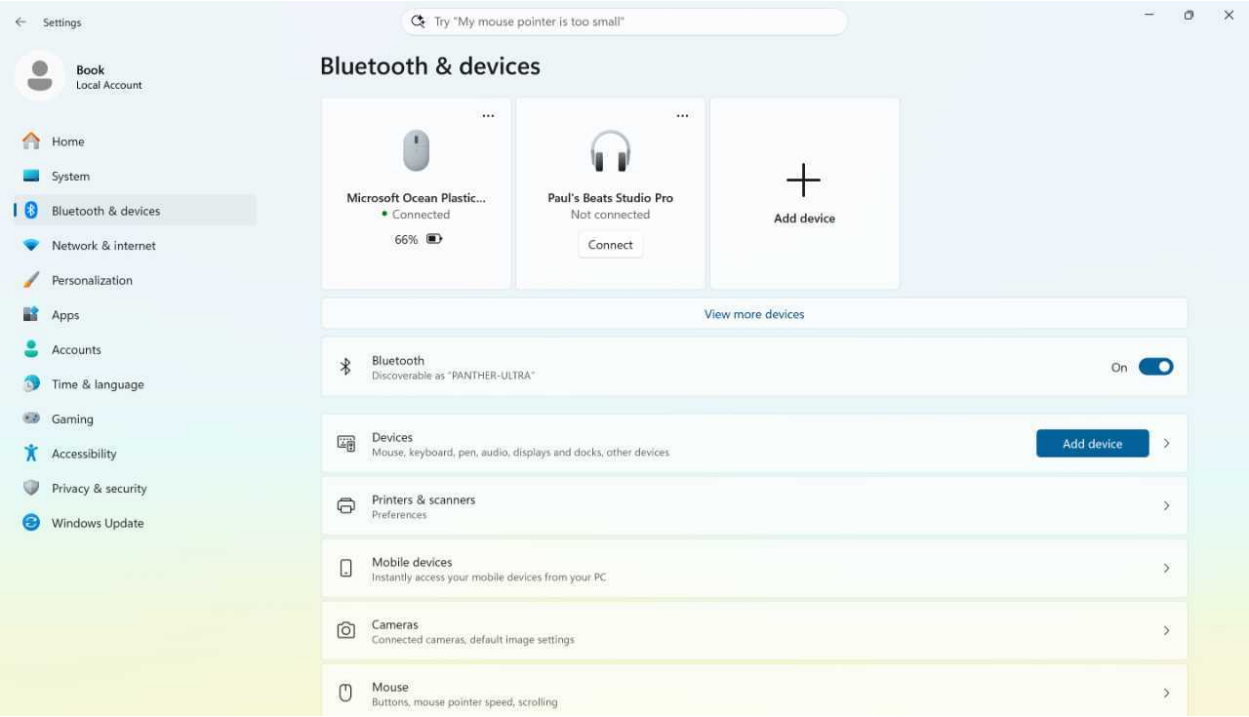
If you did a refresh, you will land on the Windows 11 Lock screen so you can sign in using your previously configured account. When you navigate to the Desktop, you will find a web document called Removed Apps that will list the desktop applications you previously had installed on this PC and, when possible, hyperlinks so that you can find them on the web and reinstall them. (Your installed Store apps are available as before.)

If you did a reset, the PC will reboot into Windows Setup and the Out of Box Experience (OOBE)–described in the Install chapter–that you use when setting up a new PC.

Hardware Device Basics

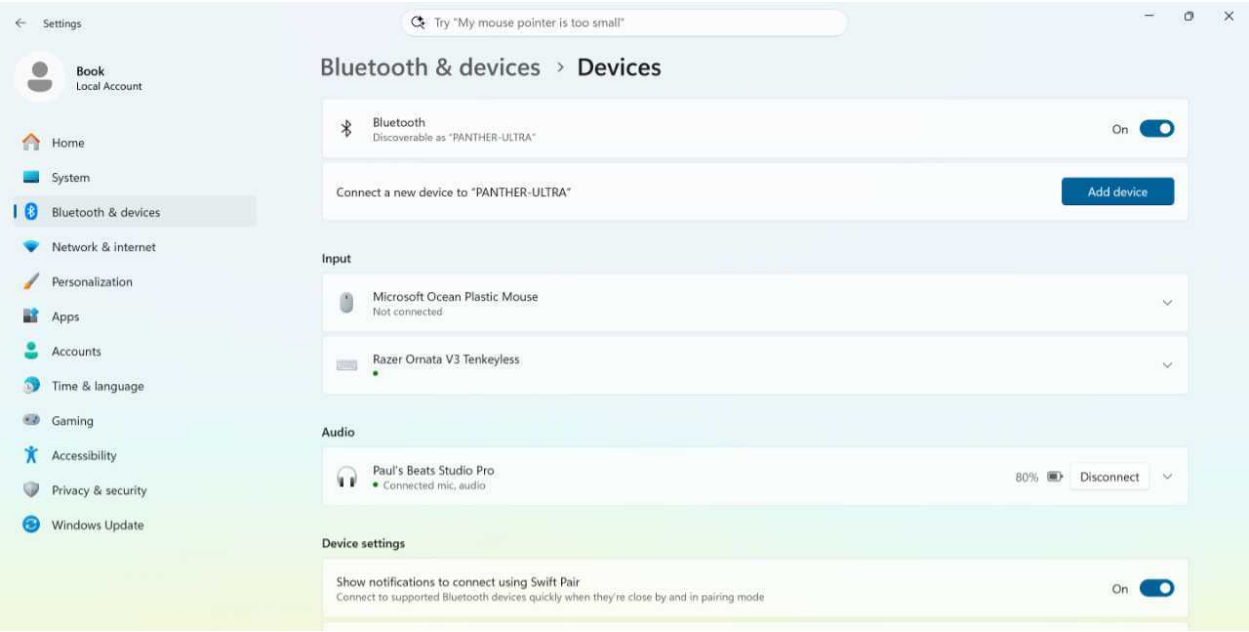
Your PC is compatible with a wide variety of external hardware devices, including keyboards, mice and touchpads, removable and network-based storage, printers, multiple displays, and more. Windows 11 ensures that most of these devices work with little or no intervention on your part. But some require additional configuration.

Most hardware devices and peripherals you connect to your PC are configured in Bluetooth & devices settings. To find this interface, open the Settings app and navigate to Bluetooth & devices.



> **Tip**: Some entries, like those for Mouse and Touchpad, only appear when those peripherals are available. Pen & Windows Ink, curiously, appears regardless of whether your PC even supports those capabilities.

Bluetooth & devices settings lets you add and configure the many types of devices that work with Windows 11. But you can also click the "View more devices" link just above "Bluetooth" to access settings for devices you've already connected to this PC and other areas of the Settings app related to hardware, including those for Sound and Display settings.



Connect a device to your PC

When you connect a new hardware device to your PC, Windows will try to install a basic *class driver* so that you can begin using it right away. Sometimes, you will see a notification banner alerting you when this happens, sometimes it will just work.

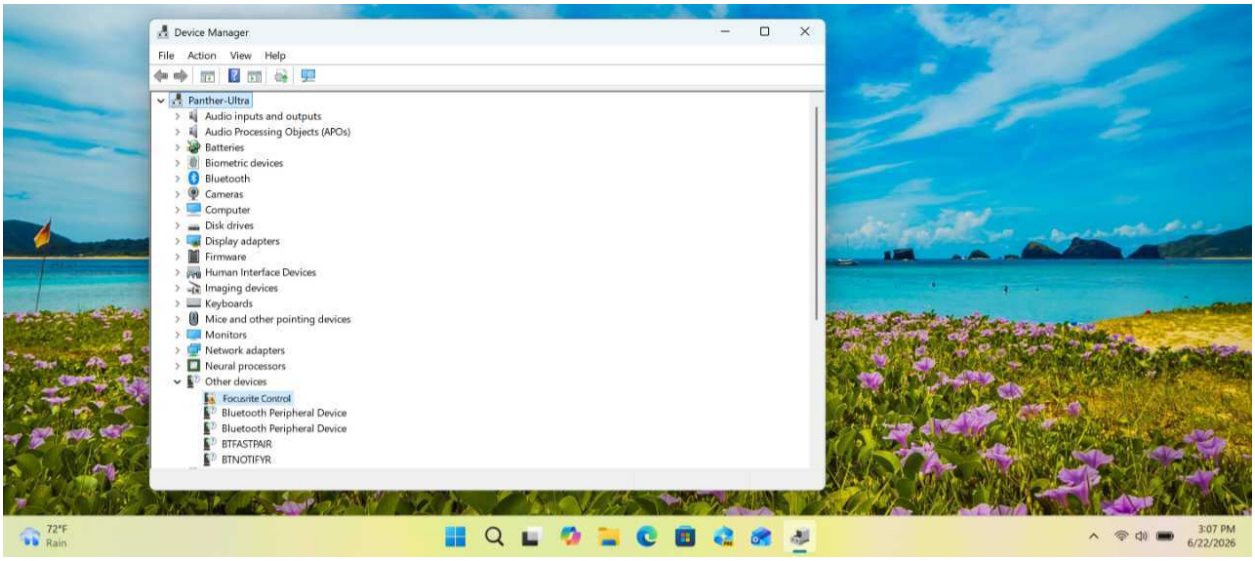
Windows 11 will also look to Windows Update for better or updated drivers and other software. So you should consider visiting Windows Update after connecting a new device to see whether updated drivers are available.

> **Tip**: As you probably know, Windows Update can be found by opening Settings and navigating to Windows Update.

Sometimes neither Windows 11 nor Windows Update can supply a driver. The easiest way to see this isn't all that easy, as you have to find and launch the legacy utility Device Manager. You can do so via Windows Search–just type *device* to find it in the search results–or right-click the Start button in the Taskbar and choose "Device Manager" from the Quick access menu that appears.

> **Keyboard shortcut**: You can also open Quick access by typing Windows key + X.

When a hardware device isn't correctly configured with a working driver, you will see a yellow exclamation point (or "bang") next to it in Device Manager.



That's your cue to find the hardware maker's website and download the driver directly.

Indeed, even if Windows 11 or Windows Update offered a device-specific driver, you can oftentimes find a newer or better driver from the device maker's website. And those drivers may be accompanied by software utilities that you might find useful. That varies by device, of course.

USB

USB–or, *Universal Serial Bus*–is the most common hardware standard for physically connecting external peripherals to your PC. These types of peripherals–storage devices like flash drives and hard drives, smartphones, printers, keyboards, and so on–are called *removable devices* because they can be disconnected, or unplugged, from the PC at any time. And so Windows 11 tries to handle these connection and disconnection events as gracefully as possible.

Determine what happens when you connect a removable USB storage device

Many USB devices, like keyboards, will just silently work when you connect them to your PC, with Windows 11 quickly identifying them and installing the in-box drivers they need. But other devices, like removable storage devices, will trigger an standard *AutoPlay* notification in the lower-right of the screen asking if you would like to perform a certain action each time that device is connected.

If you click this notification, an old-fashioned-looking menu of available choices appears … in the upper-right of the screen. For some reason.

> **Tip**: If you miss the notification, you can find it in the Notification center.

If you later change your mind, open the Settings app, navigate to Bluetooth & devices > AutoPlay, select the drop-down under "Removable drive" (or "Memory card"), and make a new choice.

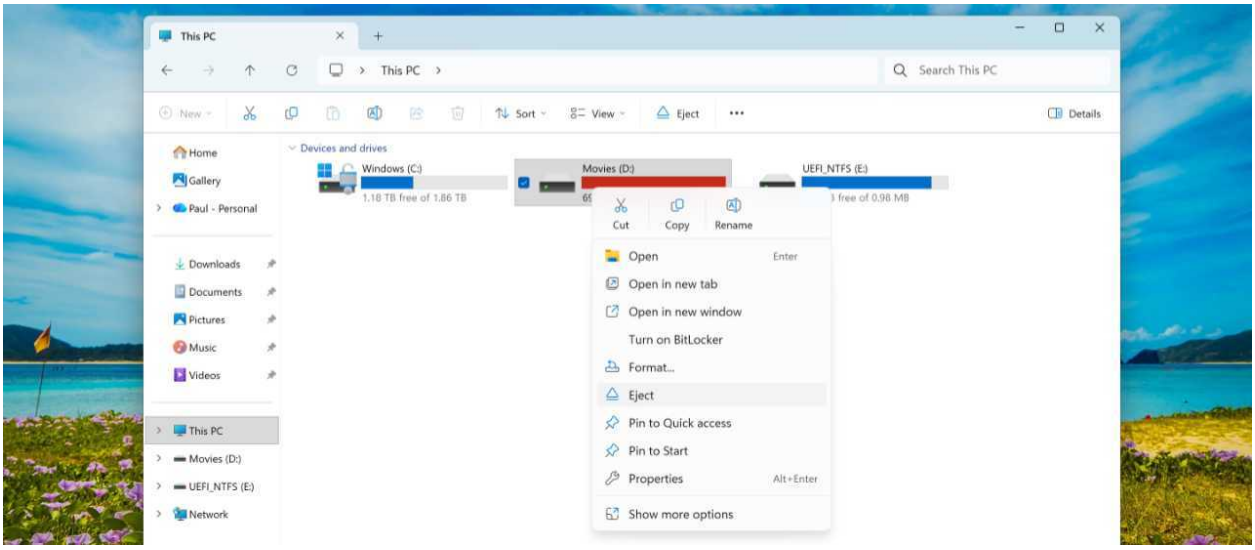
> **Learn more**: Storage

Unplug a USB device

For the most part, you can simply unplug a USB device from your PC when you're done using it. But because USB storage devices often contain important personal data, you should remove those drives from the PC safely. This gives Windows 11 time to make sure any file transfers are complete.

There are a few different ways to do this, but the most common are:

File Explorer. To safely remove a USB storage device using File Explorer, open File Explorer and navigate to the This PC view. Then, locate the drive you'd like to unplug, right-click it, and choose "Eject" from the context menu that appears. A banner notification will appear telling you that it's now safe to unplug that device.



> **Tip**: You can also do this by right-clicking the drive in the navigation pane.

Taskbar. To safely remove a USB storage device from the Taskbar, locate the "Safely Remove Hardware and Eject Media" icon in the system tray. It's usually in the overflow area that's accessed by clicking the "Show hidden items" icon that resembles a caret). When you click this icon, it will display a list of the available removable storage devices. Click the storage device you would like to unplug, and a banner notification will appear telling you that it's now safe to unplug that device.

Bluetooth

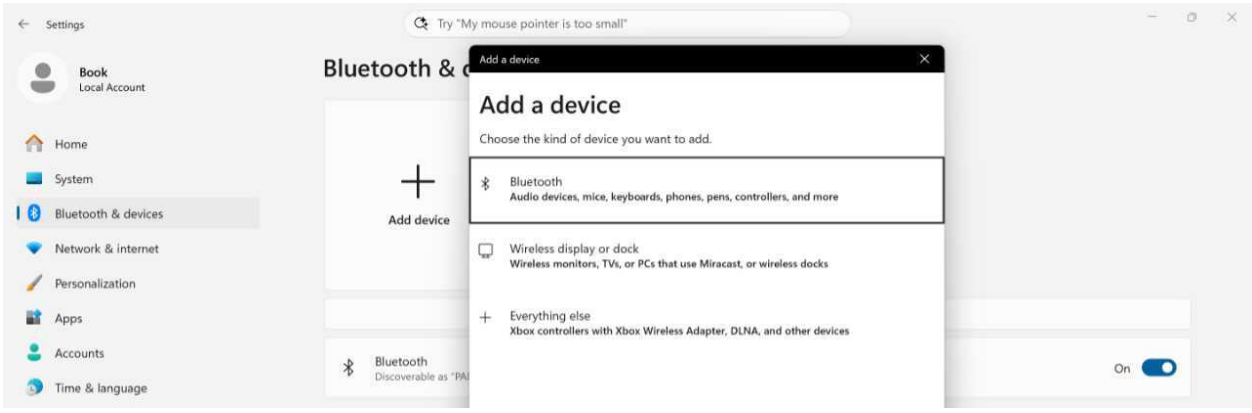
Bluetooth is a wireless technology that *pairs* compatible devices over a short distance, creating a so-called *personal area network*, or PAN, that they can use to exchange data. Many PCs, including all portable PCs, include Bluetooth radios so that you can pair Bluetooth devices like keyboards, mice, headphones, and phones with your PC and manage them using Windows 11.

Pair a Bluetooth device to your PC

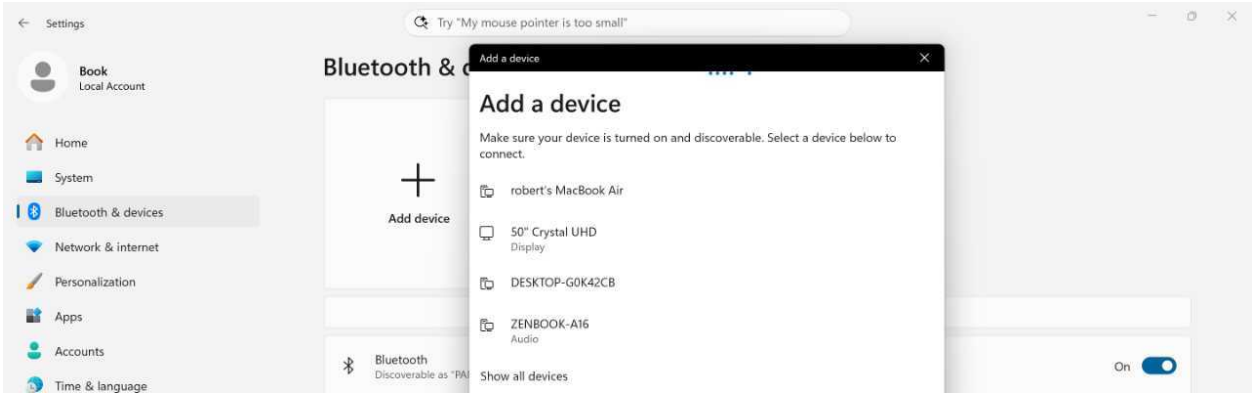
To pair a new Bluetooth device with your PC, press and hold its Bluetooth pair button on the connecting device. (Check with the manufacturer's documentation if you can't find this.) If

the device supports a Bluetooth feature called *Swift pair*, Windows will notify you and offer to connect automatically. Select "Connect" when prompted.

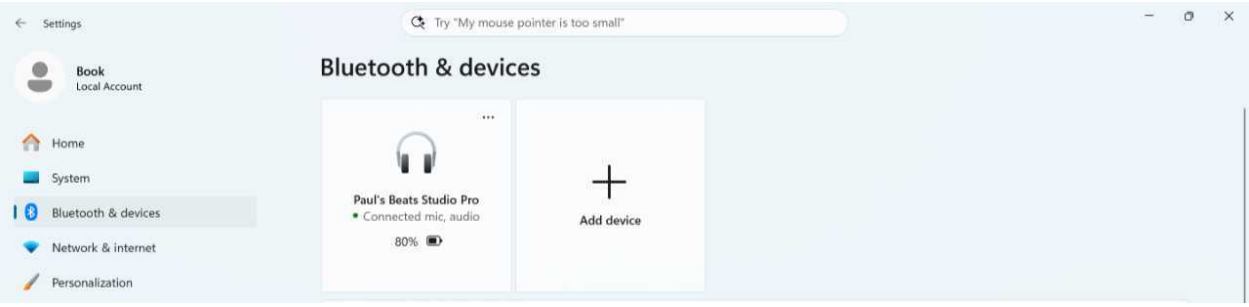
If you aren't prompted, open the Settings app, navigate to Bluetooth & devices and then click the large "+ Add device" tile at the top. The "Add a device" window appears.



Click "Bluetooth" and the window will display a list of available Bluetooth devices.



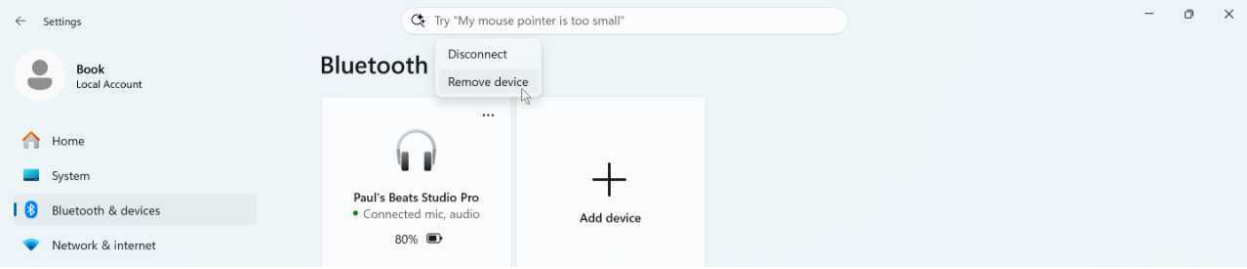
Now, select the device you wish to pair. After a short "Connecting" animation, you'll be told that the new device is "ready to go!" Click "Done" to close the window, and Bluetooth & devices settings will display the paired device in a tile to the left of "+ Add device."



> **Tip:** Some Bluetooth devices may require you to enter or confirm a PIN to complete the pairing process, but the process is straightforward.

Configure and manage a Bluetooth device

You can also *unpair* a Bluetooth device with Bluetooth & devices settings. To do so, locate its tile at the top of Bluetooth & devices settings, click its More ("...") link, select "Remove device" from the menu that appears, and confirm the change as prompted.



Oddly, Bluetooth device configuration occurs elsewhere. For many device types, that's a different page in Settings. You will see an entry for Mouse in Bluetooth & devices settings, for example, that is used to configure a Bluetooth mouse.

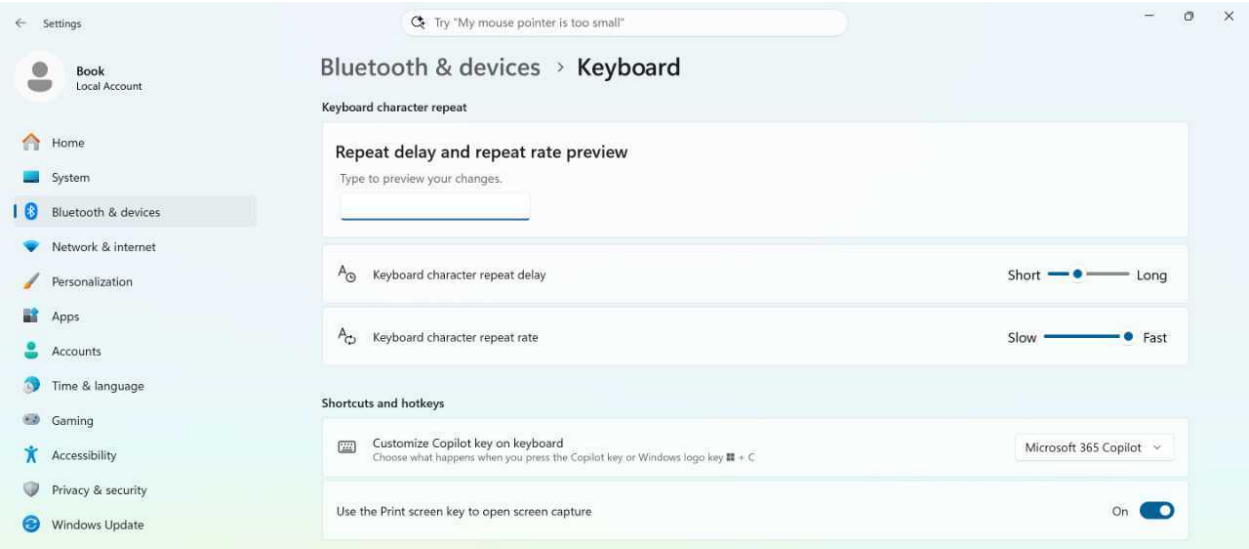
But some devices require a separate app for further configuration. This app will be provided by the device's manufacturer, so you should check the product's documentation or the manufacturer's website to see what is available.

Keyboards, mice, and touchpads

Windows 11 provides basic configuration settings for keyboards, mice, and touchpads, whether they're removable or built into a laptop or other portable PC.

Keyboard

Virtually any hardware *keyboard* you connect to a Windows 11 PC via USB or Bluetooth will work automatically, as will built-in keyboards on laptops, of course. But Windows 11 offers a few keyboard-related settings you may want to examine. These are found in the Settings app by navigating to Bluetooth & devices > Keyboard.



Key (ahem) keyboard settings include:

Customize Copilot key on keyboard. Most modern PC keyboards now include a controversial Copilot key between the Right Alt key and Arrow keys. It's designed to launch the Microsoft Copilot app (on consumer PCs, and the Microsoft 365 Copilot app on business PCs), though few seem to want that. So Microsoft has made some concessions to this enshittification. Among them is this option, which lets you reconfigure the Copilot key to launch Windows Search, one of a handful of compatible apps (like ChatGPT, Microsoft Copilot, or Microsoft 365 Copilot) via a Custom option, or do nothing.

> **Tip**: If you choose "Do nothing" and accidentally tap the Copilot key, Windows 11 will launch the Settings app and navigate it to the Keyboard settings page. If you find that as annoying as I do, you can use the Keyboard Manager utility in the free Microsoft PowerToys suite of tools to configure the Copilot key to behave like any other key press or shortcut. I configure it to work like the key directly to its right, since that's usually what I mean to do when I hit the Copilot key mistakenly.

Use the Print screen key to open screen capture. In the good old days, the Print screen key on every PC keyboard would capture the screen and copy it to the Clipboard. But with Windows 11, Microsoft has reconfigured this key several times, and it now launches the Snipping Tool screen

capture utility instead. If you would like this to work as it had for decades before the changes–or if you prefer to use a third-party screen capture utility–you can configure this option to "Off."

Keyboard accessibility. If you click this item, Settings navigates to Accessibility > Keyboard, where you can configure Sticky keys, Filter keys, Toggle keys, the on-screen keyboard, and other related keyboard settings.

Mouse and touchpad

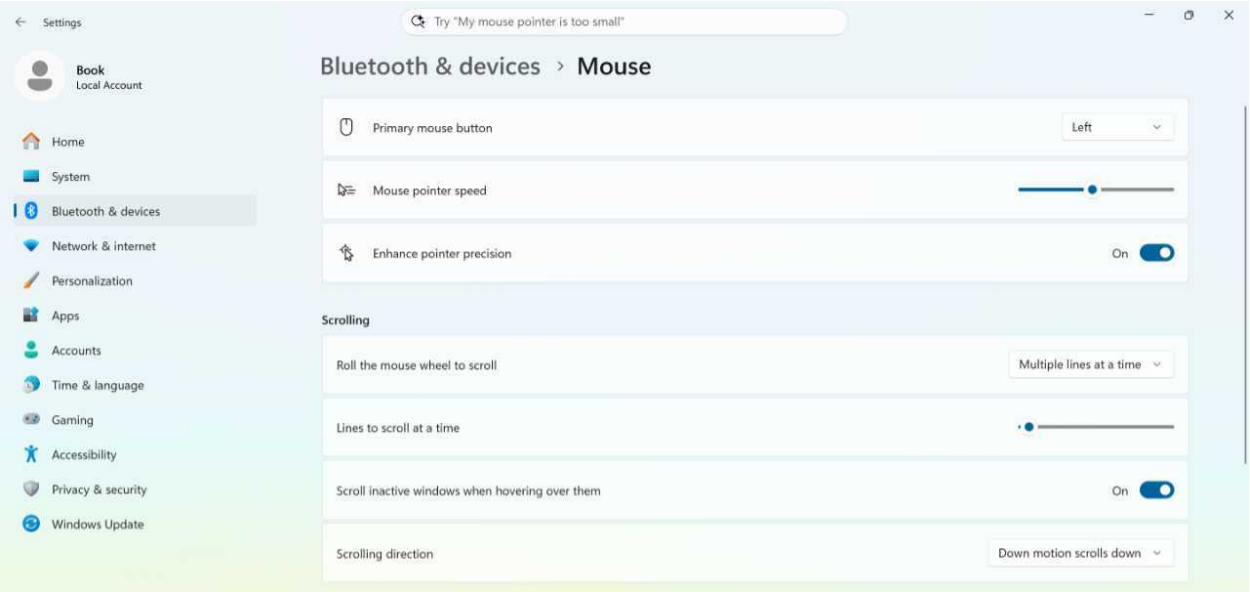
Windows works seamlessly with *mice* and other pointing devices like *touchpads*, as you should expect. For the most part, you can simply pair or plug in an external pointing device and it will just work.

When you do, you can manage your mouse and touchpad by opening the Settings app and navigating to Bluetooth & devices, where you will find Mouse and Touchpad links if you have those devices.

> **Tip**: In both cases, your PC or device maker will likely provide their own utilities that you can use to further configure the mouse or touchpad.

Configure a mouse

Mice are configured in Mouse settings, which you can find by opening the Settings app and navigating to Bluetooth & devices > Mouse.



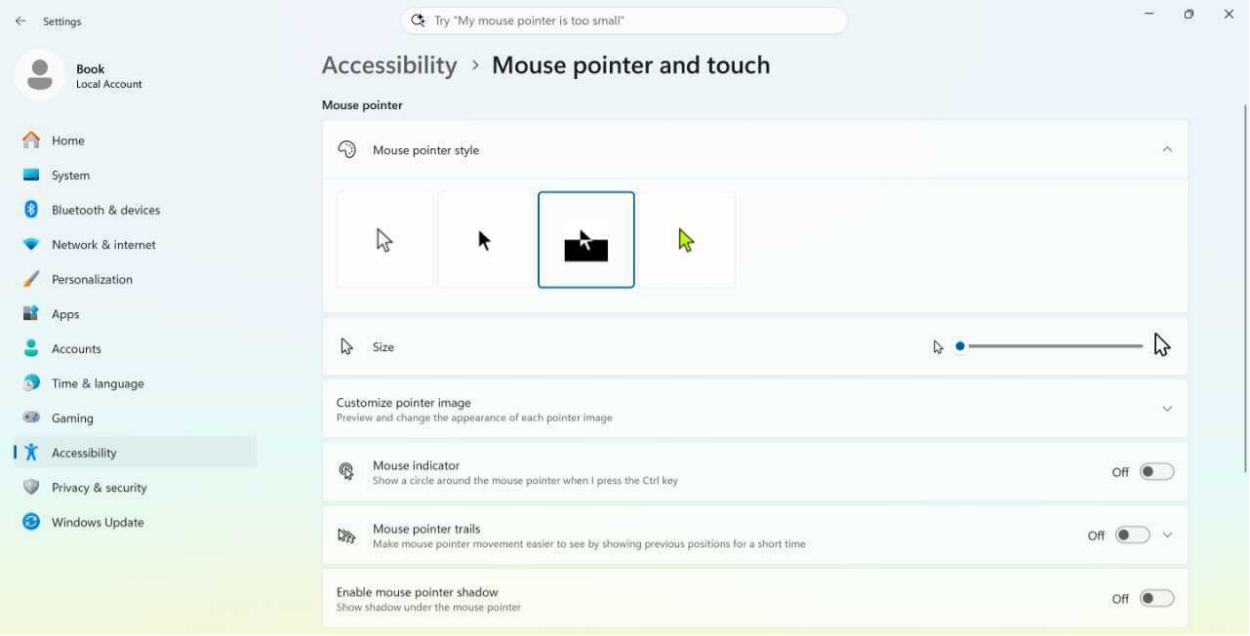
Some key options to consider include:

Mouse pointer speed. Using a slider, you can configure the speed of the mouse cursor in a range of values from 1 to 20. The default speed is 10.

Enhance pointer precision. Enabled by default, this feature accelerates and smooths mouse cursor movement. It's a great feature unless you're a gamer, in which case you may wish to disable it.

Scrolling direction. By default, Windows scrolls down on a page or screen when you scroll a mouse wheel down, but you can reverse that if you're used to a Mac or another devices that scrolls in the opposite direction.

Mouse pointer and touch. This link navigates Settings to Accessibility > Mouse pointer and touch, where you can configure the mouse pointer style and speed and several other useful options.



> **Tip**: I'm a big fan of the Inverted mouse pointer style since it makes it so much easier to see the mouse cursor than the default.

Accessibility mouse settings. Similar to the above option, this links to Accessibility > Mouse, where you can configure several other useful new features like Snap to default button, Hide pointer while typing, Click lock, Mouse keys, and more.

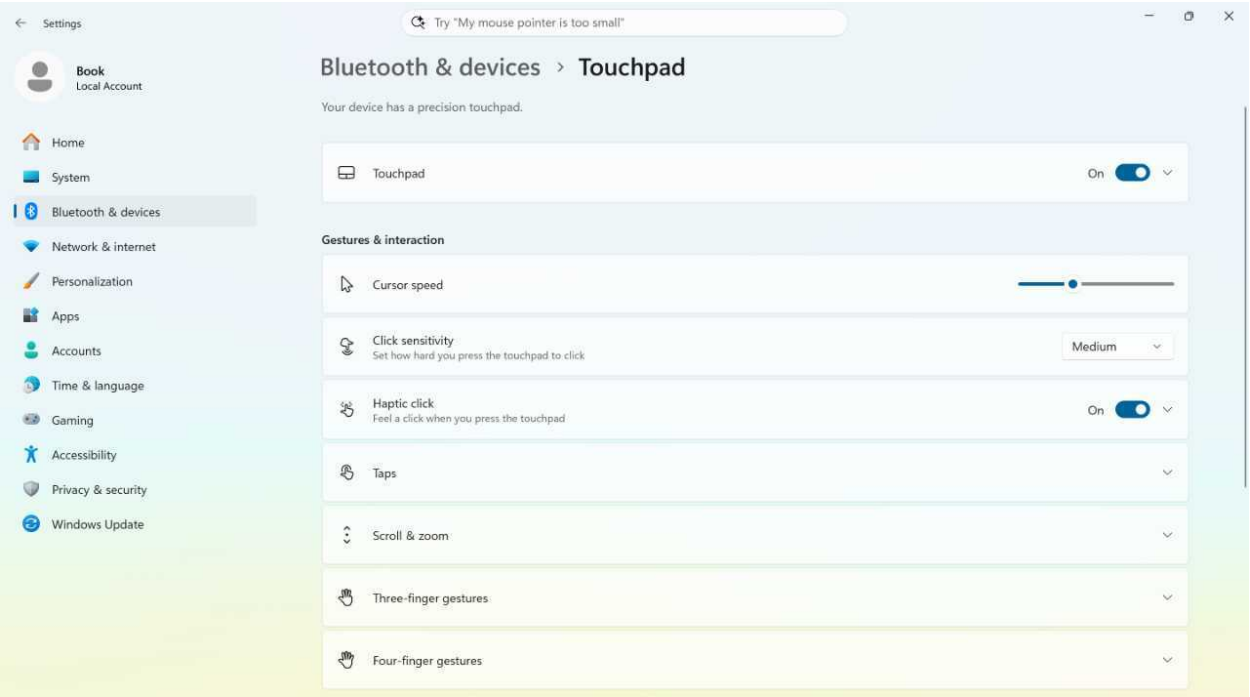
Additional mouse settings. This is a link to the legacy Mouse Properties control panel, which lets you configure a few features that haven't made their way to the Settings app yet. And third party

hardware makers will sometimes extend this dialog with features specific to their mice.

Configure a touchpad

Laptops and other portable PCs usually include a built-in pointing device called a *touchpad*, previously called a *trackpad*, that supports multi-touch gestures in addition to its traditional pointing duties.

These devices are configured separately from mice in Touchpad settings, which you can find by opening the Settings app and navigating to Bluetooth & devices > Touchpad.



Some key options to consider include:

Cursor speed. As with Mouse cursor speed, you use a slider to configure the speed of the mouse cursor. But unlike Mouse cursor speed, the range of values goes from 1 to 10, and the default speed is 6. For some reason.

Taps. You can expand this item to configure several options related to what happens when you tap the touchpad surface, including two-finger taps and tap sensitivity.

Scroll and zoom. You can expand this item to configure gestures related to scrolling with two fingers, scroll direction, and whether you can pinch to zoom.

Three-finger gestures. By default, Windows 11 displays Task view when you use a three-finger gesture on the touchpad ("Switch apps and show desktop") and opens Windows Search when you tap the touchpad with three fingers. You can configure both in various ways, including disabling one or both.

> **Tip:** I find that I inadvertently trigger Task view when I mean to scroll (a two-finger gesture), so I usually end up disabling the three-finger swipe gesture.

Four-finger gestures. By default, Windows 11 displays Task view when you use a four-finger gesture on the touchpad (in this case, "Switch desktops and show desktop") and opens Notification center when you tap the touchpad with four fingers. You can configure both in various ways, including disabling one or both.

> **Tip:** I rarely have the dexterity or forethought to use four-finger gestures, so this is one I don't think about all that often.

More touchpad settings. As with the similar option in Mouse settings, this is a link to the legacy Mouse Properties control panel. This one is even more likely to be customized by PC makers who use specific touchpad hardware, so it's worth looking at.

Advanced gestures. If the three- and four-gesture settings above aren't granular enough, this interface lets you individually configure Tap, Swipe up, Swipe down, Swipe left, and Swipe right gestures for both.

Touch, pen, and tablet

In addition to supporting traditional PC form factors with their familiar keyboard, mouse, and touchpad interactions, Windows 11 also supports modern PCs with *multitouch* capabilities that let you interact by tapping or using gestures right on the display. Some PCs even come in *tablet*, *2-in-1*, and *convertible PC* form factors that can physically transform between different usage modes, and some support *smartpens* so you can write or draw directly on the display.

Multitouch

Multitouch–sometimes just called *touch*–is the simplest and most common of these modern PC capabilities.

Tap, tap and hold, and grab

Thanks to the ubiquity of modern smartphones, using multitouch in Windows 11 is mostly intuitive. To select an object onscreen, simply tap the screen. To perform a right-click, tap and hold on the object you wish to do more with. You can also "grab" items like icons and windows and drag them to a new location as you would with a mouse. And you can double-tap to launch apps and open other items.

> **Tip**: Throughout this book, I mostly stick with words that describe traditional PC actions with the mouse or keyboard. Each time you see the word "click" or "select," for example, you can substitute the word "tap" if you're using the PC's multitouch capabilities. Likewise, you can substitute "tap and hold" for right-click. And so on.

Gestures

Windows 11 also supports touch-based *gestures*, which are actions you can perform with two or more fingers, similar to Windows 11's touchpad features, but performed directly on the screen. You can configure these gestures in Settings > Bluetooth & devices > Touch if needed.

The following gestures are available:

Scroll. Using two fingers, you can slide up or down on the screen to scroll through an app, document, or web page. (And, if it supports it, you can slide left and right to scroll horizontally.)

Zoom. Using a "pinch" gesture, you slide your thumb and index finger together on-screen to zoom in on whatever you're viewing. Or, using a "stretch out" gesture, you slide your thumb and index finger away from each other on-screen to zoom out of whatever you're viewing.

Minimize all windows. Using three fingers, slide down on the screen to minimize all open windows and display the desktop.

Restore all windows. Using three fingers, slide up on the screen to display ("restore") all open windows.

Snap layouts. To access Snap layouts, drag a floating window a bit to display the bottom edge of the Snap layouts pane at the top of the screen. Then, move the window towards that pane to display the available layouts and then choose one.

> **Learn more**: Snap

Edge gestures

Windows 11 also supports *edge gestures*, which are gestures that start at any of the four sides of the PC's display. The following edge gestures are available:

Widgets. Swipe in from the left edge of the display to open Widgets.

Notifications. Swipe in from the right edge of the display to display the Notification center. If you have a Copilot+ PC, this will be set to Click to Do, but you can configure it for Notifications if desired.

Start. Swipe up from the middle bottom of the display to open the Start menu.

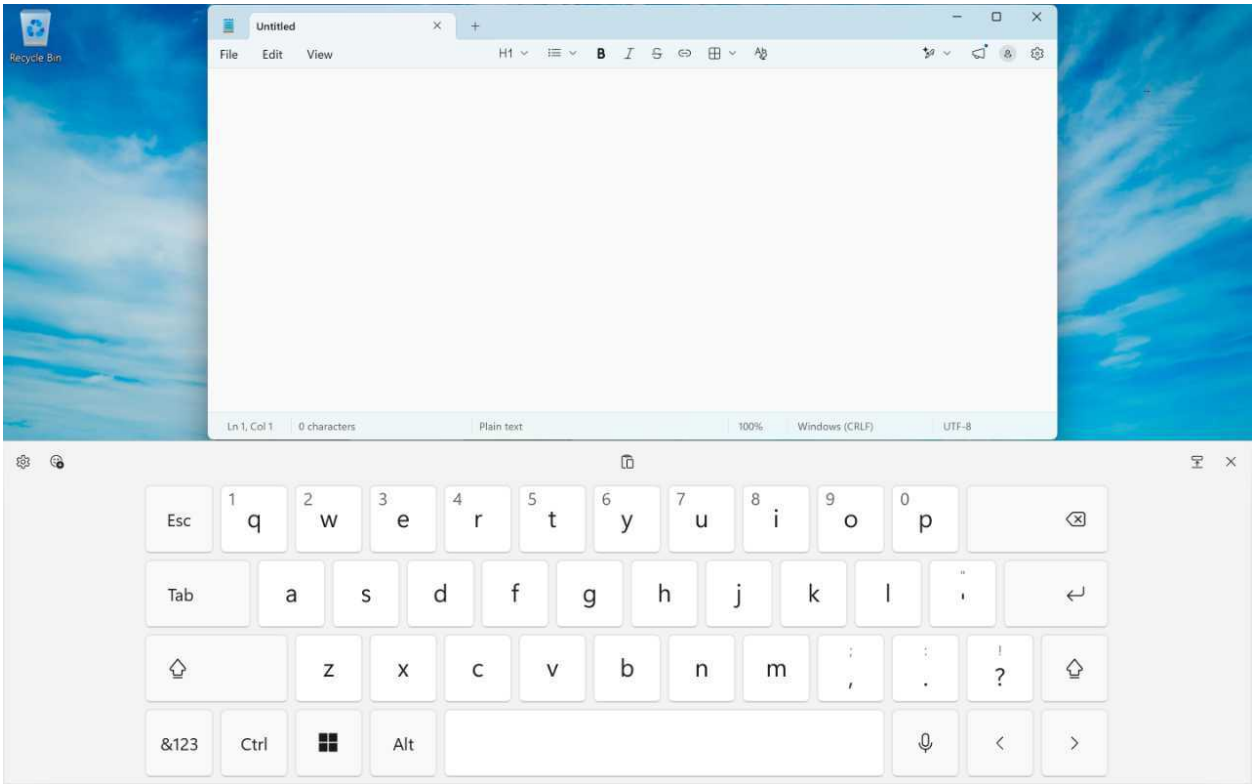
Quick settings. Swipe up from below the Network, Sound, and Power icons to open Quick settings.

Switch apps. Using three fingers, swipe left or right on-screen to switch to the previous or next app, respectively.

> **Tip**: Check out "Additional touch settings for the Press and hold gesture and some other settings for fine-tuning touch interactions.

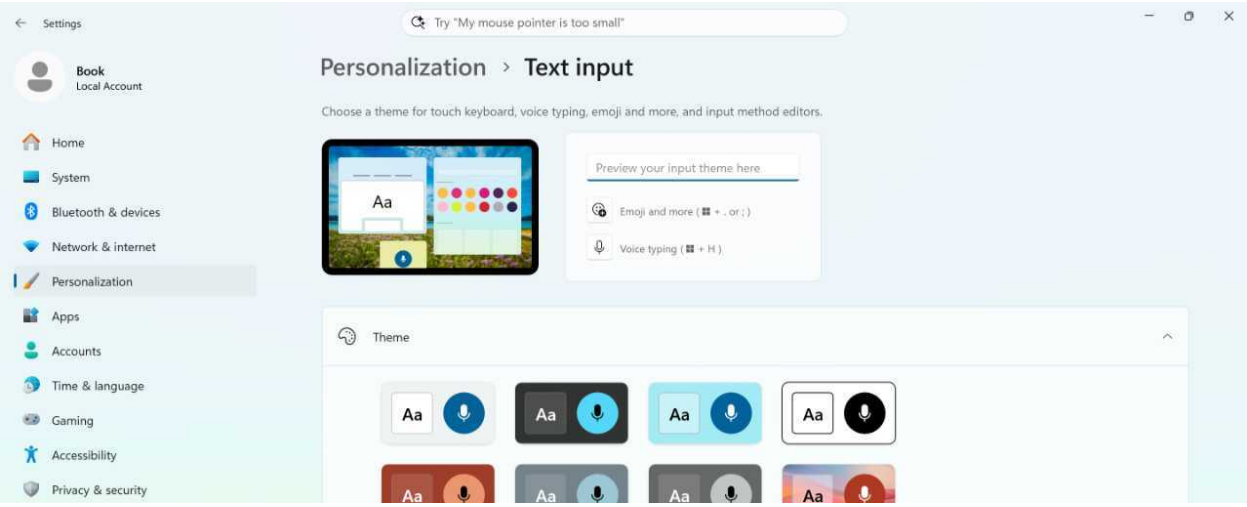
Use the Touch keyboard

For those instances in which you are using a PC's multitouch functionality and need to type, just tap a text box, browser address bar, or any other area where you would normally enter text, and the *Touch keyboard* will appear onscreen.



> **Tip**: Multitouch-capable PCs typically with no hardware keyboard attached will display a Touch keyboard icon in the Taskbar's system tray so you can trigger this utility manually. If you don't see this icon, you can enable it: Right-click the Taskbar, choose "Taskbar settings," and then enable "Touch keyboard" under "System tray icons" in the Settings app window that appears. This option is not available on PCs with non-touch displays.

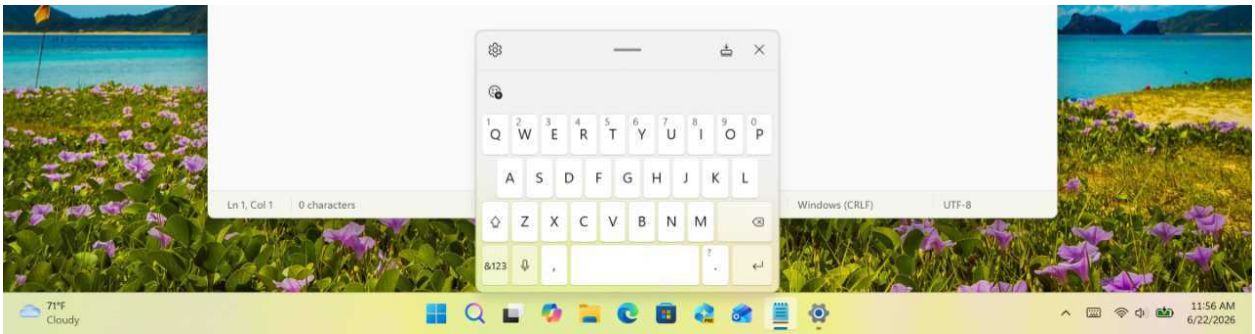
The Touch keyboard works as expected, but it has some useful features that might not be immediately obvious. And it helps to get started with the Touch keyboard settings, which are found in the Settings app: navigate to Personalization > Text input to see what's available.



Here, there are three main areas: A preview area at the top where you can see how the changes you make will impact the real Touch keyboard, "Theme," which lets you customize the look of the Touch keyboard with colors and background images, and "Touch keyboard," which has options for keyboard size, whether the Touch keyboard should display button edges ("Show key background"), and key text size.

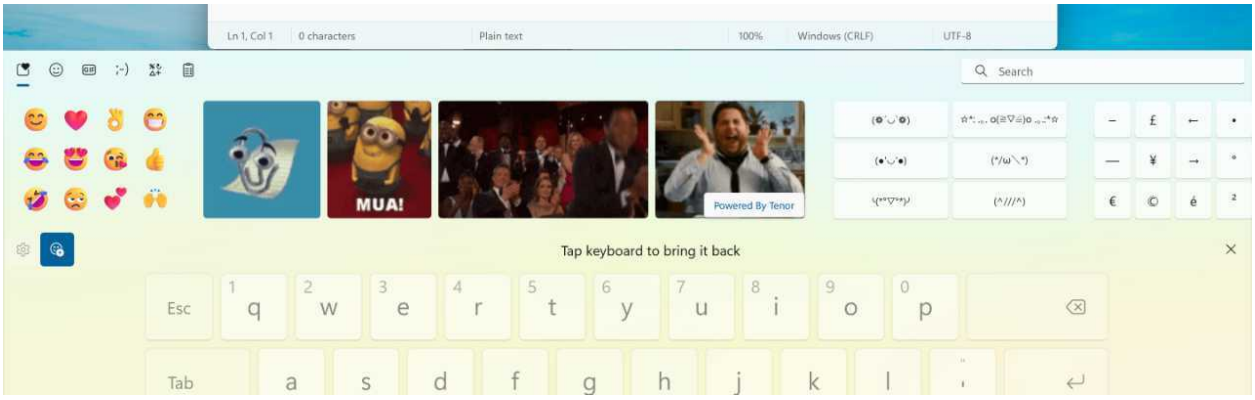
As for the Touch keyboard itself, there are a few features to be aware of:

Layouts. Touch keyboard supports Default, Compact, Split, Traditional, and Gamepad layouts, and you may want to experiment with each to see which you like best. For example, the Compact layout shown below resembles a smartphone keyboard. You choose the layout by selecting the "Settings" (gear) icon in the upper left of the Touch keyboard and then "Keyboard layout".



> **Tip**: You can quickly toggle between the current layout and the Small layout by using the dedicated button to the left of the Close ("X") button on the Touch keyboard.

Emojis and GIFs. Welcome to the 21st century: The Touch keyboard has a dedicated button for opening the Emoji keyboard, which also provides access to GIFs, emoticons, and various symbols.



Clipboard. If there is a text-based item in the Clipboard, it will appear in the top middle of the Touch keyboard so that you can tap it to paste it into whatever app you're using.

Smartpen

Some traditional PCs and most tablets, 2-in-1s, and convertible PCs support *smartpen* capabilities that let you use a powerful Windows 11 feature called *Windows Ink* so you can write and draw in specially-made applications and interact with on-screen user interface elements and other apps much as one would using a mouse or touchpad.

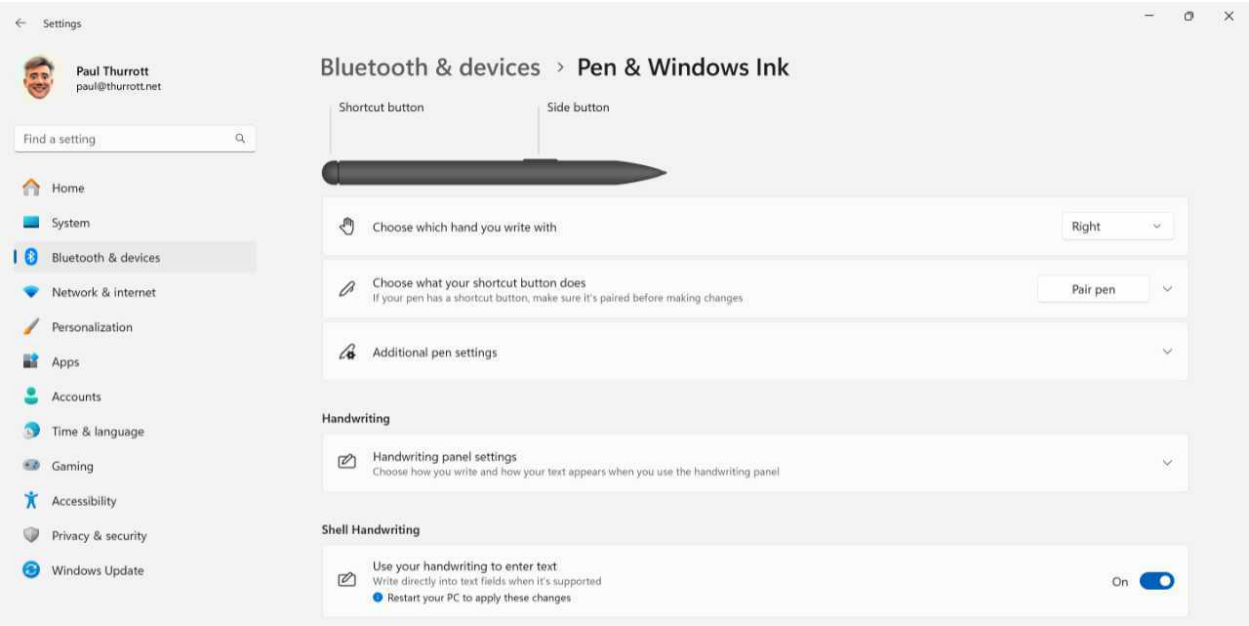
Smartpen capabilities vary by PC and by smartpen, the latter of which can look, work, and feel just like real writing implements. Many support thousands of levels of pressure so that you can press down harder to get thicker or bolder drawing and writing strokes. Most support tilt so that you can tilt the pen naturally to get broader strokes as you do. Some also include an electronic eraser that works exactly as you'd expect. And most support an extra button or two that can be programmed to perform specific actions when clicked, double-clicked, or pressed and held.

Using a smartpen is natural enough: It works much like navigating via touch, so you can do things like press and hold the pen on-screen to emulate a right mouse click. But some smartpens also provide a dedicated button on the barrel that provides right-click functionality.

> **Tip**: Some Windows Ink features also work with touch–on compatible PCs–or even with a keyboard and mouse too. Here, I focus only on using Windows Ink with a smartpen, however.

Configure Windows Ink and your smartpen

If you're going to use a smartpen with Windows 11, you should spend some time examining the available options for the pen and Windows Ink. These can be found in the Settings app: navigate to Bluetooth & devices > Pen & Windows Ink.



Some key options to consider include:

Choose which hand you write with. The smartpen is configured for right-handed use by default, so lefties will want to make sure to configure this for left-handed use.

Choose what your shortcut button does. The Shortcut button on the end of the pen barrel can be configured to perform different actions when clicked, double-clicked, or pressed and held. These actions include opening the *Pen menu* (see below), opening one of the specific, pre-selected apps, opening any program (application), or opening any (Microsoft Store) app.

Tactile signals. This set of options appears if your smartpen supports *haptics*, which emulates the feel of a real pen writing on paper when in use. You can toggle tactile signals on or off for inking and user interface interactions, and configure the intensity of these effects.

Handwriting panel settings. Located under the "Handwriting section," this expandable set of options lets you configure the font and font size used in the Windows 11 handwriting panel or a supported app and how text input should work when a physical keyboard isn't available.

Use the Pen menu

The *Pen menu* is a front-end or launcher for the Windows Ink capabilities in Windows 11, as it lets smartpen users quickly access the key Windows Ink-compatible apps they need as quickly as possible. In many ways, it's like a mini-Start menu for your smartpen.

There are various ways to display the Pen menu. By default, a Pen menu icon should appear in the Taskbar when you've paired a smartpen with your PC. (If it doesn't, you can enable it in the Settings app by navigating to Personalization > Taskbar > System tray icons.) Or, you can configure your pen's Shortcut button to open the menu when you click, double-click, or press and hold it.

> **Tip**: Oddly, you can't open the Pen menu from the Start menu or Search. And there's no keyboard shortcut.

Whichever method you choose, the Pen menu appears as a floating toolbar right above the system tray in the Taskbar.

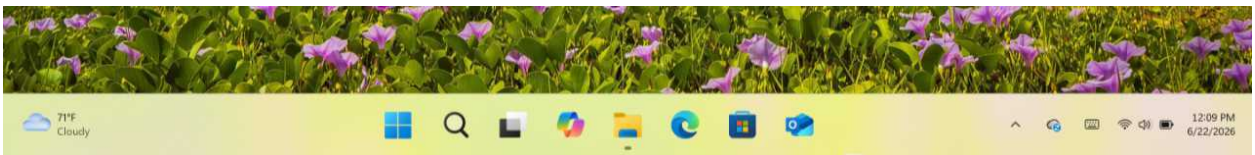
By default, the Pen menu has pinned shortcuts for four apps–OneNote, Microsoft Whiteboard, Snipping Tool, and Journal–plus "See more" (gear) and "Learn more about pen" icons. The "See more" icon displays a small menu with two items, "Edit pen menu" and "Pen settings," for configuring this and other Pen features.

Tablet experience

Windows 11 offers an integrated *tablet experience* that automatically optimizes the system for touch when you remove the keyboard from a tablet or transform a 2-in-1 or convertible PC into a tablet form factor. Then, and as you use the PC in this touch-only mode, the Taskbar adapts as needed.

Here, you can see the Taskbar of a tablet with a keyboard connected.

And here is the same Taskbar when the keyboard is first removed.



As you use the system this way, however, the Taskbar will change yet again, this time into a minimalist slice that gets out of the way so you have as much screen to use as possible.

If you need to access the larger Taskbar, just swipe up a bit on that slice.

Printers and scanners

Windows 11 connects to printers and scanners locally using a USB cable in a wired configuration or over your home network, in both wired and wireless configurations.

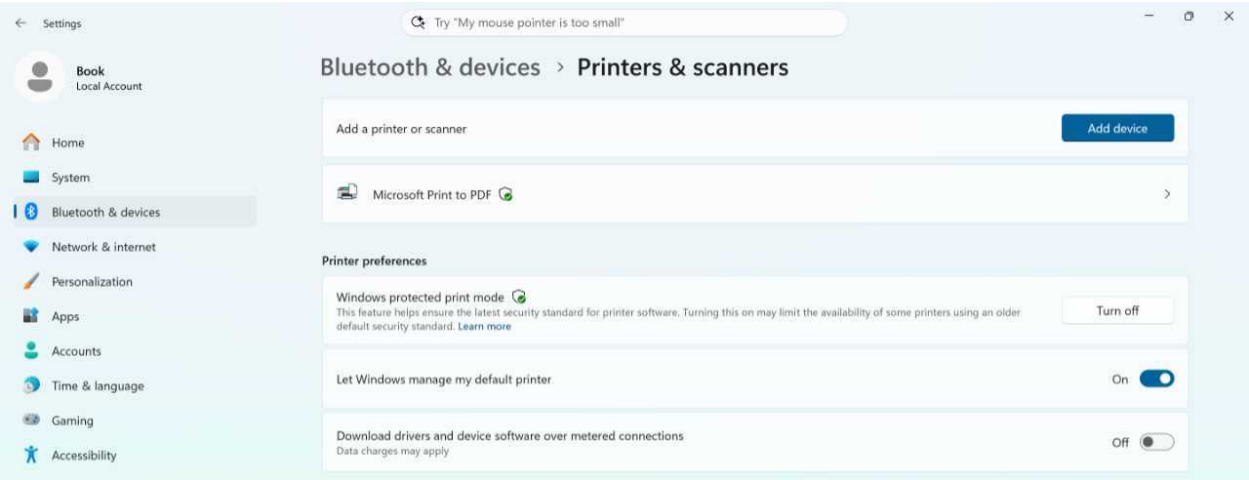
Printers

Windows supports the same traditional printing capabilities that it has had for years, and printers work much as they always have. But there are two interesting wrinkles:

- **Windows protected print mode**. Microsoft has brought printer driver management in-house through its Windows protected print mode program, which uses modern Windows Ready Print communication technologies to help protect against malicious software embedded in driver installations. For now, you need to enable this feature manually.
- **Print to PDF**. In addition to hardware printers, you can also print to easily-shared PDF files using Microsoft Print to PDF, which works like a real printer in Windows 11.

Configure printers

Printers & scanners settings–available by navigating to Settings > Devices > Printers & scanners–provides only basic printer controls: You can add new printers here, but there's little in the way of printer configuration.



There is one important option here: "Let Windows manage my default printer." If you leave this option set to its default setting of "On," Windows 11 will always configure the default printer to be the most recently-used printer. If you don't like this behavior, just configure this option to "Off."

By default, this interface displays only a single virtual printer, Microsoft Print to PDF.

> **Learn more**: Print to a PDF file

However, if Windows 11 detects a printer–either on the local network or attached directly to the PC–that will appear here as well. If you have a printer that is not displayed here, you will need to add it.

Add a printer

To add a printer, click "Add device" next to "Add a printer or scanner." Windows 11 will look for a printer and add any that it finds to the list of available devices.

Click "Add device" next to a found printer you wish to add. Windows will download and install the necessary drivers, and then that printer will appear in the list, ready for action.

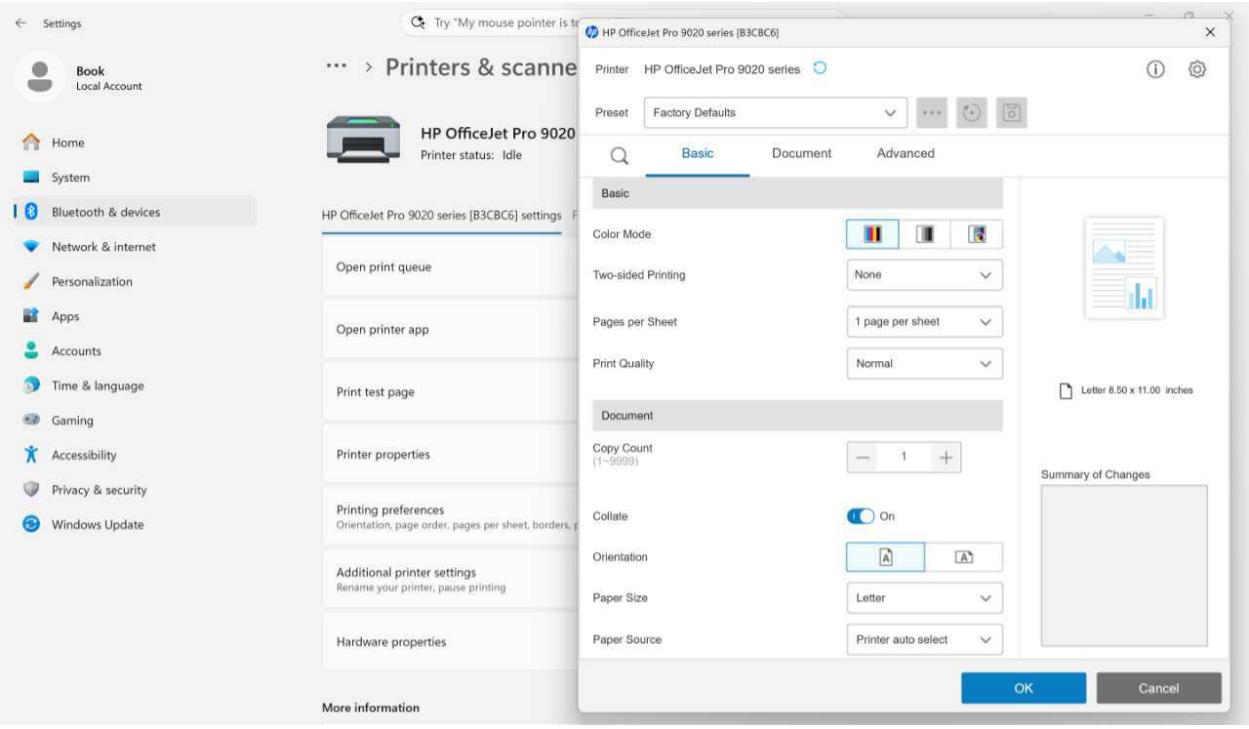
If Windows didn't find your printer, you can click the "Show Wi-Fi Direct printers" or "Add manually" links next to "The printer that I want isn't listed." These options are best used for older printers, but one or the other will occasionally display a printer that doesn't appear automatically.

Configure a printer

To configure a printer, select it in the list at the top of Printers & scanners settings.

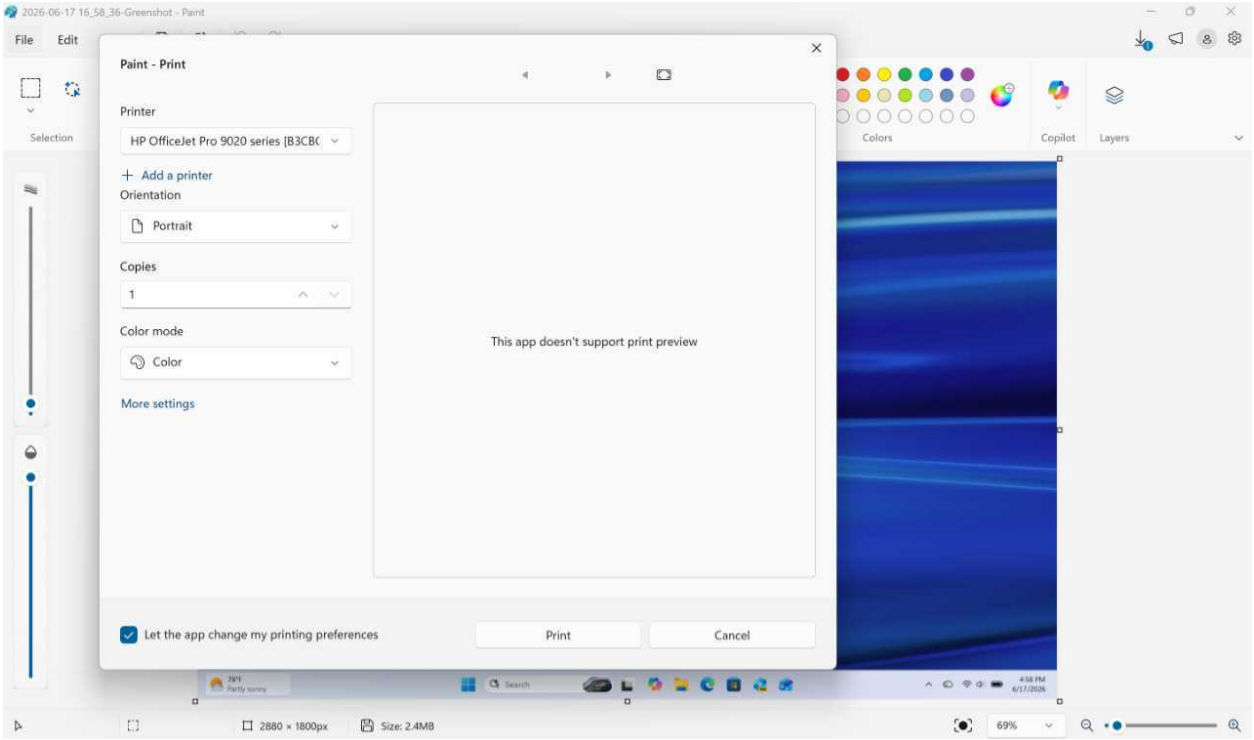
Tip: If you declined to let Windows manage your default printer, you will see a "Set as default" button at the top of this page. Click that to make this printer your default printer.

Select "Printing preferences". The Printing preferences window for this printer appears so you can configure the printer's various special features. This will vary wildly by device, and this window is often customized by the printer maker.



Print a document or other file

Many Windows applications support printing, and you will typically do so from within those apps. Recent apps, including most of those included with Windows 11, will use the modern Print dialog that is included with this system.



Here, you can choose which printer to use, configure the orientation, the number of copies to print, and other options, depending on the capabilities of your printer. You can also access the Printing preferences window by selecting "More settings."

> **Tip**: Older applications may display an old, legacy Print dialog. This is less full-featured, but it offers many of the same options.

Print to a PDF file

In addition to supporting traditional hardware printers, Windows 11 also lets you print to a virtual printer called *Microsoft Print to PDF* that creates a PDF file instead of a hard copy. This is useful because PDF is a de facto standard and is broadly compatible and accessible to others.

> **Tip**: Microsoft Edge and other web browsers all support viewing and, in most cases, annotating PDF files.

You can print to PDF from any app that supports printing. To do so, simply select "Microsoft Print to PDF" from the list of available printers. When you select the Print button, you'll be prompted to

specify a file name and save location. From there, you can use the PDF file normally.

And, yes, you can set Microsoft Print to PDF as the default printer if you'd like.

Enable Windows protected print mode

Windows protected print mode is currently disabled by default but it will be enabled in a future Windows version. You can enable it now by clicking the "Turn on" button next to "Windows protected print mode" in Printers & scanners settings.

Should you?

If you're using an older printer, perhaps not: Enabling Windows protected print mode will probably uninstall any third-party drivers, which could lead to a loss of functionality. But the good news it that you can easily toggle this feature off again–that button changes to "Turn off" to facilitate that–and when you do, the third-party drivers are reinstalled.

Scanners

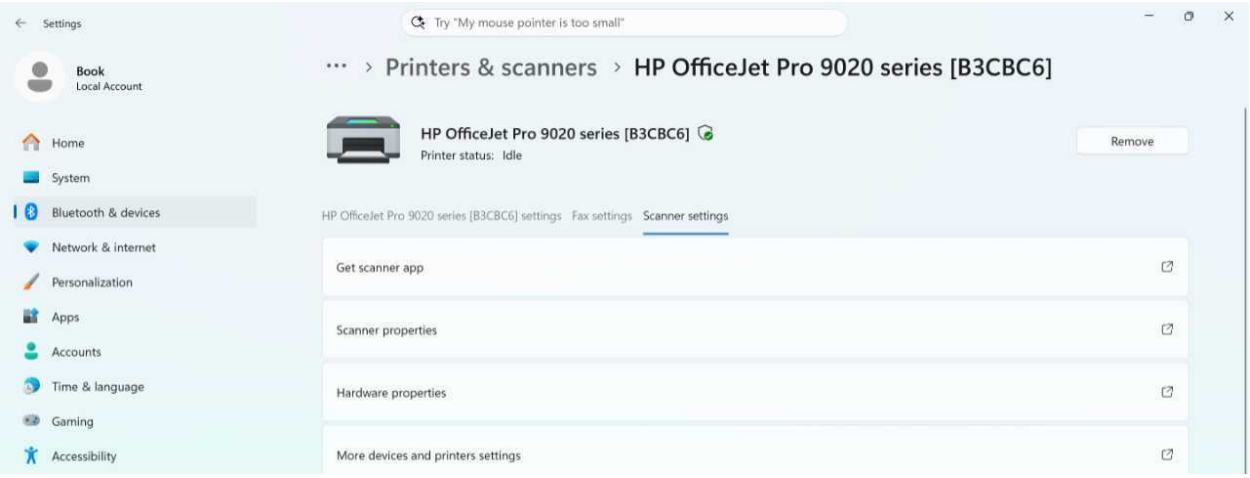
Windows 11 also supports a wide variety of scanners, including all-in-one devices that provide both printing and scanning capabilities. Unlike with printers, however, Windows no longer includes built-in scanning capabilities. Instead, you will need to download an app, which can be Microsoft's Windows Scan app, which is available in the Microsoft Store, or an app provided by the scanner maker, which might be found in the Store or on the web.

Add a scanner

Before you can use a scanner with Windows 11, you need to make sure that it's recognized by the system. To do so, open the Settings app and navigate to Bluetooth & devices > Printers & scanners. If Windows 11 detects a scanner (or an all-in-one printer with scanning capabilities), either on the local network or attached directly to the PC, it will appear here alongside whatever printers. If you have a scanner that is not displayed here, you will need to add it.

To do so, click "Add device" next to "Add a printer or scanner." Windows 11 will look for a compatible scanner and add any that it finds to the list of available devices. Then, click "Add device" next to a found scanner you wish to add. Windows will download and install the necessary drivers, and then that device will appear in the list, ready to be used.

Next, select the scanner (or all-in-one printer) in the list. If it's an all-in-one printer, select the "Scanner settings" header. Then, look for a "Get scanner app" link. If you need a scanner app, you can click this to download Windows Scanner from the Microsoft Store.



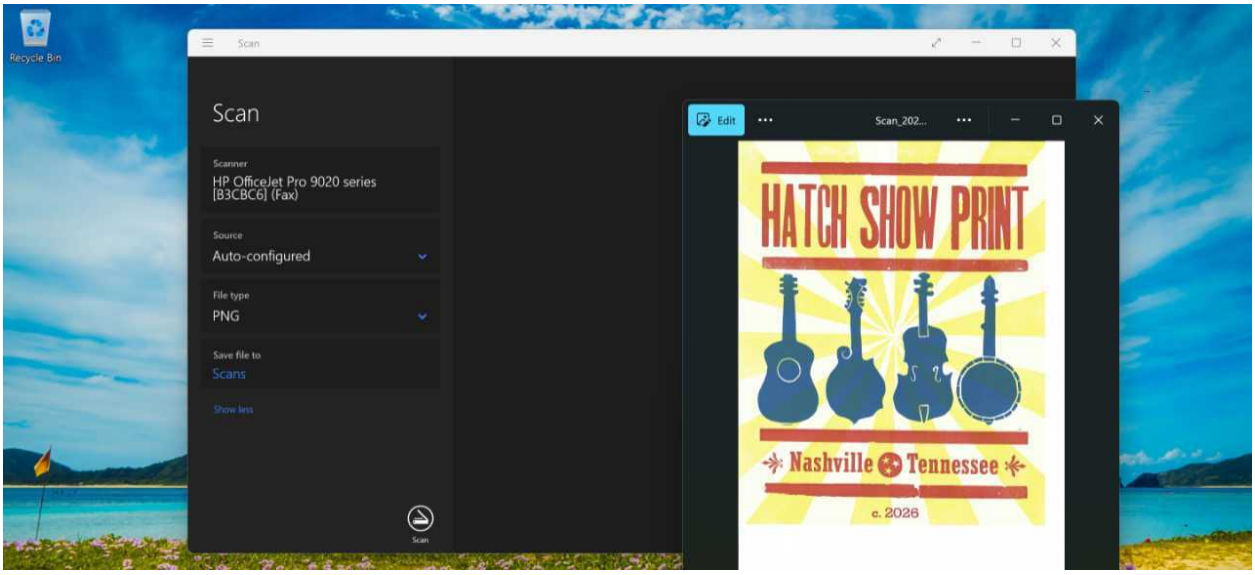
This app provides basic scanning capabilities, but you should check with your device maker and download their scanning utility instead: in most cases, this will offer a more sophisticated scanning experience that can best take advantage of the device's unique features.

Configure a scanner and scan a photo or document

Scanner configuration occurs via the device's maker's software or, if you wish to use Windows Scan, that app. Windows Scan couldn't be simpler: it has options for just selecting the correct scanner, the source (flatbed or feeder, depending on the hardware), the file type, color mode, resolution (dependent on the hardware), and the save location.

> **Tip**: By default, Windows Scan will save scans to a Scan folder that it will create in your Pictures folder if not already present.

If you are using Windows Scan for scanning, launch that application and make sure it's configured properly for the work at hand. When you're ready, just click "Scan" to scan the image and save it to your PC.

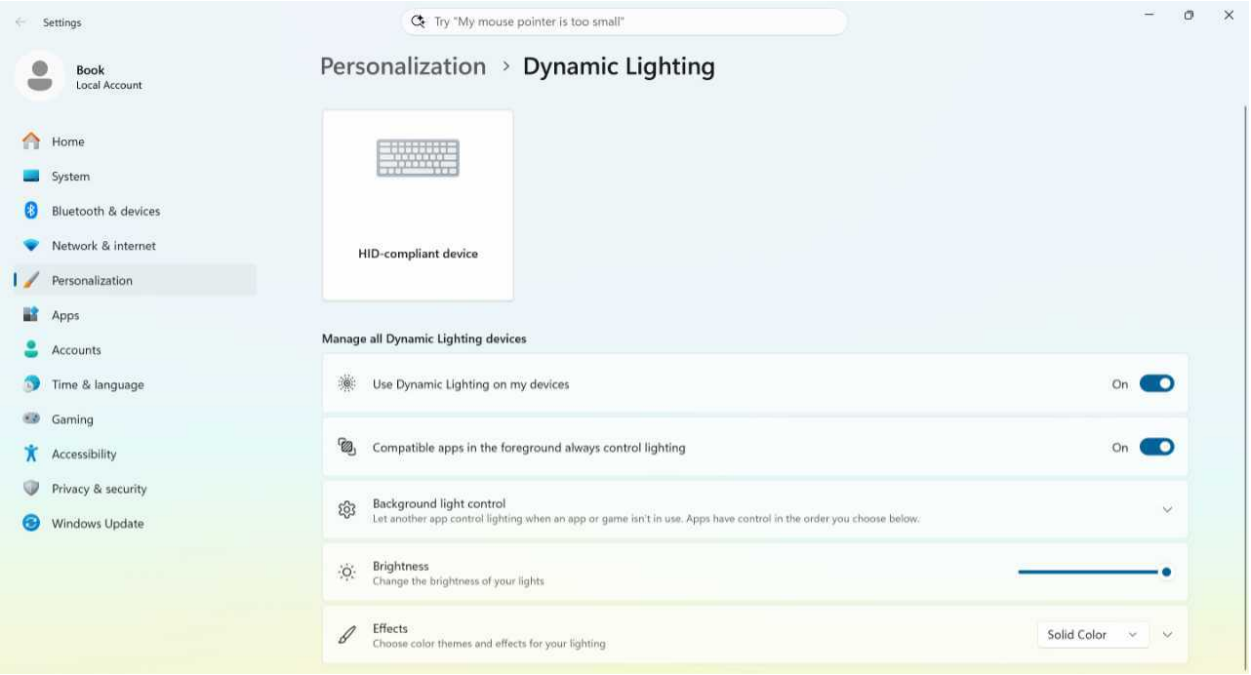


Learn more: Photos

Dynamic Lighting

Hardware makers, particularly those that serve videogame fans, have long provided customizable multicolored *RGB lighting* capabilities in their mice, keyboards, game controllers, and other PC hardware so that customers can have a more immersive visual experience that extends past the screen. But these solutions are unique to each hardware maker, with each requiring a separate configuration app, making it difficult to mix and match peripherals from different companies.

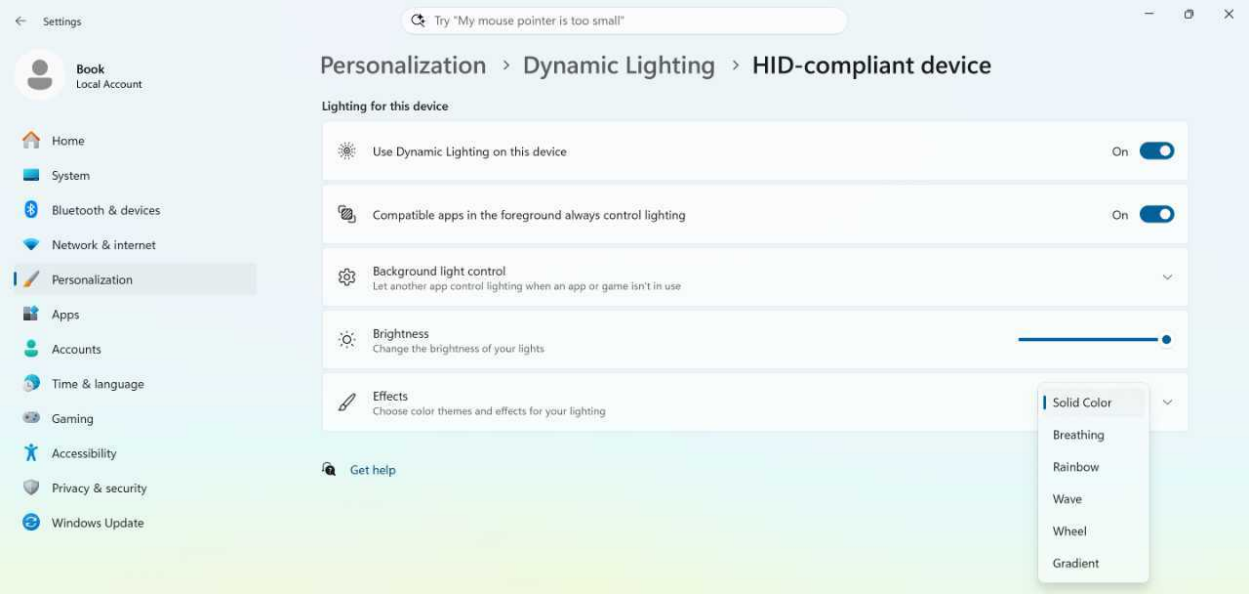
Windows 11 provides a solution to this fragmentation problem via a *Dynamic Lighting* feature that centralizes the management and control of the RGB lighting across all of your compatible devices. Now, you can easily apply the same RGB lighting effect to multiple devices at once, regardless of which company made each. And you can do so without installing any third-party apps. It's all managed in the Windows 11 Settings app at Personalization > Dynamic Lighting.



> **Tip**: Dynamic Lighting requires hardware makers to make their products compatible with this feature. Microsoft maintains a list of compatible products on its Microsoft Learn website, but it's always out-of-date, and so you are better off consulting individual hardware makers. Leading RGB lighting companies like ASUS ROG, Razer, and others each have their own lists of compatible products.

When you connect an RGB lighting device to your PC, the Settings app will display a notification banner if it's compatible with Dynamic Lighting.

You can then click the "Setup" button on the notification to open the Settings app and view the Dynamic Lighting settings page. Each compatible device is represented by a card at the top of this page, and you can click a device card to view and configure Dynamic Lighting features for just that device. Or, you can access the same options under "Manage all Dynamic Lighting devices" to view and configure Dynamic Lighting features for all connected devices at once.



> **Tip**: A third-party app tied to the device may auto-install at this point as well, and it could offer additional features.

A few configuration options to consider include:

Compatible apps in the foreground always control lighting. This option determines how Dynamic Lighting interoperates with the configuration app provided by your RGB lighting product maker, if installed. When set to "On," Windows 11 will give precedence to the third-party app when it's running alongside a game or other app, ignoring the Dynamic Lighting configuration. Otherwise, the Dynamic Lighting configuration will be used. But if it's set to "Off" (and "Use Dynamic Lighting" is "On"), Windows 11 will ignore the third-party configuration app.

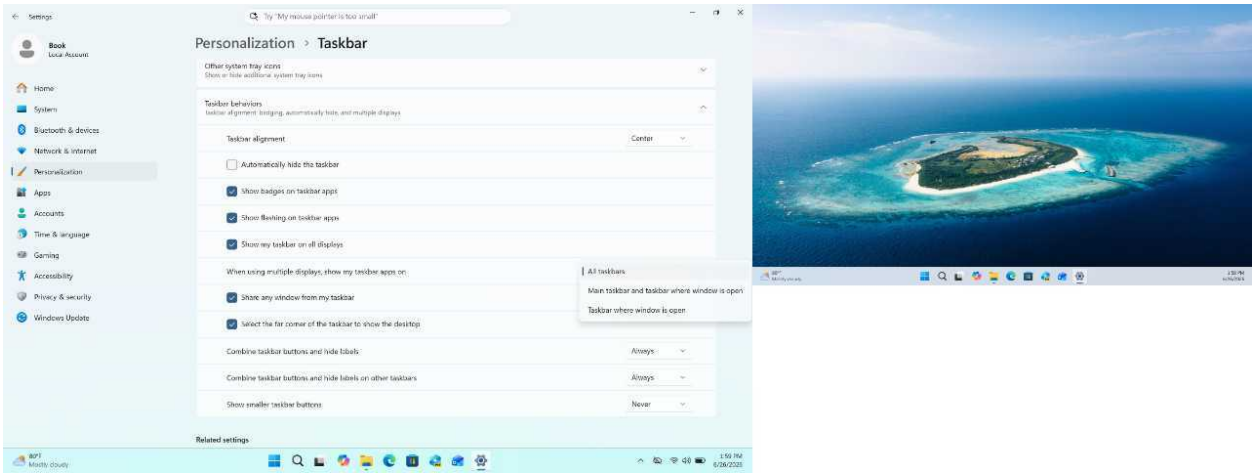
Background light control. Third-party RGB lighting apps can also run in the background so that users can control their device configurations at any time. This option, which expands to reveal a list of compatible apps when selected, can be used to determine which lighting controllers get precedence, the Dynamic Lighting Background Controller (the system), or whatever third-party app(s) you have installed. You can drag and drop them in place under "Background light control" to configure that precedence.

> **Tip**: If you only see the "Dynamic Lighting Background Controller" item under "Background light control," then you don't have any compatible RGB lighting apps that can run in the background.

Brightness. This is a simple brightness slider, much like those you've seen elsewhere in Settings and Quick settings. Just drag the slider control until the device(s) are at the desired brightness.

Effects. This is where the magic happens: You can use this option to determine the color theme or effect used by the selected device(s), and its interface changes based on which choice you make in the drop-down.

Multiple Displays



While laptops and other PCs are often used with a single display, Windows 11 supports multiple displays. In these configurations, the built-in laptop display or first external display connected to a desktop PC is referred to as the *primary* display, while any other displays, including wireless displays, are known as *secondary* displays, and each can be configured in unique ways. Whatever the setup, each PC has a single primary display, while the number of secondary displays is limited only by its expansion capabilities.

> **Learn more:** Configure the display

Understand multi-display setups

Depending on the hardware, you can connect one or more secondary displays to a PC, configure each in Windows 11, and use them all together in different ways. Most people with multiple display setups use two displays, but the system works similarly with three or more displays as well.

How you connect a secondary display to your PC will vary from PC to PC.

The simplest multiple display configuration, perhaps, is to connect a portable display to a laptop via USB-C. But many laptop users will also create a desktop setup with a USB-C or Thunderbolt dock or hub, one or more secondary displays, and additional peripherals like a keyboard, mouse,

and webcam. In this configuration, the secondary displays can be connected directly to the laptop via USB-C, or it they can connect to the dock or hub using USB-C, HDMI, or DisplayPort connectivity.

Desktop computers typically offer more expansion capabilities than laptops, and they can include a dedicated video card that has its own display connections. USB-C is common on desktop PCs, of course, but HDMI and DisplayPort connections are more common on desktop PC configurations with one or more secondary displays.

PCs of all kinds can also connect wirelessly to compatible displays using a technology called *Miracast*. And you can even use one PC's display as a wireless display for another PC; this is typically done with laptops, which have a built-in display.

And you can, of course, mix and match as needed. You can have wired secondary displays using USB-C, HDMI, or DisplayPort connections *and* one or more wireless displays, all connected to the same PC simultaneously if needed.

Connect to a secondary display

When you connect a secondary display to your PC–directly with a USB-C, HDMI, or DisplayPort cable, indirectly through a hub or dock, or wirelessly–Windows 11 will recognize the new device, trill a notification sound, display a pulsing on-screen pulse animation to indicate its success, and make it available for you to use.

> **Tip**: Windows 11 uses built-in *class drivers* to make this initial connection, but in some cases you can obtain better drivers and related utilities via Windows Update or the display maker's website. This is worth investigating, but if you're using a second USB-C-based display for standard productivity work, the drivers Windows provides are usually all you need.

Choose a multi-display configuration

Windows 11 offers four configuration choices for using two displays (with some additional options if you have three or more displays).

They are:

- **PC screen only**. Here, the second display is not used and your PC uses only its primary display.
- **Duplicate**. This is the default configuration. When you connect a secondary display to the PC, both displays will duplicate, or *mirror*, each other and present the same view, with the same resolution and display scaling on each. If the two displays have different default resolutions, Windows 11 will use the lower of the two resolutions on each.

- **Extend**. This mode *extends* the Windows 11 Desktop across both displays, giving you a bigger collective area for apps and other windows and the ability to move the mouse cursor (and apps and other windows) across display edges to other Desktops. As good, each display can use its native resolution and can be configured with unique scaling, orientation, and other options.
- **Second screen only**. In this configuration, the primary display is disabled and only the secondary display is used.

Oddly, you're not provided with these choices when you connect a secondary display. But there are three ways to change how Windows 11 works with multiple displays.

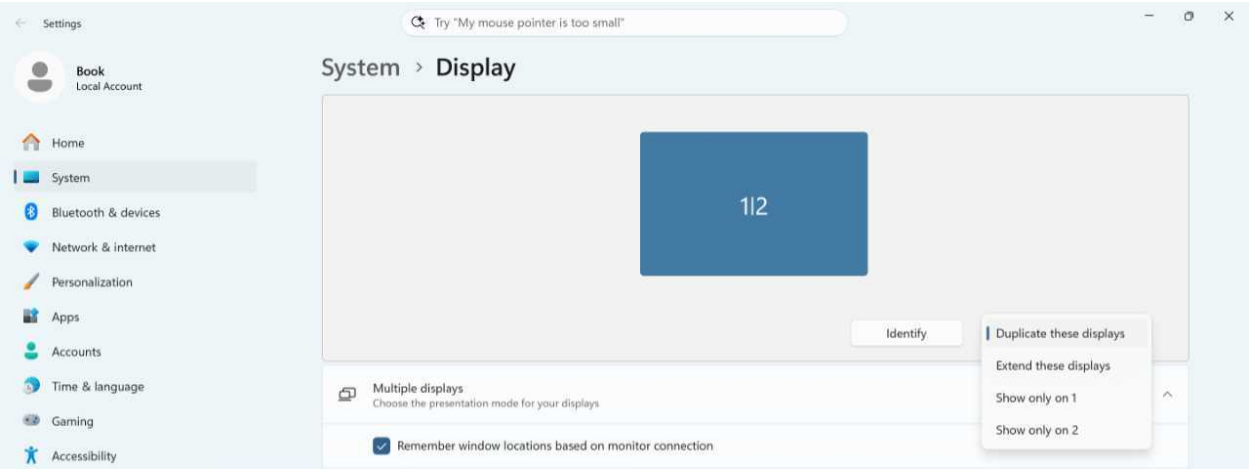
Ordered from quickest to most configurable, they are:

- **Project pane**. The quickest but least discoverable way is to launch the Project pane using the Windows key + P keyboard shortcut. The window that appears lets you switch immediately to the multi-display configuration you prefer.

- **Quick settings**. The Quick settings pane has a "Project" quick setting button you can use to display the Project pane and make a configuration choice.

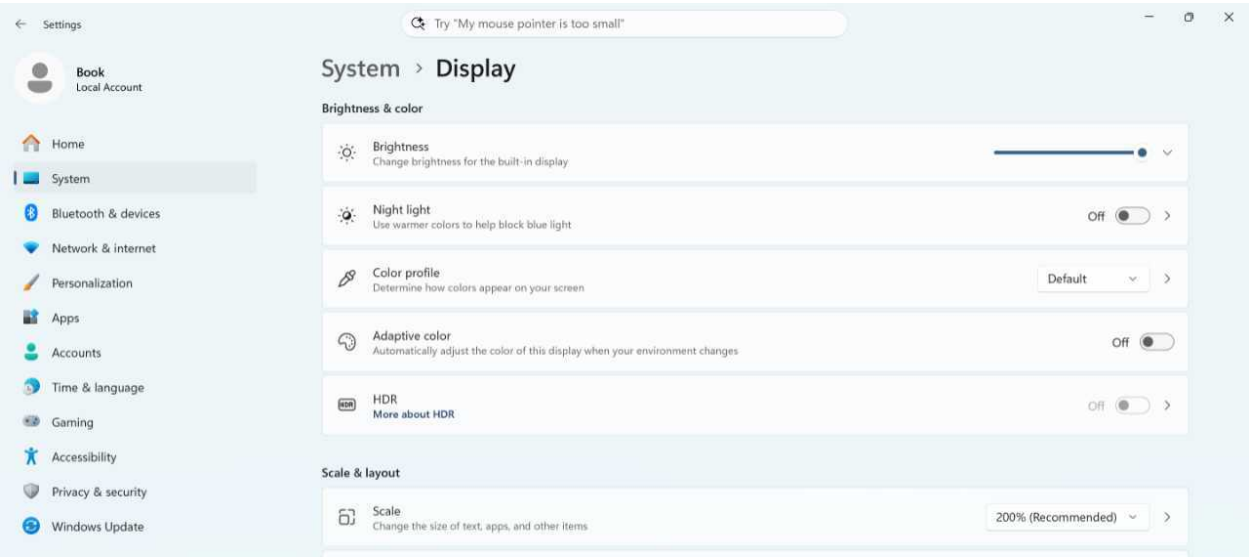
> **Keyboard shortcut**: You can also open Quick settings by typing Windows key + A.

- **Settings**. You can open Display settings (Settings app > System > Display) to choose a multi-display configuration and, more crucially, make many other configuration changes related to both displays. (This interface uses slightly different language for each multi-display configuration choice, but they're obvious enough. For example, "Duplicate" is identified as "Duplicate these displays" in Display settings.)

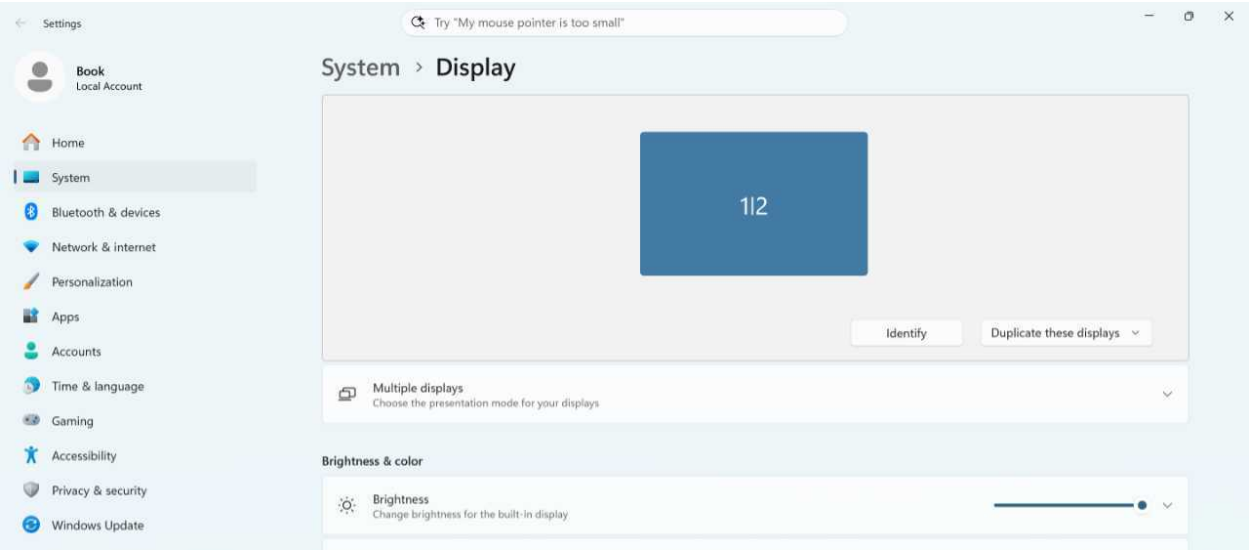


Configure a secondary display

When you use Windows 11 with a single display, Display settings (Settings app > System > Display) is straightforward enough: Each of the settings you see here applies to that one display, as expected.

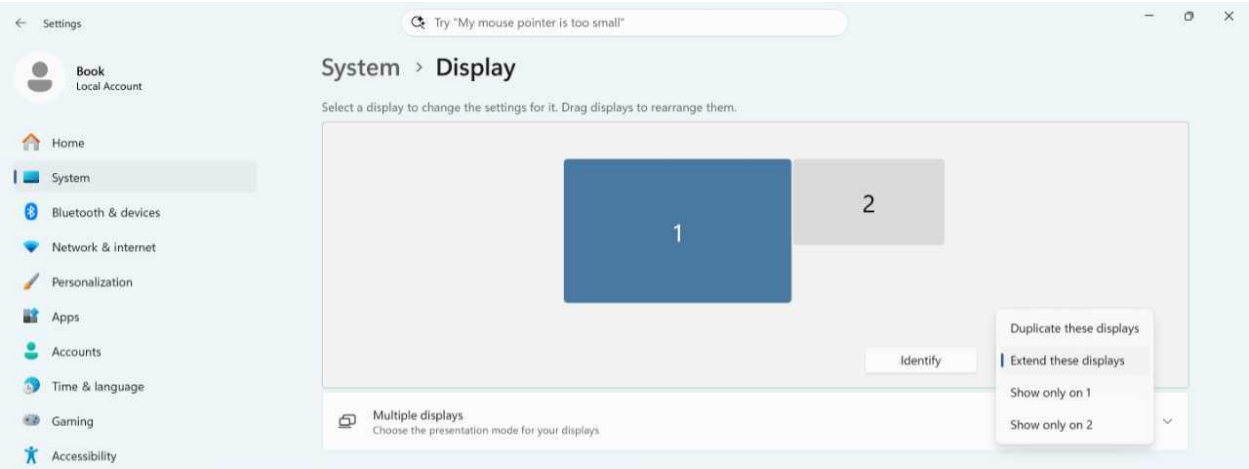


When you add a second display, Display settings changes to accommodate the new configuration. A new graphical display appears at the top of the page so that you can configure the real-world arrangement of the displays, identify which is which, and choose a multi-display configuration option. There's also a new expandable set of "Multiple displays" options.

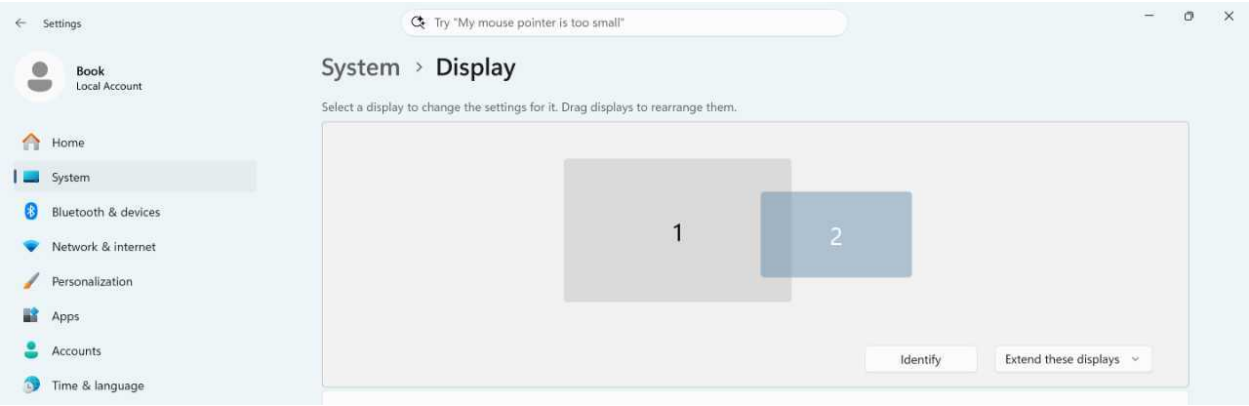


Here, you can do the following.

- **Choose a multi-display configuration**. If you haven't already done so, you might want to change the configuration of the displays from "Duplicate" ("Duplicate these displays") to "Extend" ("Extend these displays").



- **Rearrange the displays to match the real world**. The preview pane at the top of Display settings lets you drag each display in the preview layout at the top so that their virtual positions match their relative positions in the real world. This makes moving the mouse cursor between each more seamless.



- **Make a secondary display the main display**. This is most useful in a docked configuration where you might have a large desktop display, but you can configure a secondary display to act as the main display. To do so, select a secondary display in the Display settings preview and then enable the option "Make this my main display" under "Multiple displays." When you do so, your PC's primary display behaves like a secondary display while docked and then reverts to its normal use when not docked.
- **Configure other multi-display options**. The "Remember window locations based on monitor connection," "Minimize windows when a monitor is disconnected," and "Ease cursor movement between displays" options under "Multiple displays" let you control what happens when you connect and disconnect secondary displays.
- **Configure the secondary display separately from the primary display**. If you're using the "Extend" configuration, you can select the primary or secondary display in the preview and then configure individual settings–like Scale, Display resolution, and Display orientation–for each. You should at least make sure both displays are using the correct native resolution, which might be different for both.

Disconnect (and reconnect) a secondary display

If you're using two or more displays in Extend mode, each can (and will) have its own open applications and other windows (and, as noted below, Taskbar configurations too). When you disconnect a secondary display, perhaps by undocking the PC or unplugging it from the secondary display, Windows 11 tries to handle the transition gracefully, based on the configuration choices you made (or left as-is) in "Multiple displays," as noted above.

> **Tip**: Note that the Snap functionality described in the Snap chapter works across multiple displays as well. For example, you can use keyboard shortcuts like Windows key + Right arrow to move a window not just across the current display but across all your displays in turn.

Configure the Taskbar for multiple displays

If you're using two or more displays in Extend mode, you can configure the Windows 11 Taskbar with additional options specific to this configuration. For example, the Taskbar can be configured to show shortcut icons only for the applications and windows that are available on that display.

To do so, open the Settings app and navigate to Personalization > Taskbar. Then, locate the Taskbar behaviors area and expand it.

The following options are relevant to a multiple-display setup:

- **Show my taskbar on all displays**. When enabled, as it is by default, each display will show the Taskbar. If you disable this option, the Taskbar will only appear on the main display. (And the option noted below will be grayed out.)
- **When using multiple displays, show my taskbar apps on**. This option is set to "All taskbars" by default, meaning that the Taskbar on each display will be identical. But you can change this to "Main taskbar and taskbar where window is open" or "Taskbar where window is open." I prefer that last option and feel that most with multiple displays will want to do so as well.

- **Combine taskbar buttons and hide labels on other Taskbars**. This option is related to "Combine taskbar buttons and hide labels" and it offers the same choices: "Always" (the default), "When taskbar is full," and "Never." Basically, this gives you the opportunity to configure Taskbar button combining separately on the primary and all secondary displays. (You can't configure this on a per-secondary display basis if you have three or more secondary displays.)

Learn more: Taskbar

Connect to a wireless display

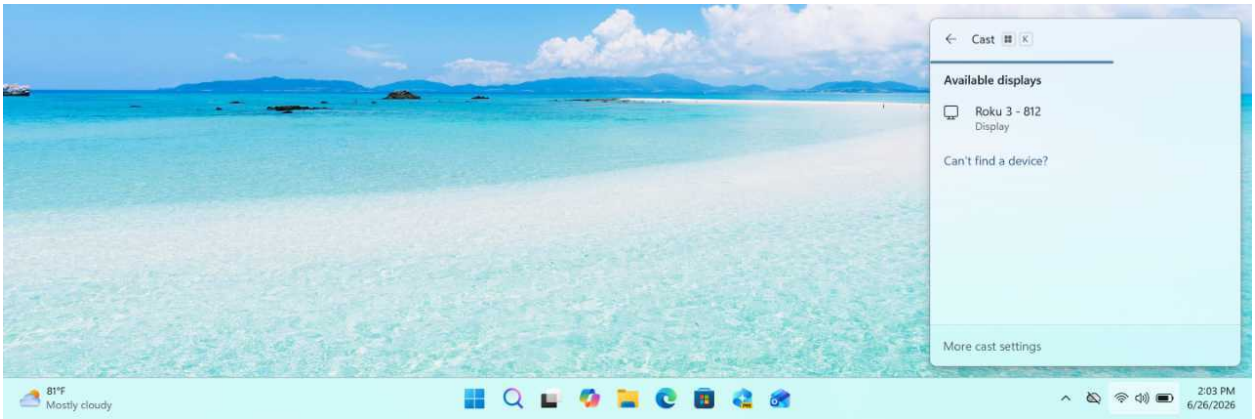
You don't necessarily need a cable to use an external display. Using a technology called *Miracast*, which uses Wi-Fi technology to establish a peer-to-peer connection between your PC (the Miracast source) and a Miracast-enabled display (the Miracast target) so that you can wirelessly *cast* to a compatible smart TV or other display instead.

Miracast has two requirements:

Your PC must include a Miracast-compatible Wi-Fi adapter. That means it supports either Wi-Fi Direct or Intel Wireless Display (WiDi) technology. These days, most PCs support one or the other.

Your external display must be Miracast-compatible. Many smart TVs and some displays are natively Miracast compatible. But you can also add Miracast capabilities to a smart TV or any other HDMI-capable display by purchasing an inexpensive adapter that plugs into a HDMI port on the TV/display.

If you meet the requirements, you can connect to a nearby wireless display by opening the *Cast* pane.



There are a few ways to get there, with the quickest at the top:

- **Cast pane**. You can directly open the Cast pane by typing Windows key + K.
- **Quick settings**. The Quick settings pane has a "Cast" quick setting button you can click to display the Cast pane and make a configuration choice. Its label will read as "Cast" if there are no connected secondary displays, but it will confusingly display as "Wired display" or similar if there is one or more secondary displays already configured.
- **Settings**. Open the Settings app, navigate to System > Display, expand "Multiple displays," and click the "Connect" button next to "Connect to a wireless display."
- **Windows Search**. Open Start (or Windows Search), type *cast*, and then choose "Connect to a wireless display," and Settings will open to the Display settings page, as above.

However you display it, the Cast pane displays any compatible wireless displays it can find.

You can connect to a wireless display by selecting it in the list, and Windows 11 will use and configure this display like a traditional wired display, but with one extra nicety: The Cast pane lets you pick a multi-display configuration without forcing you to separately open the Project pane or the Settings app.

From here, the wireless display will function much like any other secondary display. To disconnect the wireless display, open the Cast pane and choose "Disconnect."

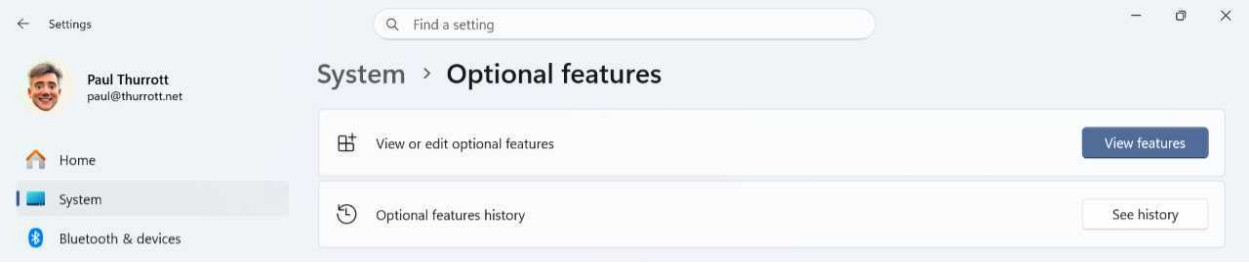
Use another PC as a wireless display

If you have another Windows 11-based laptop or other PC, you can use *its* display as a wireless display, too. This is an interesting use for a laptop you're not using, perhaps, or an older PC that you just replaced.

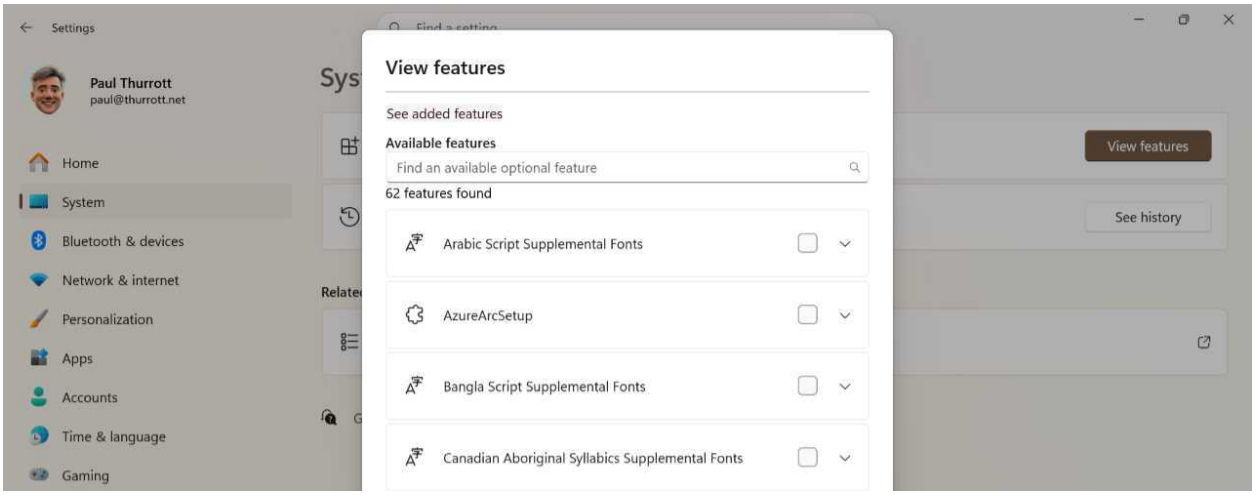
Install the Wireless Display feature

First, you need to install an optional Windows 11 feature on the PC you intend to use as a wireless display. To do so, open the Settings app and navigate to System > Projecting to this PC.

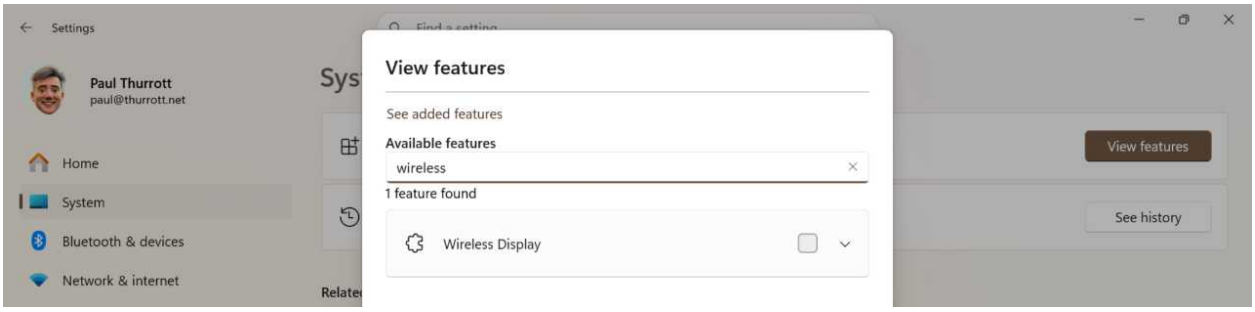
Click the "Optional features" link to open the Optional features page in Settings. (This can also be found by navigating to System > Optional features.)



Click "View features" next to "Add an optional feature." After dealing with a User Account Control (UAC) dialog, the "View features" window opens. Click "See available features at the top."



In the search box, type *wireless* and one additional feature, "Wireless Display," will appear. Select that and click "Add."

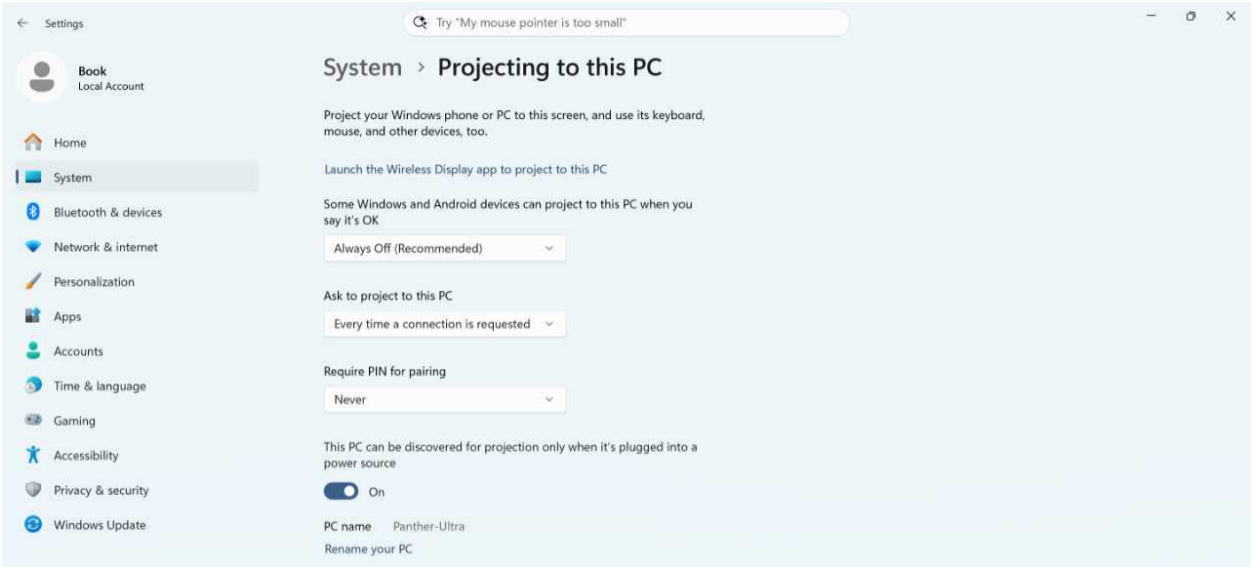


The Wireless Display feature will install and display a progress animation right in the Settings app. When it's done–and it takes a while–Wireless Display will appear in the list of "Installed features."

> **Tip**: You can also install the Wireless Display feature directly by opening Start, typing *optional features*, and selecting "Optional features" from the search results to open Settings, which will open to the Optional features page. Then, just click "View features" and follow the instructions above.

Configure your PC for use as a wireless display

Next, you should configure the PC you intend to use as a wireless display. To do so, open Settings and navigate to System > Projecting to this PC. This page now displays various options related to this feature.



The following options are available:

Some Windows and Android devices can project to this PC when you say it's OK. By default, the wireless projection capability is disabled (set to "Always Off"), so you will need to manually launch the Wireless Display app before you can connect to it from another PC. But you can change this option to "Available everywhere on secure networks" or "Available everywhere" if desired.

Ask to Project to this PC. This feature ostensibly controls how often you must approve connection requests from other PCs: the default is "Every time a connection is requested," but you can also configure it to "First time only." But it doesn't appear to impact the connection experience at all.

Require PIN for pairing. By default, your PC will automatically accept all external connection requests, but you can use this option, which is set to "Never" by default, to require a PIN first. If you change this to "First Time" or "Always," the person using the connecting PC will need to enter that PIN before they can connect. (This PIN appears on the Wireless Display app that's described in the next section)

This PC can be discovered for projection only when it's plugged into a power source. This option will only appear on a laptop or other portable PC.

Connect to a PC that's being used as a wireless display

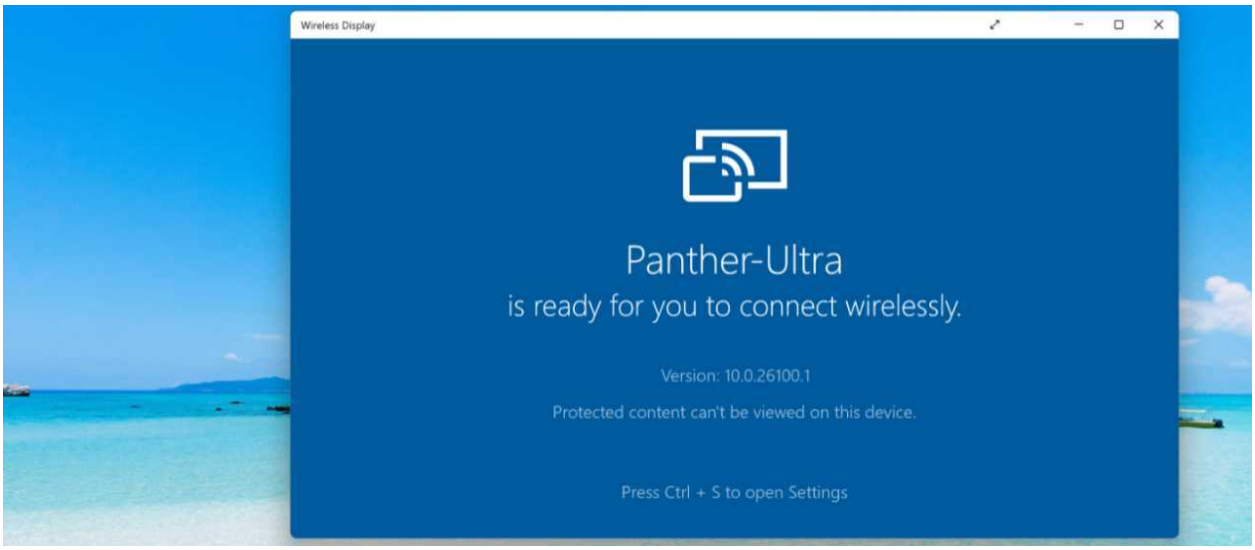
For the most part, using a PC as a wireless display works as you'd expect and like any other wireless display. But there are two main differences:

- **Wireless Display app**. You must run the Wireless Display app on the PC you wish to use as a wireless display. Your PC won't be available as a wireless display until you do.

> **Tip**: You can find the Wireless Display app with Windows Search. Or, open the Settings app, navigate to System > Projecting to this PC, and select the "Launch the Wireless Display app to project to this PC" link.

- **Mouse, keyboard, touch, and pen support**. Because this wireless display is really a PC, you can optionally enable the use of the other PC's mouse/touchpad, keyboard, multitouch display, and smartpen. So you can control what's happening on-screen with either PC. (You make this choice when you connect to the PC acting as a display.)

To get started, launch the Wireless Display app on the PC that's being used as a wireless display.



This app dates back to Windows 8, when all non-desktop applications had to run in a true full-screen mode that hid even the Taskbar. As such, it's a bit of an outlier in today's more modern Windows 11 environment. But the Wireless Display app's ability to display full-screen is important: If you used it windowed (floating) or maximized (with its Taskbar showing), the PC won't seem like a wireless display.

To use this app effectively, you need to understand that it puts key user interfaces in its title bar. And that if the app is full-screen, you can access that title bar–and the UI it contains–by mousing up to the top edge of the screen.

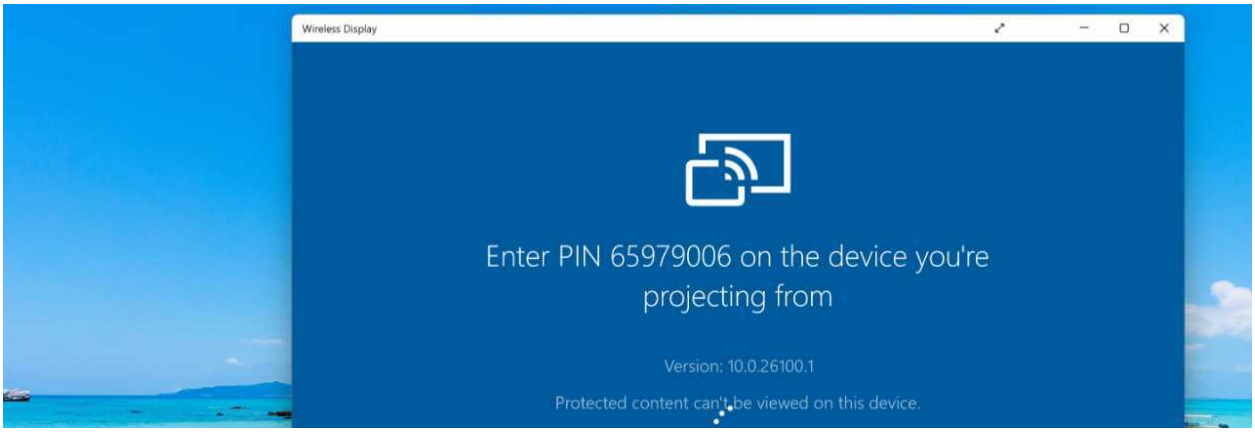
To toggle full-screen mode, select the Full Screen title bar button.

Also, you may be tempted to try the CTRL + S shortcut that the Wireless Display app advertises. There's little reason to do so, as the settings interface is just a list of PCs that have already connected and a related blocked devices list. But if you open settings while the app is in full-screen mode, it's not obvious how to exit it.

That's why you need to know that you can display the app's title bar if you mouse up to the top of the screen: There's now a Back button at the far left of the title bar that will get you back into the app.

Now that you know how the Wireless Display app works, you can connect to it from another PC. And you do that the same way you connect to any compatible wireless display, with the Cast pane. But there are a few differences to consider.

If the PC to which you're connecting requires a PIN, that PIN will be displayed in the Wireless Display app when the connection is initiated.



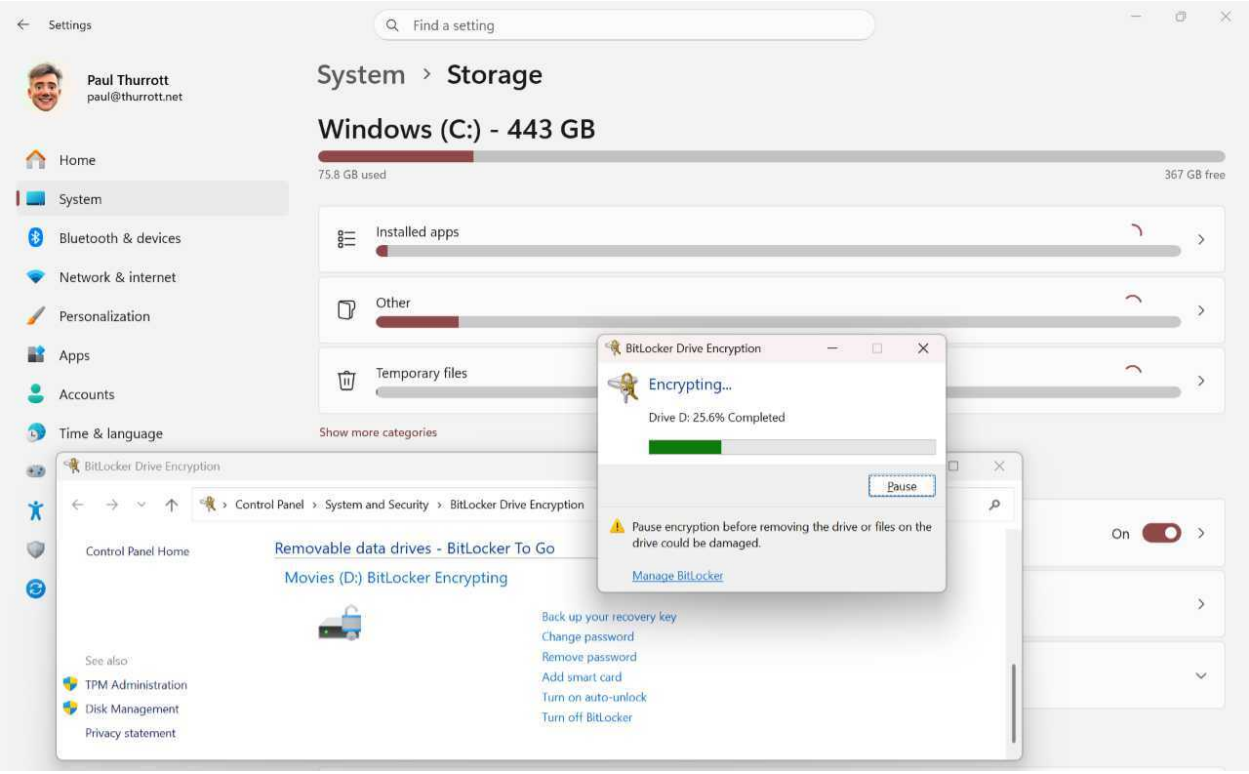
You will need to enter this PIN into the Cast pane on the PC you're actually using.

Also, because you're connecting to a real PC, you will see an option to "Allow mouse, keyboard, touch, and pen input from this device" in the Cast pane after the connection is made. You can optionally enable this option to use any of those features on the PC you're using as a wireless display.

You disconnect from a PC that's being used as a wireless display the same way you do with any wireless display, via the Cast pane. When you disconnect, the Wireless Display app on the other PC closes too.

Storage

Windows 11 includes various tools and interfaces to help you manage your PC's internal and external *storage devices*. These devices are used to contain Windows and other system files, plus installed applications and your documents and other data files, and while most of this behavior is automated and optimized for you, you may sometimes need or want to customize or manage various storage-related features.



Defaults

All Windows PCs have at least one internal *fixed disk*, typically a solid-state drive (SSD). But it's possible to add additional disks to most desktop PCs and even some laptops, some of which may still be of the old-fashioned hard disk drive (HDD) type. And most Windows users are probably familiar with USB-based *removable disks*, which are typically SSDs, HDDs, or smaller-capacity drives sometimes referred to as memory sticks or thumb drives.

Whatever the underlying technology, disks are divided, internally, into one or more *volumes* (sometimes referred to as *partitions*) that are *formatted* using a *file system* so that they can be used to store the files and folders required by Windows and its users.

For the most part, you don't need to be concerned with the low-level details of how these storage devices interact with your PC. But it is helpful to understand the handful of Windows 11 storage features that you will run into from time to time. They are:

- **Storage settings**. This is the modern and primary interface for managing internal and external storage devices.
- **Storage Sense**. This Windows 11 feature automatically manages storage space by deleting unused files on set schedules.
- **Device encryption settings**. This Settings-based interface lets you toggle Device encryption for the system disk on or off.
- **BitLocker control panel**. If you have Windows 11 Pro, you can use this control panel to manage device encryption for any disk, including removable disks that can be encrypted with BitLocker to Go.
- **Disk Management**. This legacy control panel provides a few features Storage settings lacks, like the ability to change a disk's drive letter and format removable disks formatted with a file system that Windows doesn't natively understand.
- **Storage Spaces**.

Additionally, there are some key interfaces tied to storage you will run into throughout Windows 11, including:

- **AutoPlay**. You can configure what happens when you connect removable media or insert a media card to your PC in Settings > Bluetooth & devices > AutoPlay.

> **Learn more**: Hardware Device Basics

- **Disk formatting**. You can format most disks using File Explorer.

> **Learn more**: File Explorer

By default, Windows 11 handles the following storage-related tasks automatically:

- When you set up a new or reset PC, Windows 11 automatically *partitions* the entire first or only fixed disk in the PC and uses most of the available space as the *system* (C:) drive. Other partitions required by Windows–for booting the PC, for example, or to store a recovery image–are hidden from you in File Explorer. (If you clean install Windows 11 using USB installation media, you are provided the opportunity to partition the disk differently.)

- Windows 11 automatically monitors the health of any fixed or removable disks in or attached to your PC and alerts you if and when there are issues.
- Windows 11 automatically optimizes the performance and health of any fixed or removable disks in or attached to your PC on a weekly basis.
- Storage Sense monitors the storage usage of any fixed disks in your PC and automatically deletes unnecessary temporary system and app files and empties the Recycle bin every 30 days.
- Storage Sense monitors the storage usage of your locally synced OneDrive files and automatically deletes any cloud-backed content you've not accessed in 30 days. This excludes content you've explicitly marked as "Always keep on this device."
- Windows 11 automatically saves new apps, documents, music, photos, videos, movies and TV shows, and other content to the system disk by default.
- If you sign in to Windows 11 with a Microsoft account (MSA), it will automatically *encrypt* the system disk to protect your data from physical theft and back up your *recovery key* in OneDrive.

Learn more: Device encryption

- Files you delete in File Explorer or on the Desktop are placed in the Recycle bin by default for recovery purposes. It will use up to 1/20th of the total disk space for this purpose, and the Recycle bin will prompt you if you manually empty it.

Customize

Most storage-related settings and customizations are available in Storage settings in the Settings app. You get there by navigating to System > Storage.

Under the "C:" drive heading–which is typically named "Windows (C:)" but will be labeled according to the name you see in File Explorer–you can see what types of files are taking up the storage space in your PC's system disk and can expand the view if desired.

Storage usage is grouped by type. Some of these entries are read-only, but some can be further configured.

> **Tip**: You can also see what's taking up space on other fixed and removable storage devices by selecting the link "Storage used on other drives" under the "Advanced storage settings" header on the main Storage settings page.

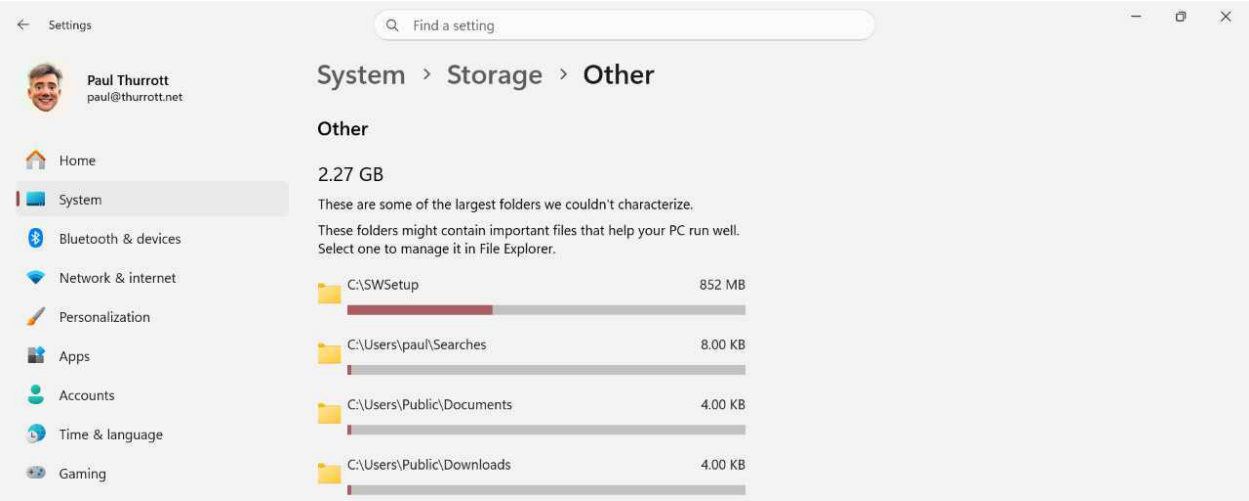
Some common storage-related customizations you can take on here are described in the next several sections.

View details about storage usage on the system disk by type

Storage settings displays an expandable list of content types, sorted by storage usage, and you can click into any of those items to learn more and, in some cases, configure storage usage in different ways. Some of the key areas to investigate here include:

- **Temporary files**. This opens the Temporary files page that's described later in this chapter.

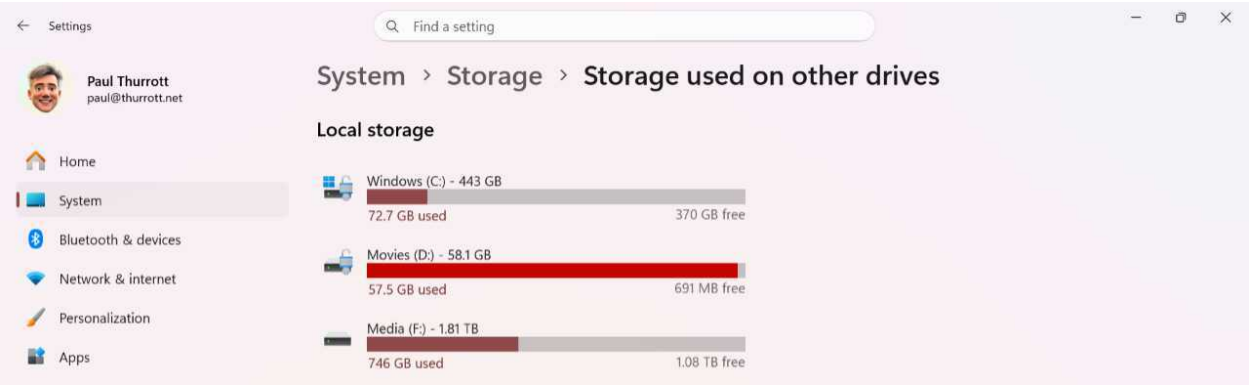
- **Installed apps**. This navigates to Apps > Installed apps, also described below.
- **Other**. This displays the storage usage of items that don't fall into one of the preset categories, like the C:XboxGames folder that's used to store any games you download from XBOX on the PC by default. You can click any item here to display that location in File Explorer.



- **System & reserved**. This displays a System & reserved page that explains how Windows 11 uses storage for itself. The only actionable item is System restore: You can click a "Manage system restore" button to launch the legacy System Restore control panel and configure how much storage this tool reserves for itself.

View details about storage on other disks

As per above, you can also view and, in some cases configure, storage usage on other fixed or removable disks. To do so from Storage settings, navigate to Advanced storage settings > Storage used on other devices and select the disk you wish to inspect. As with the system disk, this page displays an expandable list of content types, sorted by storage usage, and you can click into any of those items to learn more and, in some cases, configure storage usage in different ways.

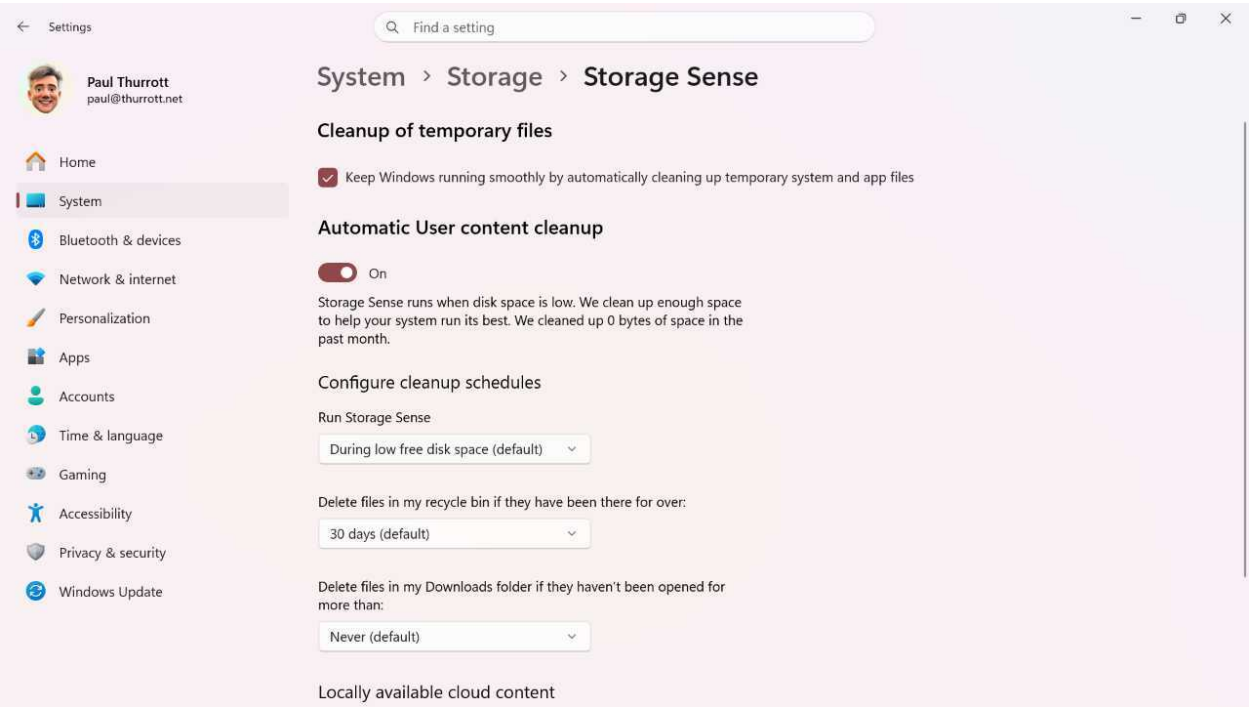


This works as above.

Configure Storage Sense

The “Storage Sense” option in Storage settings determines whether Windows 11 can automatically manage your storage. But you can also click this item to display Storage Sense settings, which

provides several configurable options.

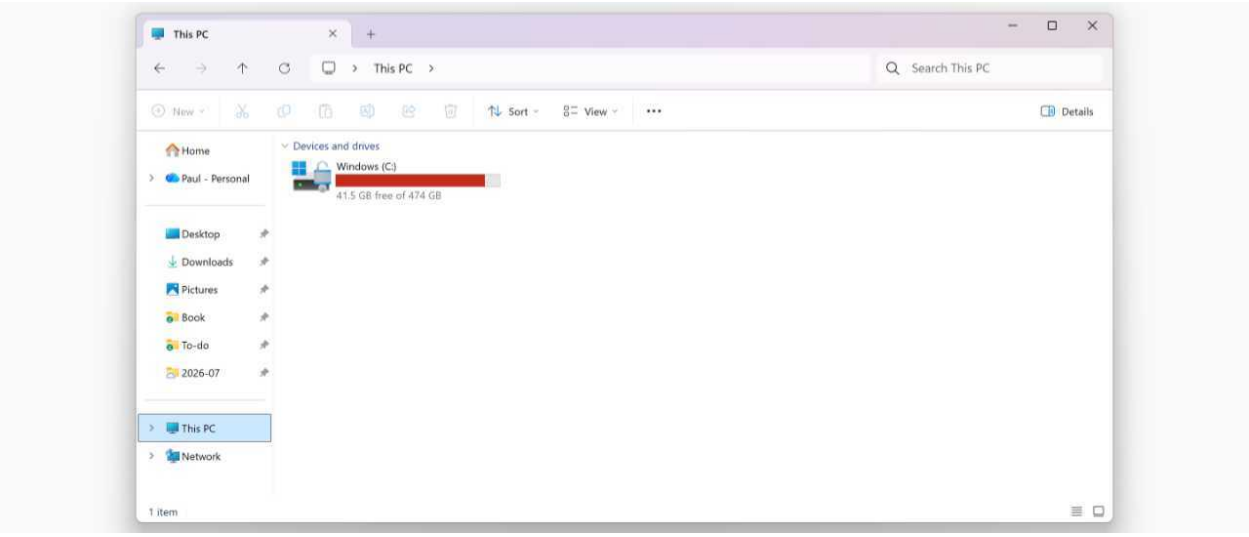


Key customizations here can include:

- **Cleanup of temporary files**. The option "Keep Windows running smoothly by automatically cleaning up temporary system and app files" duplicates the "Storage Sense" toggle in Storage settings. It's a global on/off switch for Storage Sense and should be left enabled.
- **Automatic user content cleanup**. This feature is enabled by default, but you can configure individual cleanup schedules for when Storage Sense runs automatically, when to delete files in the Recycle bin, when to delete files in the Downloads folder (which is disabled by default), and when to free up space by removing cloud-only content from the PC (excluding content you explicitly configured as "Always keep on this device").
- **Run Storage Sense now**. Hidden at the bottom of this page is a "Run Storage Space now" button you can use to perform all the automatic content cleanup tasks configured above immediately instead of waiting on their respective schedules. When it's done, Storage Sense will report how much storage space it reclaimed.

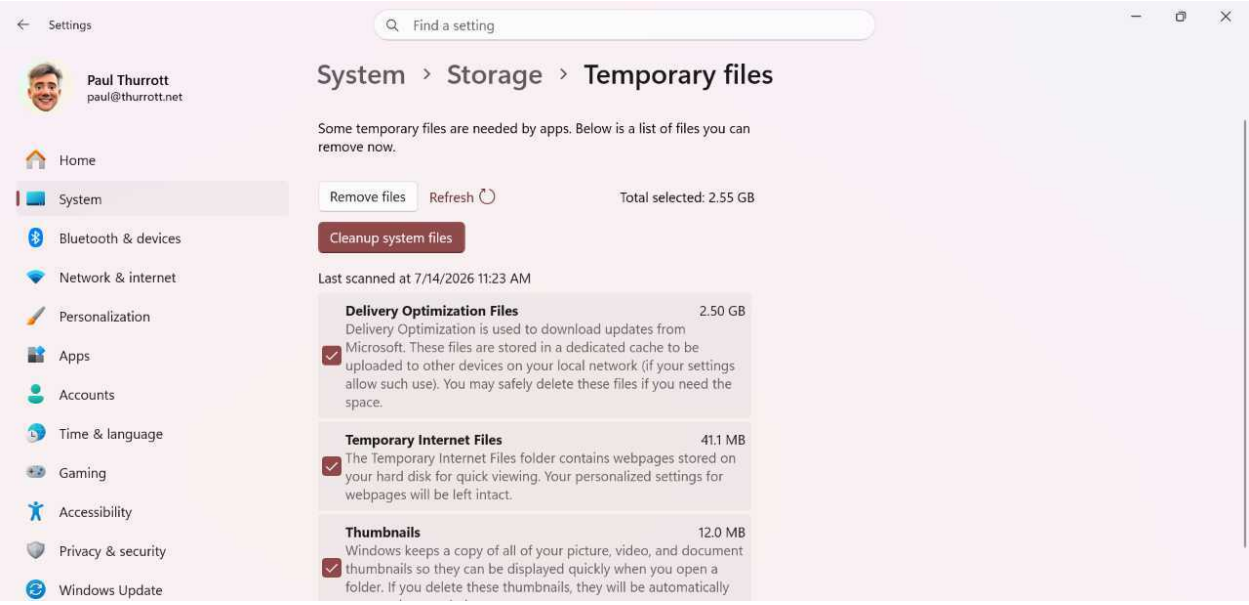
Clean up storage usage manually

You may sometimes notice that your system disk or some other disk is running low on disk space in File Explorer, which graphically highlights any disk with low free disk space.



Though Windows 11 handles this automatically, you can sometimes recover gigabytes of additional storage space using three different tools with overlapping functionality.

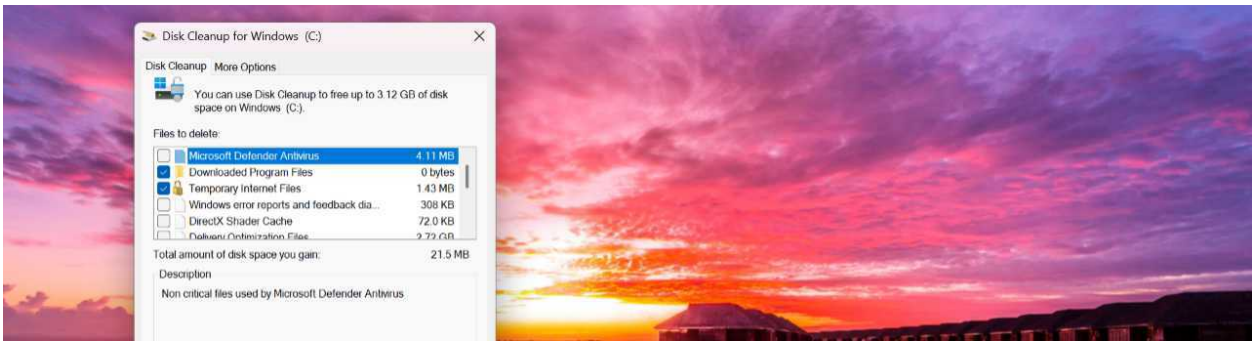
- **Delete temporary files**. In Storage settings, click the "Temporary files" item under "Windows (C:)" (or similar) and review and configure the list of temporary file types that you can delete. Then, click "Remove files" and address a User Account Control (UAC) prompt to reap the rewards.



- **Use Cleanup to free up disk space**. In Storage settings, click "Cleanup recommendations" and then use the "See advanced options" link in the "Temporary files" group and the expandable "Large or unused files," "Files synced to the cloud," and "Unused apps" items to

review and configure what Cleanup will remove. (Note that “See advanced options” displays the “Temporary files” page noted above.) Each section reports how much disk space your selections will save and provide a “Clean” button so you can make it happen.

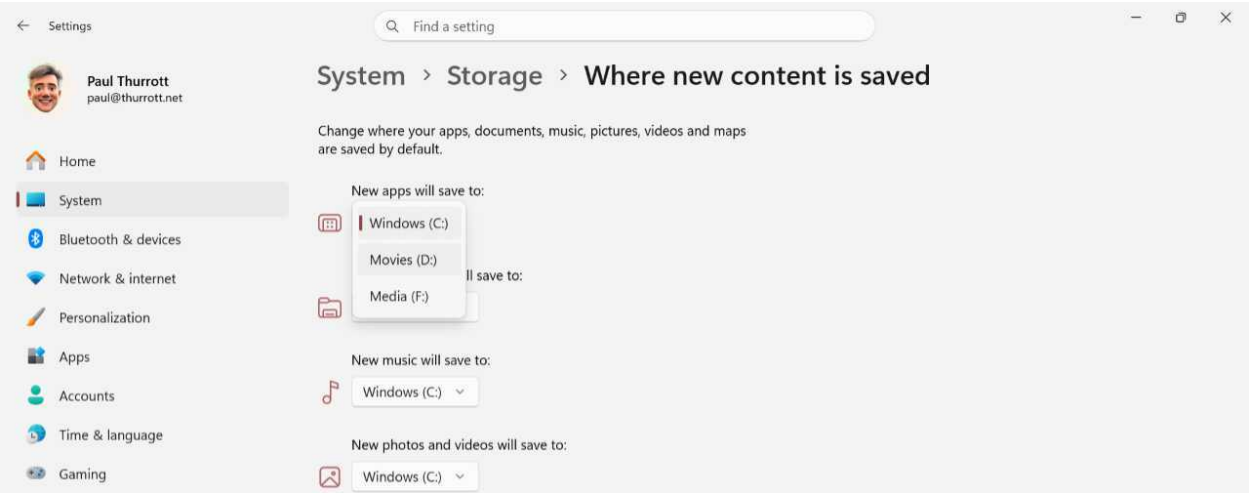
- **Disk Cleanup**. This legacy control panel is still available in Windows 11 and accessible via Windows Search. After selecting which fixed disk to work with, click the “Clean up all system files” button to restart the control panel with more choices, select the items you wish to delete, and then click “OK” to get started. This tool is interesting because it can delete items tied to recent Windows 11 feature updates or other updates.



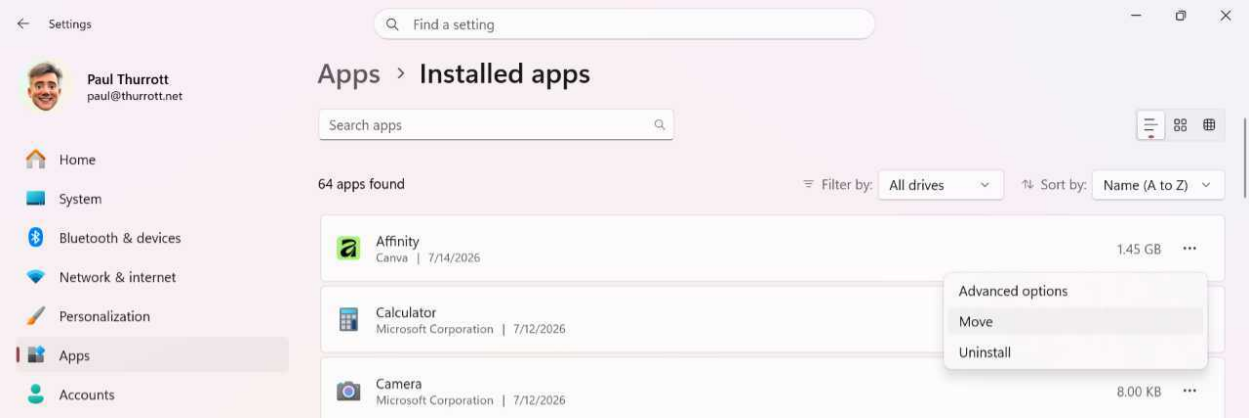
Configure where new content is saved and move existing content to a new location

If you have two or more fixed or removable disks, you can save space on the system disk by configuring Windows 11 to save new content to a non-system disk and, when possible, move existing content, including installed apps and games, to another disk.

- **Configure where new content is saved**. Navigate from Storage settings to Advanced storage settings > Where new content is saved. Here, you can configure where new apps, documents, music, photos and videos, new movies and TV shows, and other content is saved.



- **Move existing apps and games to a new disk**. Open Settings and navigate to Apps > Installed apps. Click "More options" ("...") next to an app or game you wish to move and select "Move" from the menu that appears if available. Then, select the drive to move the content to and click "Move." (If the "Move" option is not available, this item must stay on the system disk.)



Learn more: Apps

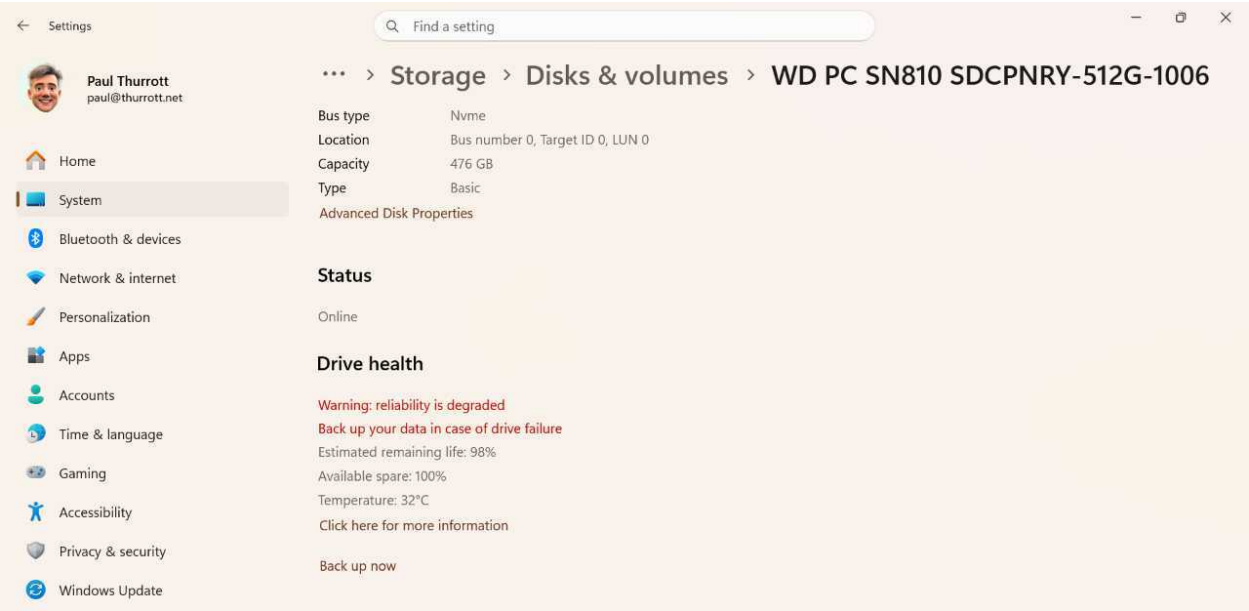
View the health of each fixed and removable disk and partition

Windows 11 will alert you if any fixed or removable disk is exhibiting reliability issues. But you can manually check on the physical health of your disks by navigating from Storage settings to Advanced storage settings > Disks & volumes. Here, you will see each disk in your PC below

some virtual hard disk (VHD) and Dev Drive options that indicates the health of each (typically "Healthy" for fixed disks or "Online" for removable disks).

You can expand each disk view to see the partitions each contains. But what you're really looking for here is whether any disk is experiencing a problem. If so, you will see text in red, like "Warning: issues detected," next to the impacted disk.

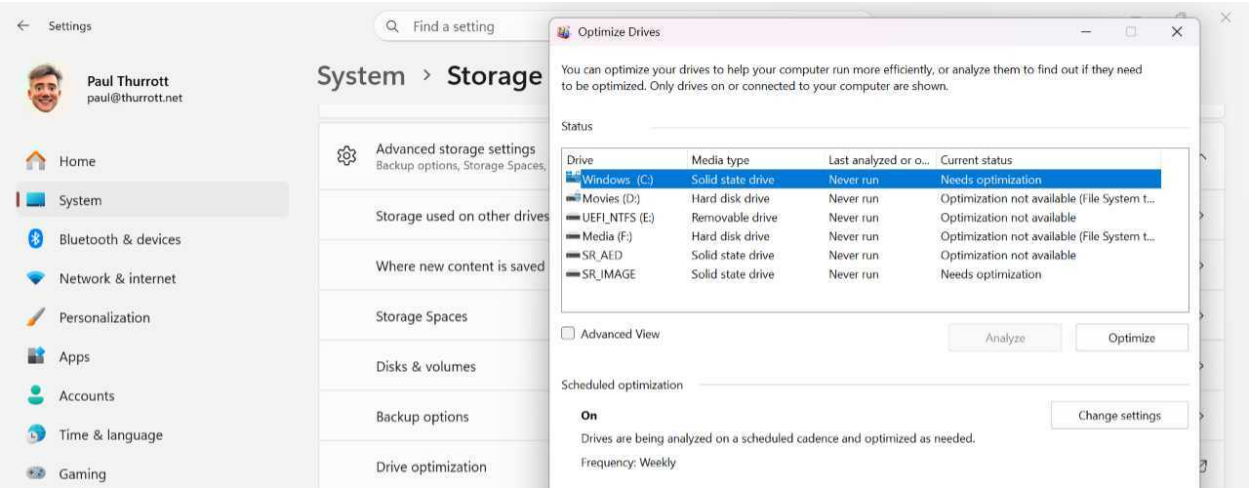
Click "Properties" next to that disk to learn more.



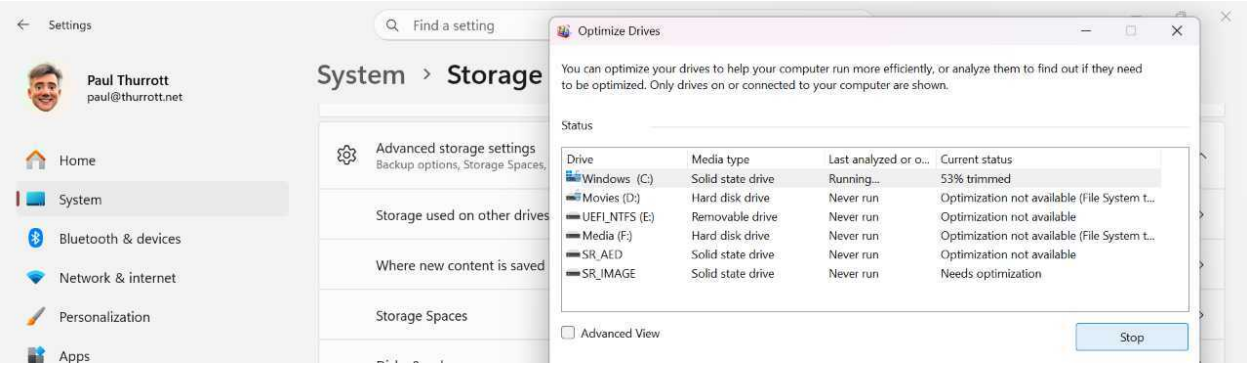
Under "Drive health," you will see more information about the issue, the estimated remaining lifetime of the hardware expressed as a percentage, a "Click here for more information" link that displays a Microsoft Support page in your default web browser, and a "Back up now" link that navigates settings to Windows backup settings.

Manually optimize a disk

Windows 11 automatically optimizes each fixed and removable disk that's connected to your PC. This is the optimal configuration for most. But you can manually optimize any attached disk from Storage settings by navigating to Advanced storage settings and clicking the "Drive optimization" item. When you do, the legacy Optimize Drives control panel appears.



Here, you can select a disk to optimize, optionally enable “Advanced View” to add hidden partitions to the view, configure the automated optimization schedule by clicking “Change settings,” or, wait for it, run the optimization tasks manually by clicking “Optimize.”



> **Tip**: Optimization is not available for certain file system types, like exFAT.

Device encryption

Windows 11 includes a *full-disk encryption* feature called *Device encryption* that protects the data on your system disk from physical theft.

> **Tip**: Technically speaking, Device encryption does not encrypt your entire system disk, which is divided into different logical *volumes* or *partitions*. Instead, it encrypts the C: drive, the system disk that contains Windows and other system files. Any other volumes on this disk will not be encrypted (or be visible normally while using Windows 11).

Defaults

Device encryption is enabled automatically the first time you sign in to Windows 11 using a Microsoft account (or Microsoft Work or school account).

If you sign in to Windows 11 with a local account, Device encryption is partially enabled by default but not *activated* (fully enabled).

If you are using Windows 11 Home, you can only activate Device encryption by signing in to Windows 11 (at least once) with a Microsoft account. There is no way to further manage this feature; it’s either enabled or not.

If you have Windows 11 Pro, you can use the *BitLocker* control panel to activate and manage Device encryption for fixed *and* removable disks, in the latter case using a feature called *BitLocker to Go*. Windows 11 Home can access removable storage protected by BitLocker to Go, but it cannot create or manage removable storage protected by this feature.

For the most part, Device encryption is seamless and not something you will notice. But it is important to understand that any files that you copy or move *to* an encrypted disk are encrypted during the copy/move process. Likewise, any files that you copy or move *from* an encrypted disk are *decrypted* during that process as well. Decrypted files can be read or used by anyone, on any PC.

> **Tip**: When enabled, Device encryption also provides some additional functionality for the system disk on which Windows is installed. For example, when the PC boots, it will examine the integrity of the system to ensure that nothing suspicious has happened to the PC's firmware or startup files. If an issue is found, you'll be prompted to provide the recovery key, which was saved to your Microsoft account (or Work and school account) by default in the form of a very lengthy text-based password.

Customize

You can enable or at least view the status of Device encryption by opening the Settings app and navigating to Privacy & security > Device encryption.

This will typically be enabled by default, as noted above.

> **Warning**: To be clear, **do *not* disable Device encryption**.

Manage device encryption with Windows 11 Home

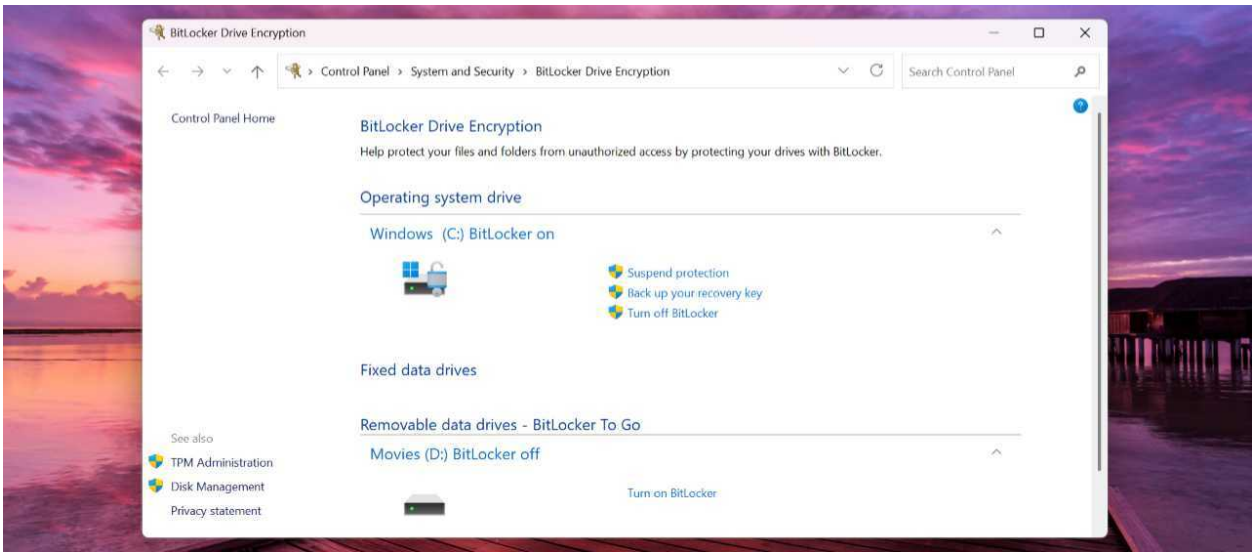
If you are using Windows 11 Home, this is the only interface you get. If you sign in with a local account and try to enable Device encryption here, you are prompted to sign in with a Microsoft account (MSA), and there is no other way to encrypt the disk. So you have a few options:

- **Upgrade to Windows 11 Pro**. Click the "BitLocker drive encryption" item to open the Microsoft Store app and view Microsoft's official upgrade offer, which is expensive. A better bet: Use Google or your favorite search engine to find inexpensive Windows 11 Pro product keys online. As an example, I've used Product Keys successfully many times, and a Windows 11 product key is often as inexpensive as $9.99. Any of these sites will provide you with a product key you can use by opening the Settings app, navigating to System > Activation, and clicking the "Change" button next to "Change product key."
- **Convert your local account to a Microsoft account or add an MSA sign-in account to automatically encrypt the system disk**. You can then convert the account back to a local account or remove the secondary MSA you just added after encryption is complete.

Learn more: Accounts

Manage device encryption with Windows 11 Pro

If you are using Windows 11 Pro, the "BitLocker drive encryption" link on the Device encryption settings page opens the legacy BitLocker Drive Encryption control panel when clicked. This interface provides numerous configuration capabilities.



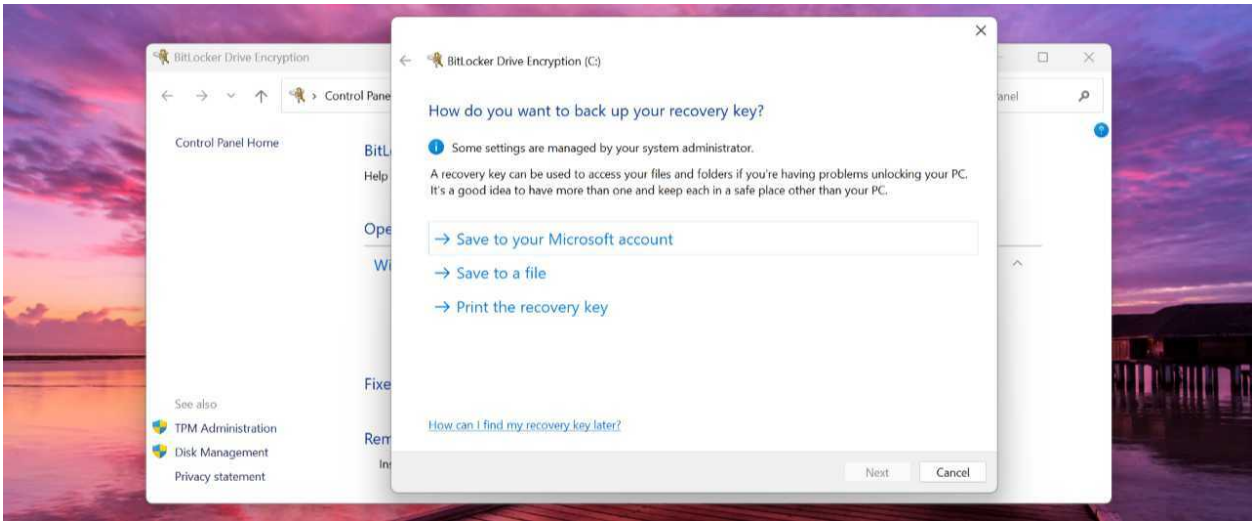
> **Tip**: You can also launch BitLocker Drive Encryption directly using Windows Search.

> **Tip**: Note that because the BitLocker Drive Encryption control panel predates Windows 11, it refers to Device encryption as "BitLocker." The two terms refer to the same functionality, but I refer to this feature consistently using its correct modern name, which is Device encryption.

Available options for the system disk and other fixed drives includes:

- **Turn on BitLocker**. This is the only option you'll see if Device encryption is disabled. Obviously, you can click this to begin encrypting the disk. When you do so, the BitLocker Drive Encryption wizard starts and progresses through several steps, during which you determine where to save the recovery key–which can be in your Microsoft account, to a file saved to a different disk, or even printed out on paper–choose how much of the disk to encrypt up front (where encrypting only the used disk space now will speed the process), and optionally run a BitLocker system check to ensure that your recovery and encryption keys are accessible before starting. This process can take a few minutes or more depending on the size of the disk and how much space is already used.

- **Suspend protection**. In rare cases–such as when your PC requires a firmware update–you may need to temporarily disable full-disk encryption. This link lets you do so.
- **Back up your recovery key. **This link displays the BitLocker Drive Encryption wizard so you can back up your Device encryption *recovery key* to your Microsoft account, a local file, or a printout.

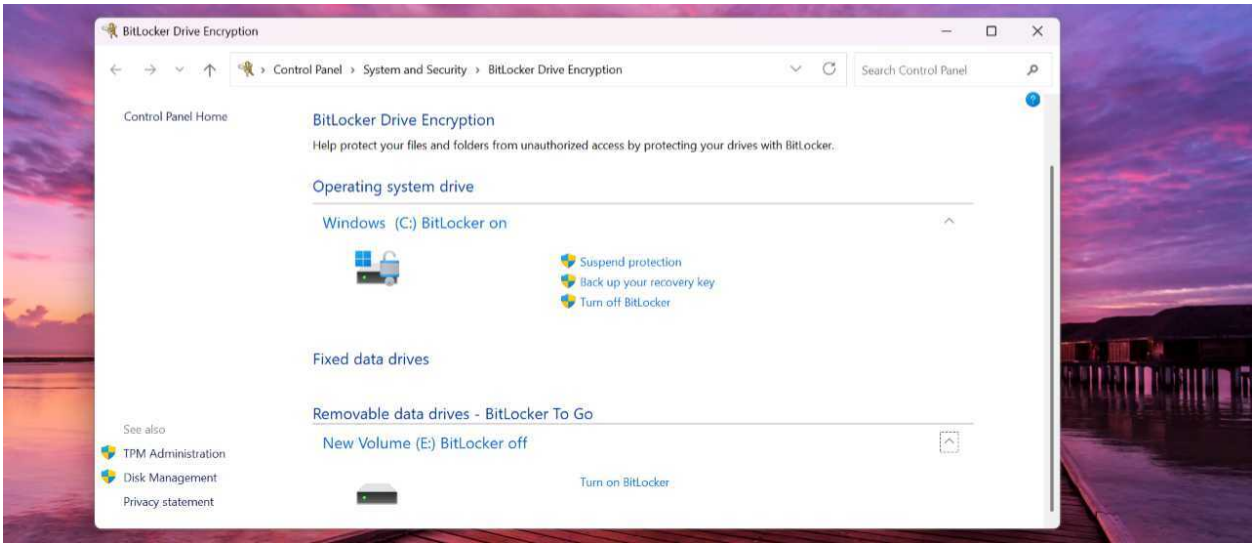


- **Turn off BitLocker**. If you wish to disable Device encryption entirely, this option is for you. Removing encryption can be time-consuming, but you can at least continue using the PC while this process occurs. Also, don't ever do this.

Encryption and removable storage

In addition to using Device encryption with fixed disks, you can encrypt a removable storage device–like a USB flash drive or hard drive–using a feature called *BitLocker To Go*. This feature requires Windows 11 Pro, though removable drives *BitLocker To Go* work with Windows 11 Home as well.

To get started, connect a removable storage device to your PC and then open the BitLocker Drive Encryption control panel. The device will appear under "Removable data drives - BitLocker To Go."

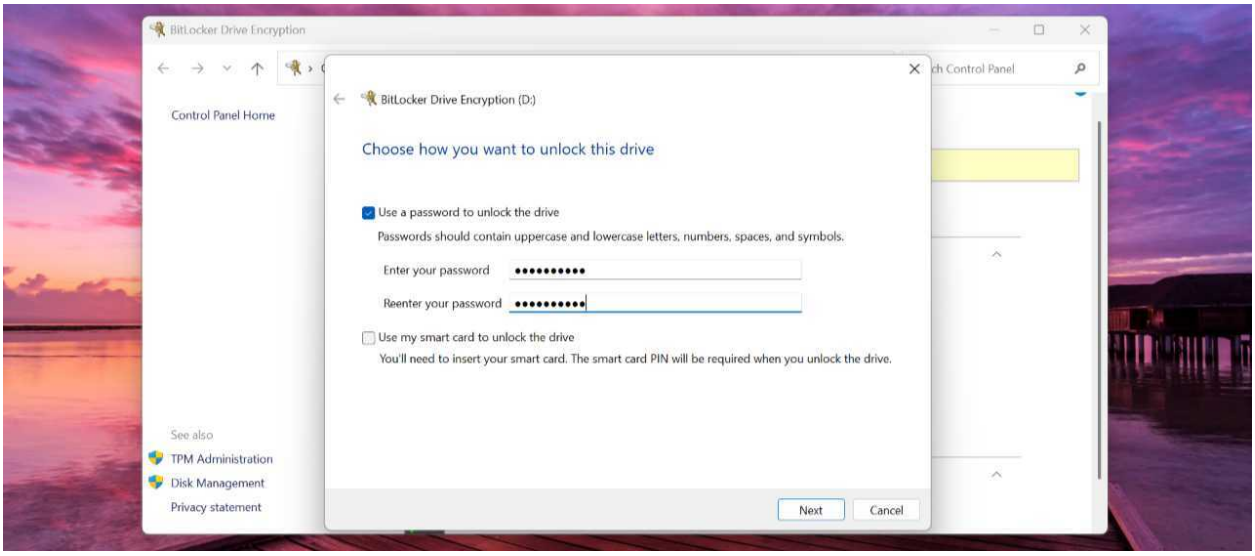


Now, expand the view using the caret to the right and select the "Turn on BitLocker" link next to the appropriate disk under "Removable data drives – BitLocker To Go." The BitLocker Drive Encryption wizard starts and progresses through the following steps:

- **Choose how you want to unlock this drive**. Here, you must choose a method to unlock the disk. This can be a password–the typical method for most individuals–or a smart card, which is used in corporate environments and controlled by policy. Select "Use a password to unlock the drive" and then supply the same password twice in the provided fields.

> **Tip**: Microsoft recommends that the password you use here contains some combination of uppercase and lowercase letters, numbers, spaces, and symbols, but the only requirement is that it be at least 8 characters long.

- **How do you want to back up your recovery key?** This can be your Microsoft account (which is recommended), to a file (that cannot be the same disk you're encrypting), or a printout.
- **Choose how much of your drive to encrypt. **You can immediately encrypt just the used space, which is quicker, or the entire drive, which is slower but the better choice for disks already in use.
- **Choose which encryption mode to use**. It's not clear why this option still exists since the "Compatible mode" choice applies to older Windows 10 versions that are no longer supported anyway. Choose "New encryption mode."
- **Are you ready to encrypt this drive?** Click "Start encrypting" to start this process.



Use a BitLocker to Go encrypted removable disk

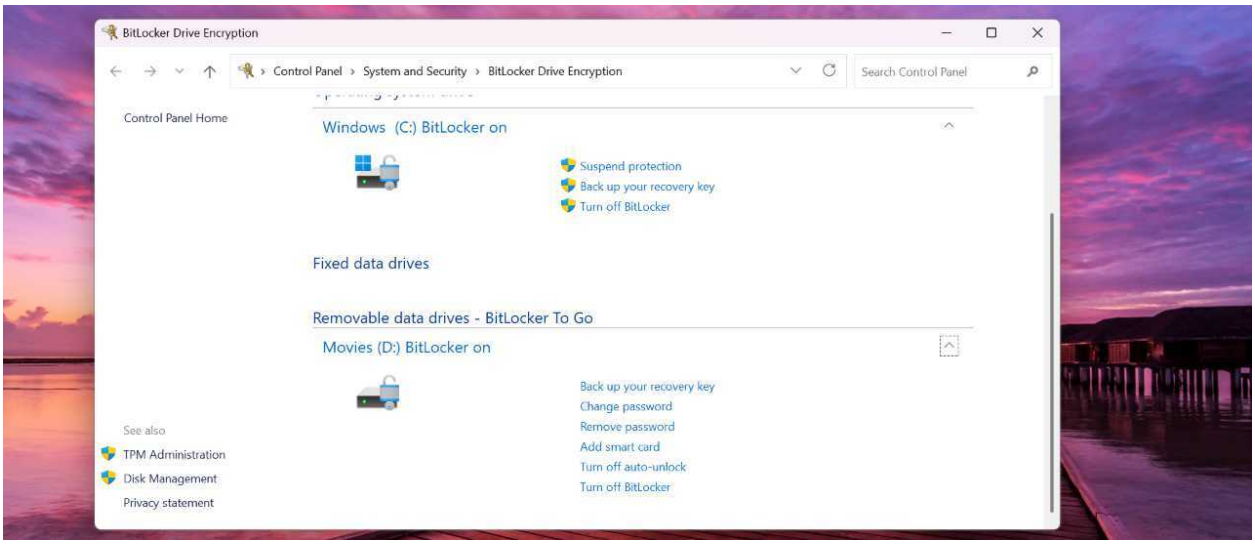
You can use a removable disk protected with BitLocker to Go with any Windows 11 version, including Home. Doing so works like using a normal, unencrypted disk, with one difference: You have to provide its password first.

Select this prompt to enter the password and access the disk normally.

To automatically unlock this disk when it's used on this PC only, expand the "More options" link in the password prompt and enable the option "Automatically unlock on this PC."

Manage a BitLocker to Go encrypted removable disk

If you have Windows 11 Pro, you can manage a removable disk protected with BitLocker to Go using the BitLocker Drive Encryption control panel.



Available options here include:

- **Back up your recovery key**. This link displays the page of the BitLocker Drive Encryption wizard that lets you back up your BitLocker recovery key to your Microsoft account, a local file, or a printout.
- **Change password**. This option lets you change the password used to enable access to the encrypted removable disk.
- **Remove password**. If you have enabled smart card-based authentication for this removable drive, you can optionally remove the password, which is redundant and potentially less secure.
- **Add smart card**. Corporate environments often provide smart cards to their employees as a more secure way to access resources like encrypted disks. This type of thing is very uncommon with individuals, however, and can usually be ignored.
- **Turn on/off auto-unlock**. If you would prefer not to enter a password every time you insert this removable disk on this PC, you can disable that requirement using this option.
- **Turn off BitLocker**. If you wish to disable encryption entirely, this option will let you do so. Removing encryption can be time-consuming, but you can continue using the PC while this process occurs.

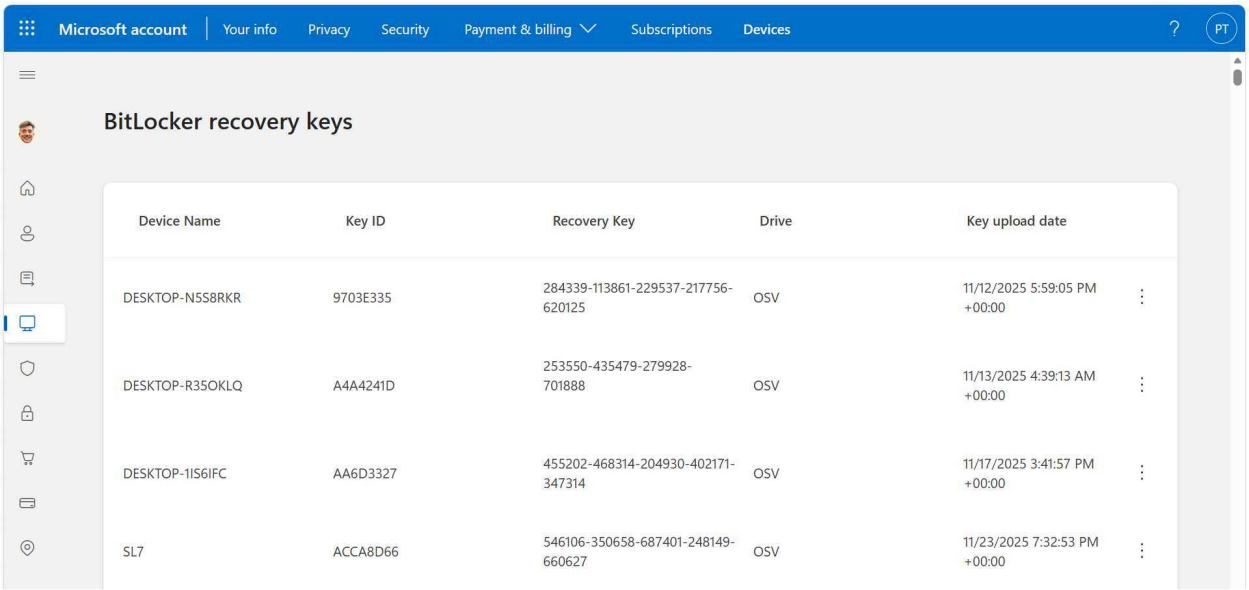
Find and use a BitLocker recovery key

Every disk that is protected with Device encryption (or BitLocker to Go) has an associated *recovery key*, a 40-digit alphanumeric string of characters that is saved to your Microsoft account automatically if you sign in to Windows with that account type.

> **Tip**: Otherwise, you were asked to save the recovery key to a Microsoft account, file, or printout.

Windows 11 creates this key automatically when it first encrypts the system disk, and if you later encrypt other disks, you are prompted to create a recovery key for each at that time. This is because you must create a recovery key for each disk you encrypt.

To access your recovery keys in OneDrive, open a web browser and navigate to the BitLocker recovery keys page. After signing in and authenticating as needed, you'll be presented with the list of keys that are associated with your Microsoft account. Annoyingly, they are presented in no particular order, and this list cannot be sorted by date, PC name, or other criteria.



You can now use the appropriate recovery key to access an encrypted disk for which you've forgotten the password. You can also use this key if you created a recovery key for the system disk and the PC won't boot because BitLocker discovered a potential issue. In that case, it's a good idea to open the BitLocker recovery keys on your phone.

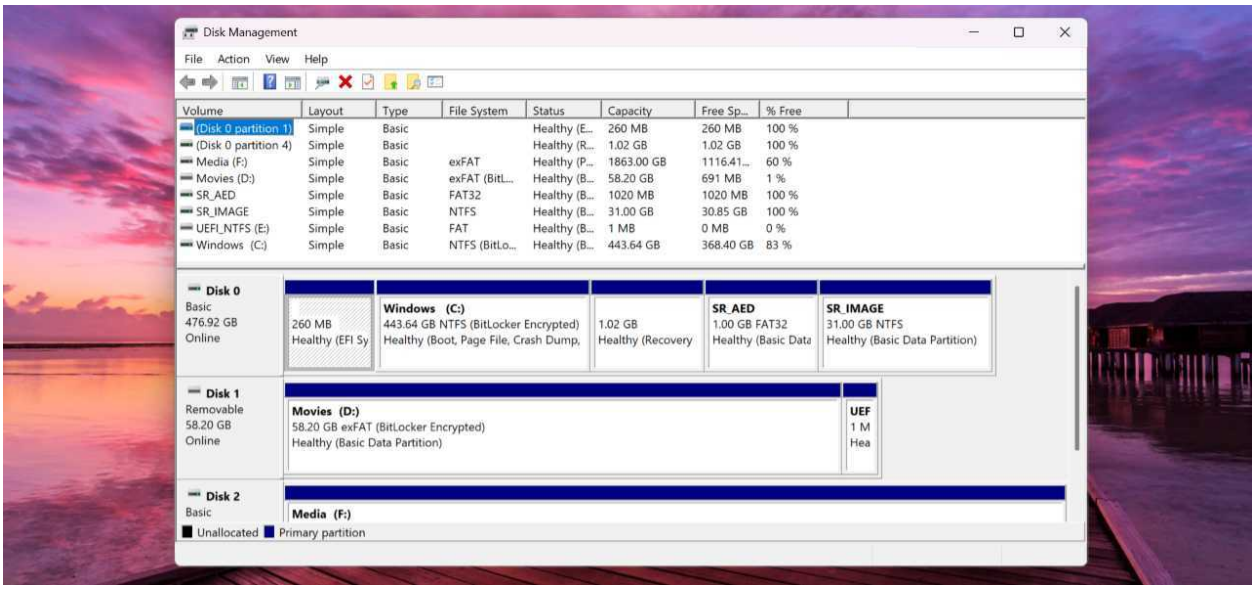
Advanced storage management

Windows 11 includes a few advanced storage management features that will mostly be of interest to power users.

Disk Management

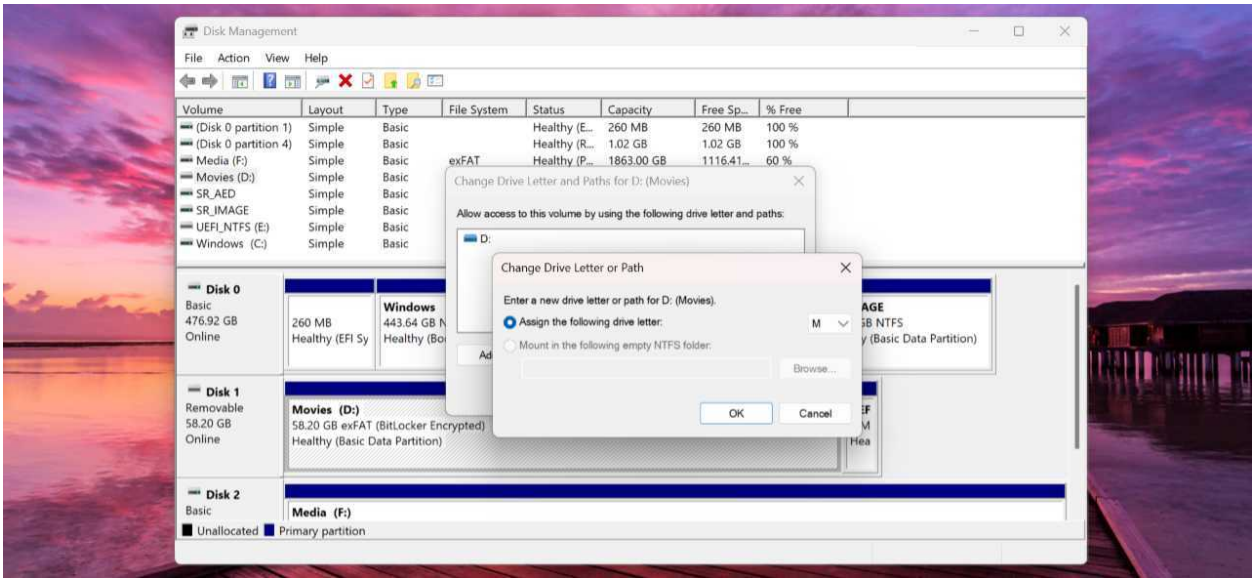
Windows 11 includes a legacy storage management utility called Disk Management that can come in handy from time to time. It is one of several tools that is made available from the Windows 11

Quick link menu, which you can display by right-clicking the Start button or typing Windows key + X. But you can also find Disk Management with Windows Search by typing the beginning of its name (like *disk m*) and then selecting "Create and format hard disk partitions" in the search results.

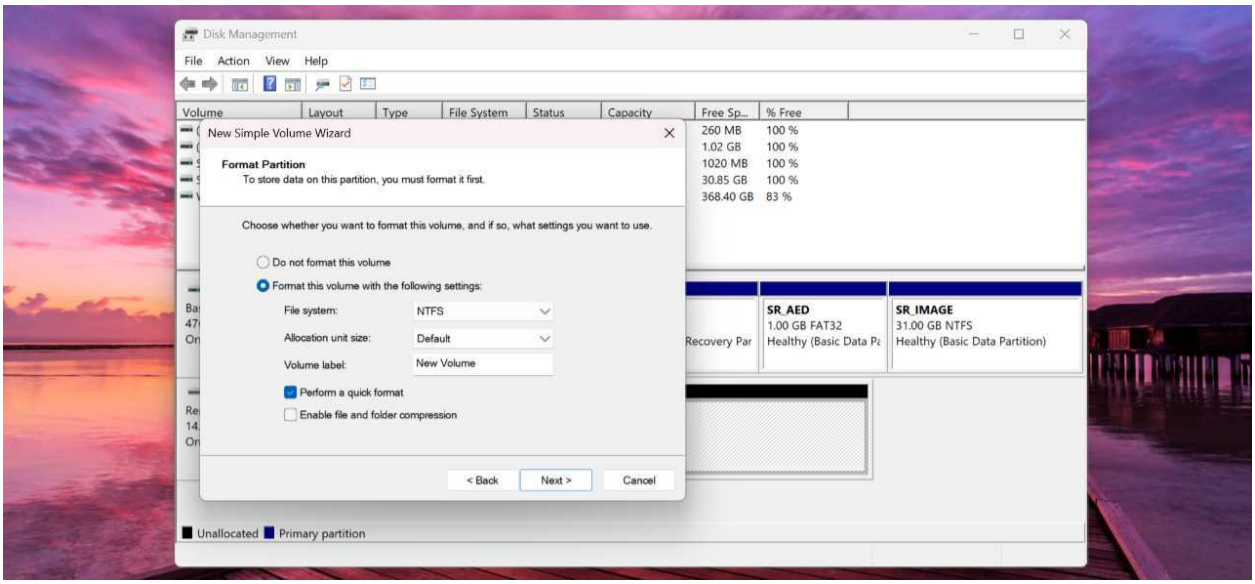


Much of the functionality provided by this Disk Management control pane is available in Storage settings. But it still offers some unique features, and some feature that I feel are easier to use here:

- **Change a drive letter**. Windows 11 automatically assigns drive letters (like C: and D:) to every compatible *volume* found on any fixed and removable storage devices attached to the PC. But you may sometimes want to assign a specific drive letter to a (non-system) disk. To do so, right-click it, choose "Change Drive Letter and Paths…" from the menu that appears, and then change the drive letter as prompted.



- **Format a removable disk that uses a file system Windows 11 doesn't understand**. If you insert a removable disk that is formatted using a file system that Windows doesn't understand, it will not appear in File Explorer or be otherwise accessible. But you can often access these disks with Disk Management and, if desired, format them so that they will work normally with Windows. (This will delete all the data on this disk, of course.) To do so, delete all the volumes on the relevant disk, create a new simple volume to fill the available space, and then format it using the NTFS file system. (The default choice is the more inefficient FAT32 for some reason.)



Storage Spaces

Mainstream Windows 11 users will never need this technology, but Windows 11 includes an advanced storage feature called *Storage Spaces* that stores data on two or more fixed disks to help prevent data loss if a single storage device fails. Storage Spaces is a modern replacement for *RAID* (originally, Redundant Arrays of Inexpensive Disks) solutions. And it lets you configure multiple drives or volumes into a single *storage pool* and create *virtual drives* called *storage spaces* in different resiliency configurations like Simple (no resiliency), Two-way mirror (the default), Three-way mirror, Parity, or Dual-parity.

Storage Spaces is beyond the scope of this book, but it requires at least two extra fixed disks in addition to the system disk and a deep understanding of how storage works and which resiliency configuration is right for your needs.

But wait, there's more: You can learn more about Storage Spaces on the Microsoft Learn website.

Phone Link

Windows 11 can integrate with your iPhone or Android phone through a Phone Link app and other in-box features. But the experience varies depending on which phone model you have.

There are three levels of capabilities:

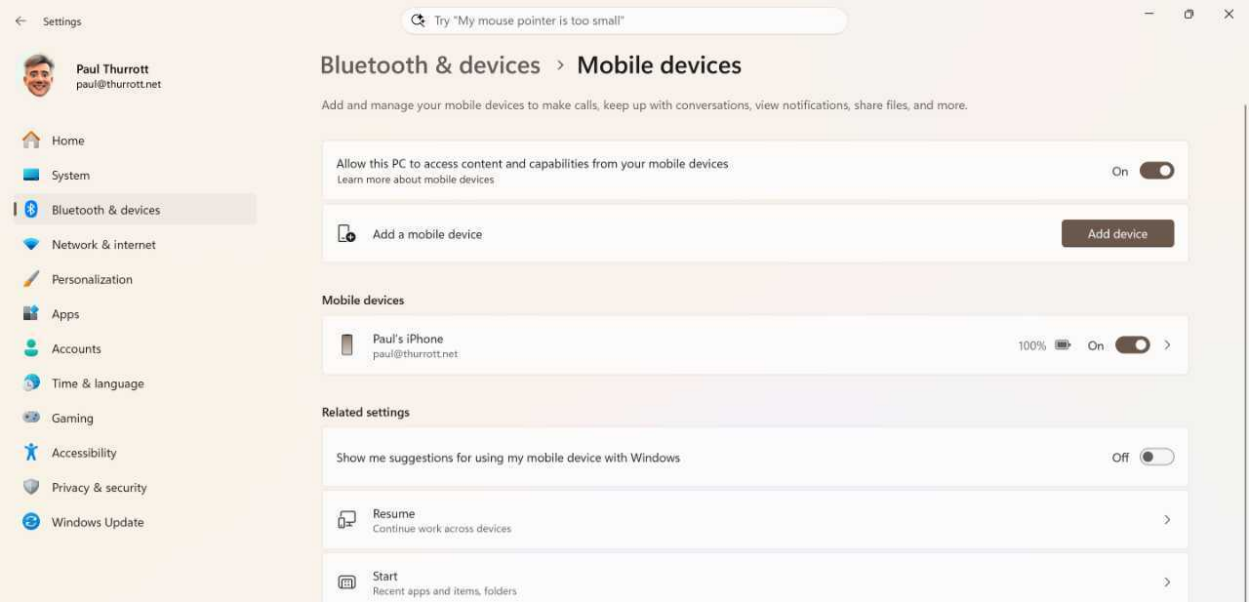
- **iPhone**: Because of Apple lock-down limitations, this is the most basic experience. You can check and clear notifications, send and reply to messages (though group messages and image and video sharing are not supported), make and take phone calls, and view your contacts.
- **Most Android phones**. You can check, pin, and clear notifications; send and reply to text messages and send photos, emojis, GIFs, and media via text; make and take phone calls; view and search your contacts; view and share your 2,000 most recent phone-based photos and screenshots; toggle Do not disturb mode on your phone; mute your phone when there is sound playing; and play, pause, and skip songs playing on your phone.
- **Recent Samsung Galaxy flagship phones**. This is the most complete experience. You can do everything those with other Android phones can do plus interact with your phone-based apps and the entire phone screen remotely, drag and drop files between your PC and your phone, and use a unique Instant hotspot feature.

> **Tip**: Phone integration with Windows 11 requires you to sign in with a Microsoft account (MSA).

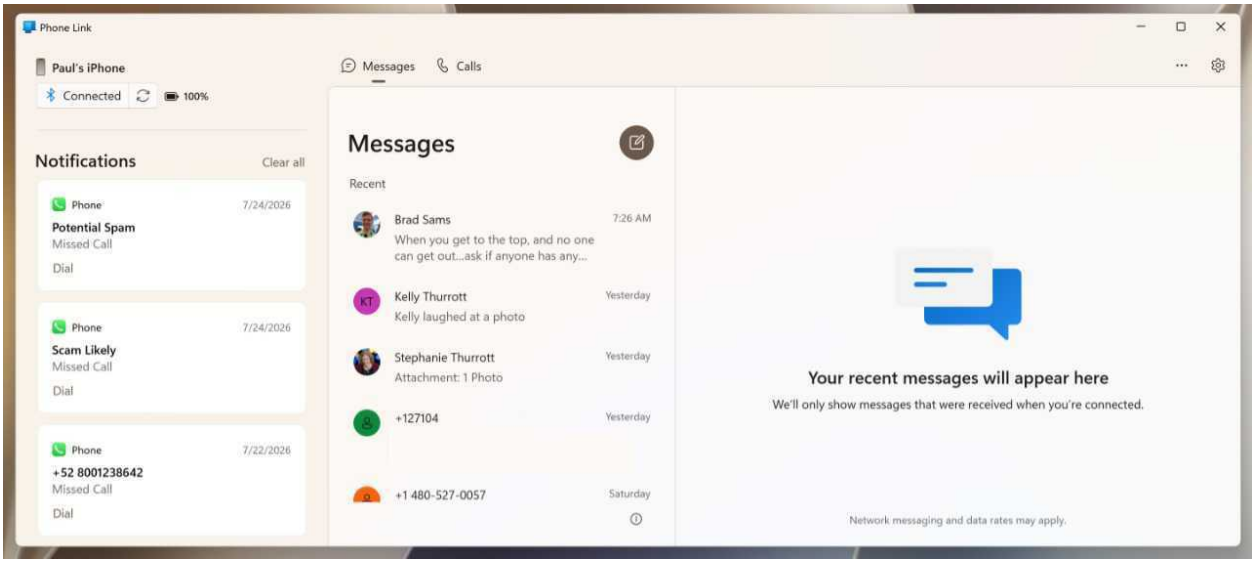
Defaults

Windows 11 includes native integration with modern smartphones through two primary interfaces:

- **Mobile devices settings**. This page in the Settings app (at Bluetooth & devices > Mobile devices) is where you determine whether this PC can integrate with the features on your phone. It's disabled by default, though it may be enabled on a new PC if you used this functionality on a previous PC.



- **Phone Link**. This app is the primary interface for interacting with the features on your phone. It's included with Windows 11 by default.



Once you have enabled mobile device connectivity and configured Phone Link to work with your phone, you will see various cross-device integration features between your phone and PC appear in Phone Link and throughout Windows 11 as described throughout this chapter.

Initial configuration

To get started with the phone integration features in Windows 11, the following must be true:

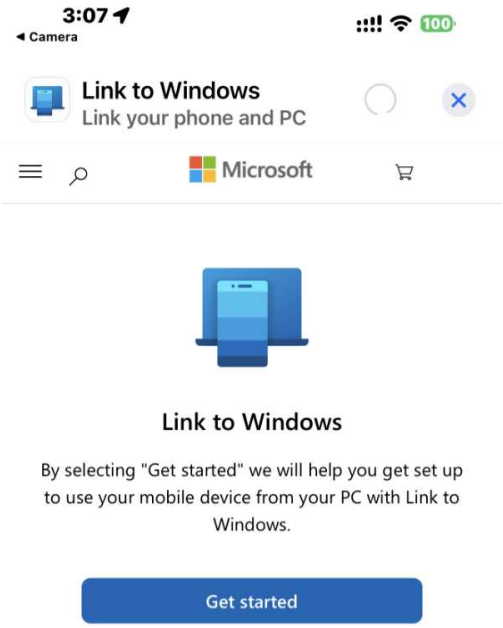
- Your PC and phone are connected to the same Wi-Fi network
- Your PC supports Bluetooth Low Energy (LE)
- You must sign in to your PC using a Microsoft account (MSA)

Now, open the Phone Link app on your PC and sign in to your MSA if required.

Here, you must choose between an Android phone and an iPhone. Follow the steps below depending on which type of phone you have.

iPhone

When you click "iPhone," you're presented with a QR code that you scan with your iPhone's camera. Doing so will cause your iPhone to run an *app clip* version of the Link to Windows mobile app that initiates a Bluetooth pairing request.



Tap “Open” and follow the prompts to pair your PC and phone. You have to agree to this pairing on your iPhone and in the Phone Link app on your PC. And you should agree to any prompts that appear on your phone during this process.

Phone Link on your PC and the Link to Windows app clip on your iPhone both ask you to install the full Link to Windows app on your iPhone. Though this isn’t necessary for most cross-device integration features–only a single file-sharing feature requires the app–I assume you installed Link to Windows on your iPhone.

On your iPhone, open the Settings app and navigate to Settings > Bluetooth and locate the PC you

just paired in the list under “My Devices.” Tap the “(i)” button next to that PC.

In this screen, enable the following options:

- Show Message Notifications
- Sync Contacts
- Share System Notifications

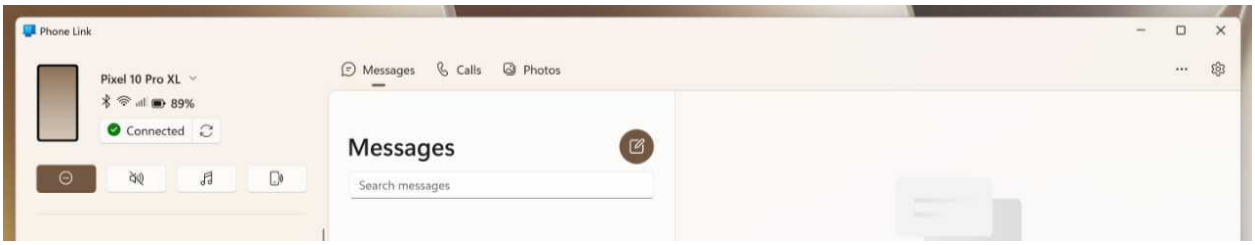
On your PC, click past any remaining welcome screens. Phone Link will restart and prompt you to let it run when you sign in to Windows 11. Click “Get started” to display the normal Phone Link interface. By default, Notifications, Messages, Calls, and audio player controls are enabled, and if you did install the Link to Windows app on your iPhone, Share files will be enabled as well.

Android

When you click “Android,” you’re presented with a QR code that you scan with your iPhone’s camera. When you do so, the Google Play Store appears so you can install the Link to Windows app. After installing the app, you run Link to Windows, sign in to your Microsoft account (MSA), and enter a code that the Phone Link app is now displaying. Then, you must allow a series of app permissions for Link to Windows on your phone so that it can:

- Send and view SMS messages
- Make and manage phone calls
- Access contacts and accounts on this device
- Access your phone call logs
- Take pictures and record video
- Access photos and videos on this device
- Send notifications
- Access this device’s location
- Let (Link to Windows) app always run in the background
- Share optional diagnostic data (which you can safely decline)

Once you get through that bewildering series of permission prompts on your phone, you can return to Phone Link on your PC and click “Continue” in the window you used to link the phone. Phone Link will restart and prompt you to let it run when you sign in to Windows 11. Click “Get started” to display the normal Phone Link interface.



By default, Notifications, Messages, Calls, and Photos appear, and there are buttons to for Do not disturb, Volume on/off, Audio player, and Play sound above the notifications.

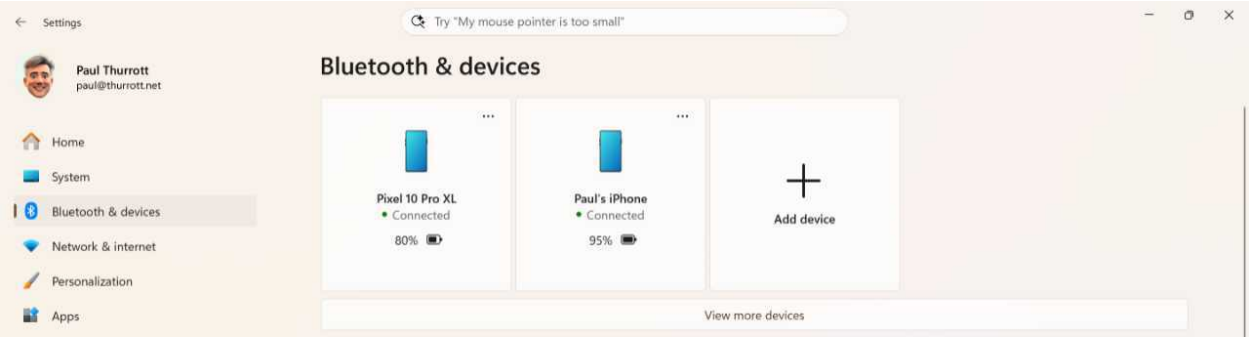
Customize

You customize the phone integrations in Windows 11 in two places: The Windows 11 Settings app and within Phone Link’s app settings interface.

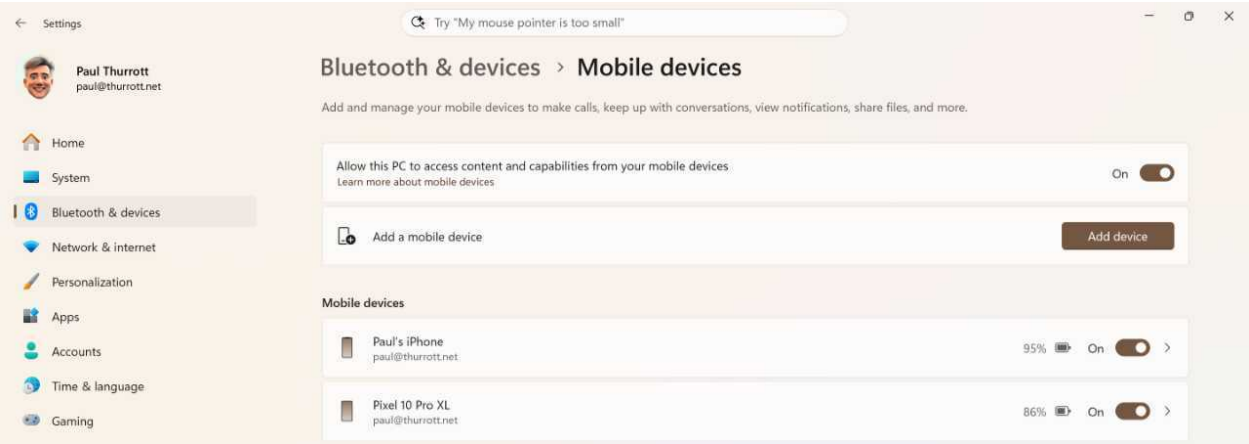
Mobile devices

When you first configure your phone to work with Phone Link, two things happen under the covers in Windows 11, both of which are viewable (and configurable) in the Settings app:

- Your phone in paired to your PC and appears at the top of Bluetooth & devices.

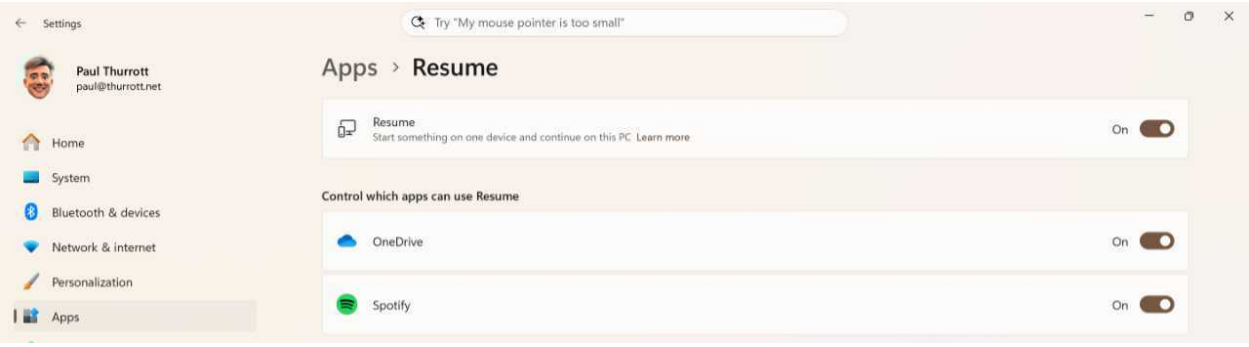


- Your PC is configured to access content and capabilities from your phone and appears in Bluetooth & devices > Mobile devices.

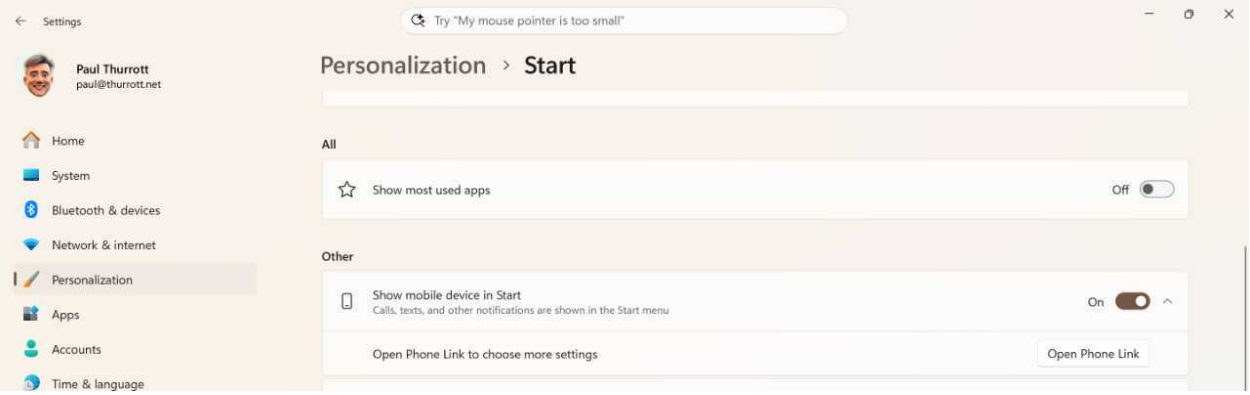


From here, you can enable two additional features on the Mobile devices settings page that both work with iPhones and Android phones:

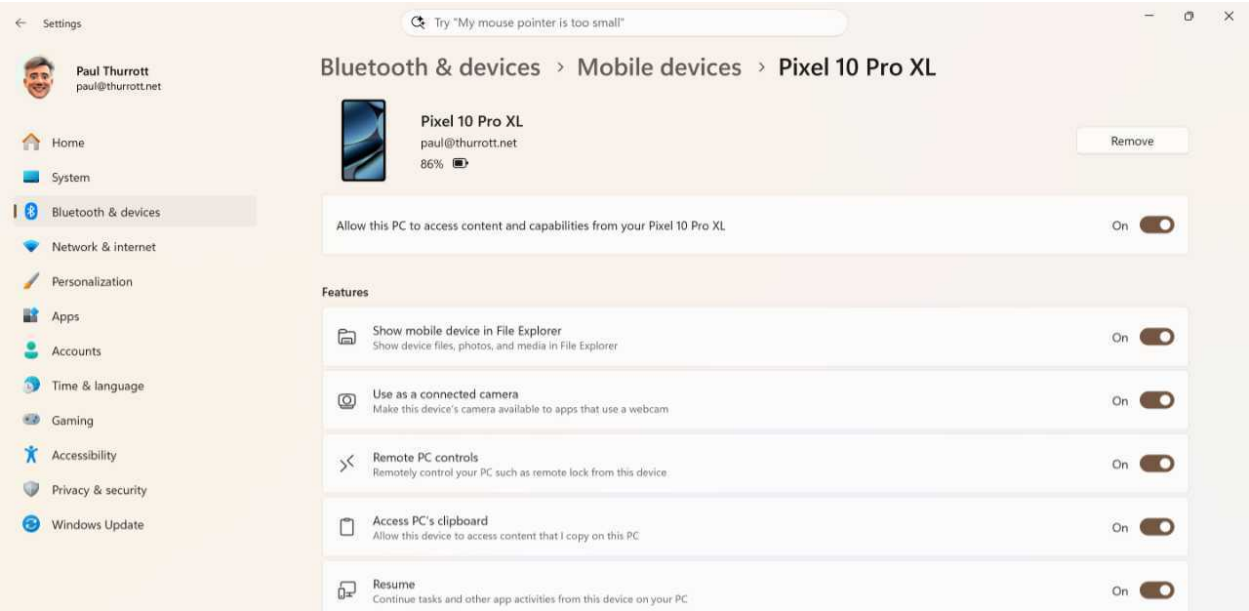
- **Resume**. Windows 11 provides a Cross-device Resume feature that lets you begin certain activities on your iPhone and continue them later on your PC. On the Mobile devices settings page, click "Resume" under "Related settings" (or navigate directly to Apps > Resume) to make sure this feature is enabled.



- **Start**. Start in Windows 11 can display an optional *slice* on its right side that helps you access some iPhone features without having to open the Phone Link app. Click "Start" under "Related settings" (or navigate directly to Personalization > Start) to make sure the "Show mobile device in Start" feature is enabled.

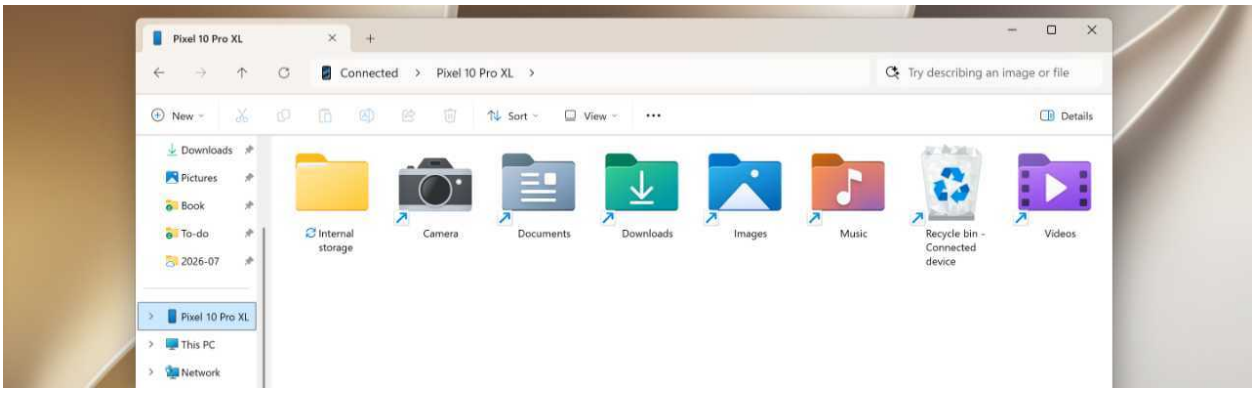


If you're using an Android phone, you have other features you can view and configure by clicking your phone under "Mobile devices" on the Mobile devices settings page.



Here, you will see the following options unique to Android:

- **Show mobile device in File Explorer**. By default, your phone appears above This PC in the File Explorer navigation pane so you can easily browse its file system right in Windows 11 and copy files between the two devices.



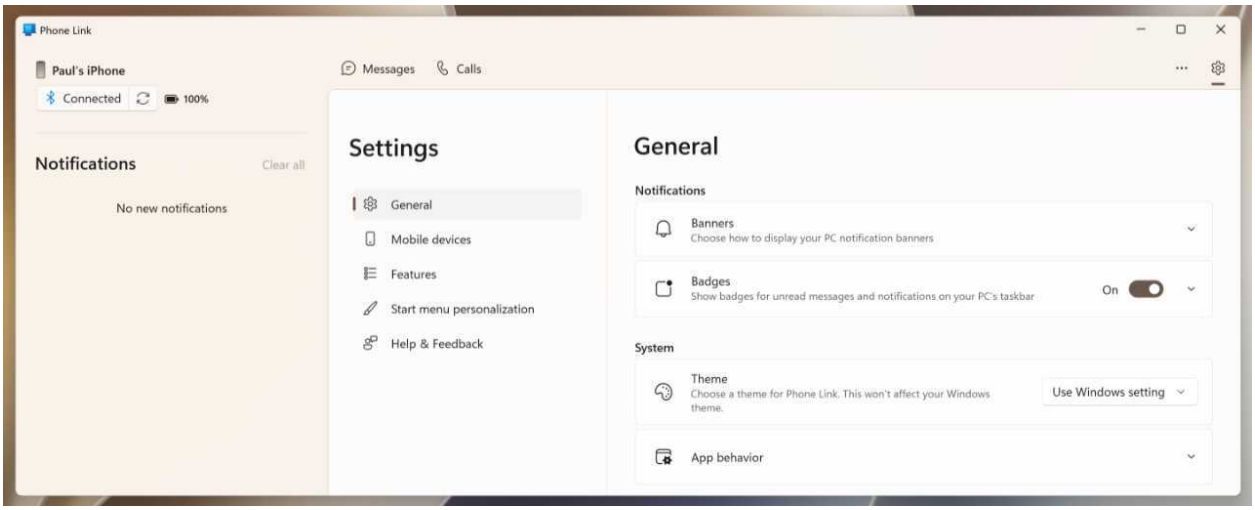
- **Use as a connected camera**. By default, you can use your phone camera as a webcam in Windows 11.
- **Remote PC controls**. By default, you can remotely lock your PC using the Link to Windows app on your phone. You can only unlock the PC directly.
- **Access PC's clipboard**. By default, anything you copy to the Clipboard on your PC can also be pasted into a compatible app on your phone.

> **Tip**: If you have a recent Samsung flagship phone, you will see the feature "Cross-device copy and paste" instead of "Access PC's clipboard" because these devices support two-way copy and paste. That is, you can also copy an item to the Clipboard on your phone and then paste it on your PC.

- **Show device name in Windows Share**. By default, your phone will appear as a target in the Windows Share dialog when you try to share a file. (File Explorer also supports a right-click "Send to phone" option for this sort of activity.)
- **Get new photo notifications**. By default, you will see a banner notification in Windows 11 each time you take a photo or screenshot on your phone. This lets you view or share the photo from Phone Link or edit it in Photos or the app of your choice.

Phone Link settings

Phone Link has a rich set of settings to examine and configure, especially if you have an Android phone.



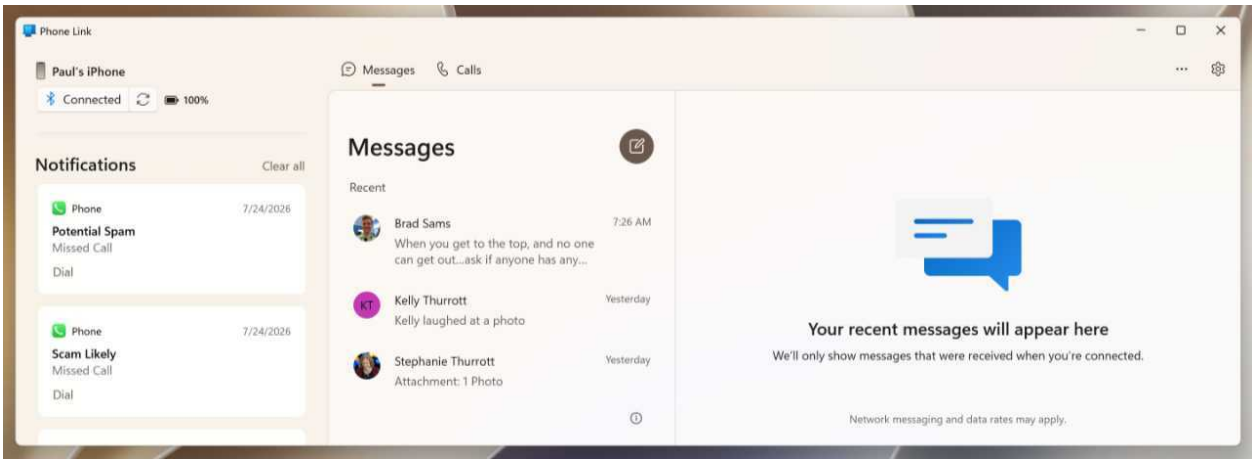
Key settings include:

- **App behavior**. Look at this set of options in the General tab because Windows 11 will configure Phone Link to auto-start when you sign in to Windows 11 even if you told it not to. There are two options here, for starting Phone Link when you sign in to Windows 11 and for *opening* Phone Link when you sign in to Windows 11.
- **Mobile devices**. If you configured two or more phones to work with Phone Link, you can use this tab to switch between them.
- **Features**. This tab is where you configure individual options related to Phone Link features like Notifications, Messages, Calls, and more. Android phones will have several additional sets of features listed here, such as Photos, Wallpaper, Transferred files, and more. And if you have a recent Samsung flagship, you will see even more features, like Apps and Instant Hotspot.
- **Start menu personalization**. This tab lets you configure which individual features of the Mobile devices slice appear in Start.

Learn more: Access phone features from Start

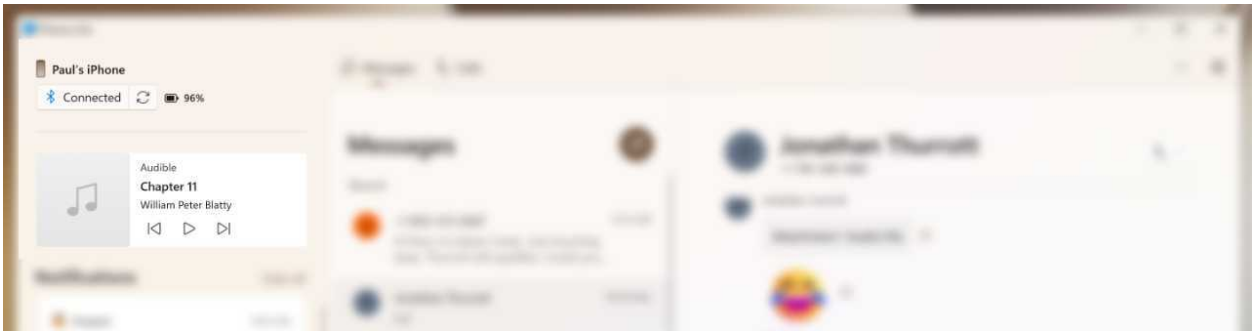
Phone Link

The Phone Link app looks and works unlike any other app that ships with Windows 11, and its appearance–and utility–will vary greatly depending on what type of phone you use.

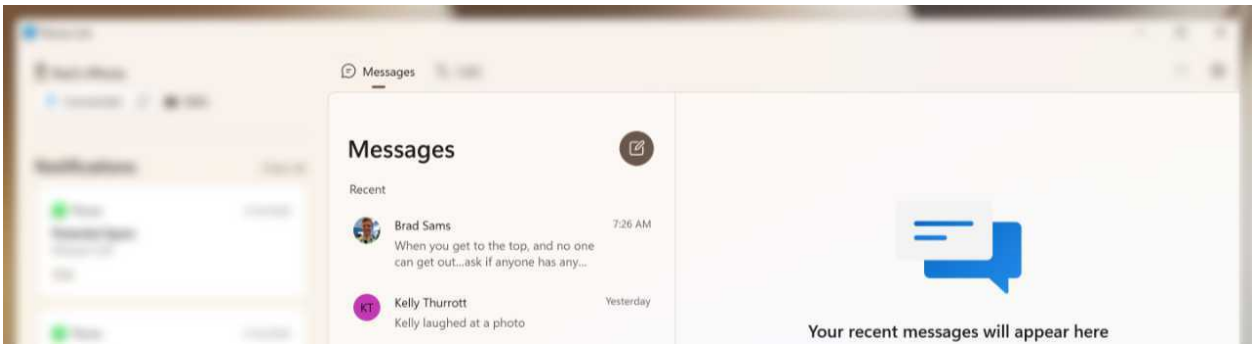


Phone Link provides the following basic interfaces regardless of phone type:

- **Phone header**. This display in the upper right of the app window displays the name of your phone (with a drop-down if you configure multiple phones), its Bluetooth connection status with a "Refresh" button, its battery life, and, if audio is playing on the phone, an Audio player so you can control playback of media on your phone from the PC.

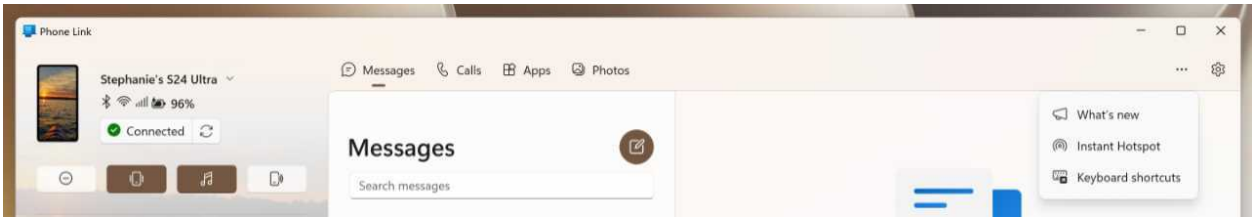


- **Notifications**. Your most recent notifications appear in reverse chronological order in a non-resizable and non-collapsible column below the Phone header.
- **Messages**. This tab at the top of the app window appears by default when Phone Link runs and it displays your most recent text messages in reverse chronological order.



- **Calls**. This tab at the top of the app window displays your most recent phone calls in reverse chronological order.

- **More options (...)**. The additional options you see here vary by phone. If you have an iPhone, you will see just a single option, for "Keyboard shortcuts." Android phones display a "What's new" entry. And recent Samsung flagships add an "Instant Hotspot" entry.

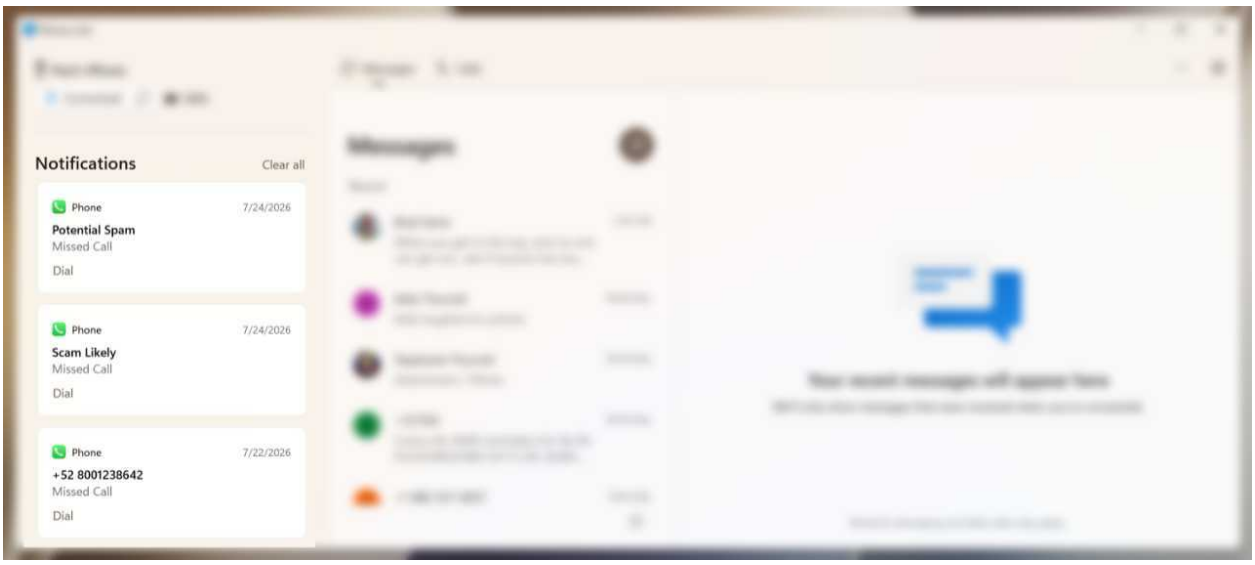


- **Settings (gear)**. You can click this button to access the Phone Link settings interface.

Most of these interfaces are described in more detail below.

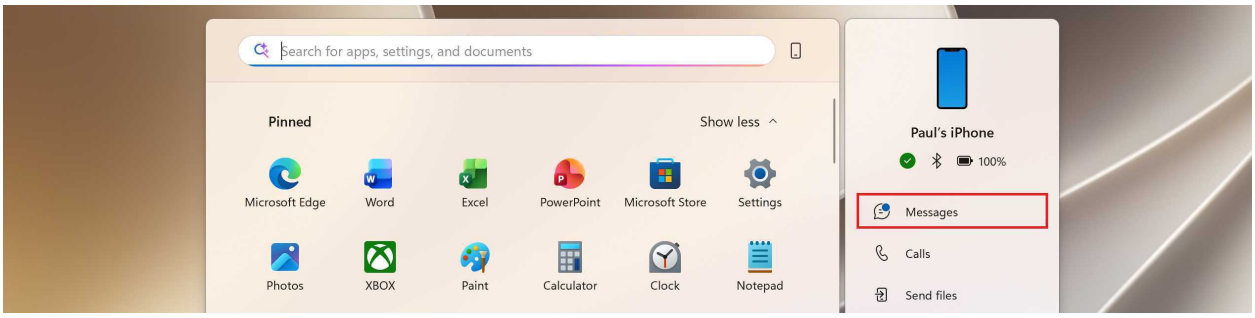
Notifications

The Notifications pane is always visible on the left side of the app, no matter which tab you're displaying. When a new notification arrives on your phone, it appears here.



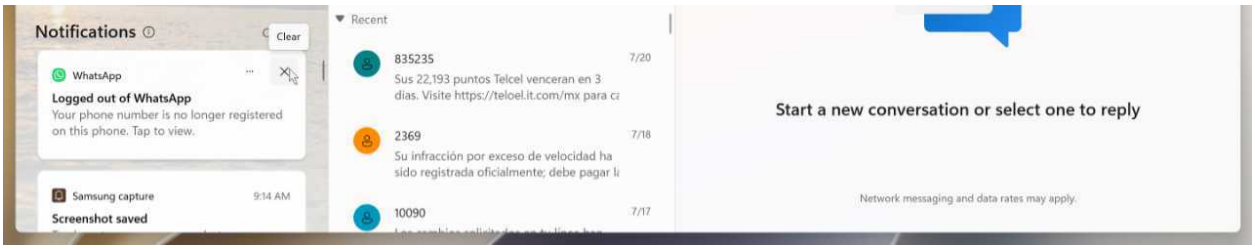
But you don't need to be using Phone Link interactively to learn about new notifications on your phone: Windows 11 will display a banner notification by default and if Phone Link is pinned or available on the Taskbar, it will display an overlay badge representing the number of unread notifications.

Likewise, the Mobile devices slice in Start will display a badge on the Messages item.



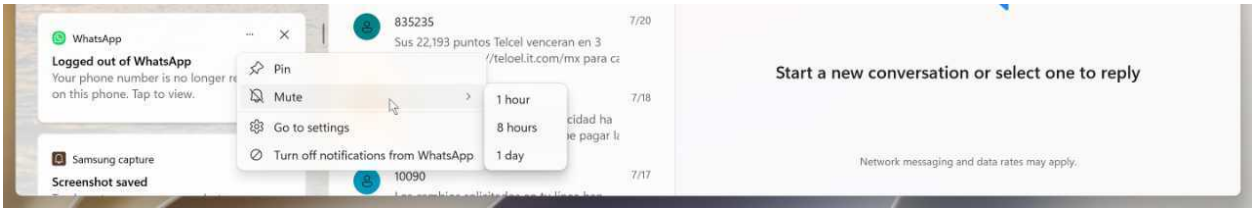
You can do the following with individual notifications in Phone Link:

- **Clear the notification**. To clear the notification and remove it from the Notification pane, mouse over the notification and click the "Clear" ("X") icon that appears. Doing so removes the notification from your phone as well.



- **Mute notifications for that phone app**. To mute (temporarily disable) notifications for that app, mouse over the notification, click the "More options" ("...") button that appears, and then click "1 hour," "8 hours," or "1 day."
- **Pin the notification**. This option pins the notification so that it appears at the top of the Notifications pane, including any new notifications. You can later unpin or clear it.

Some phone apps display other options in the "More options" context menu. For example, some apps let you "Turn off notifications" from that app entirely. Google Photos can display an "Open in browser" option so you can view the item that triggered the notification. And some phone apps display inline actions right on the notification; Gmail notifications have "Archive" and "Reply" actions, for example.



Messages

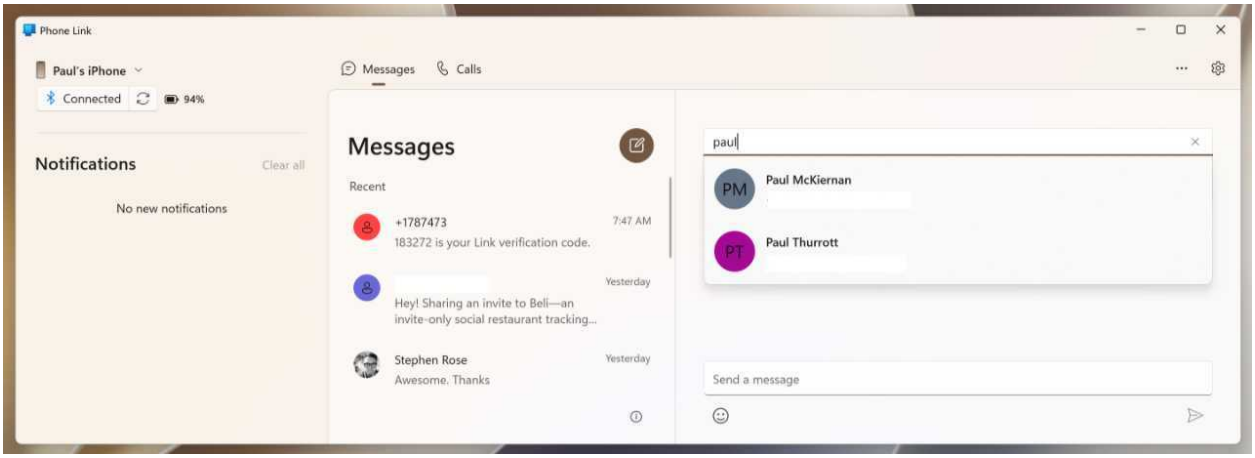
You can use Phone Link to view, send, and receive text messages on your PC, though this functionality is somewhat limited on the iPhone. Among those limitations:

- Group messaging doesn't work, so the messages from each person in a group will arrive as if from that individual directly to you, and you can't reply to the entire group
- Messages you send from your iPhone don't always appear in Phone Link
- You can't send images or videos

Those on Android, meanwhile, get the full experience.

From the Messages tab in Phone Link, you can do the following:

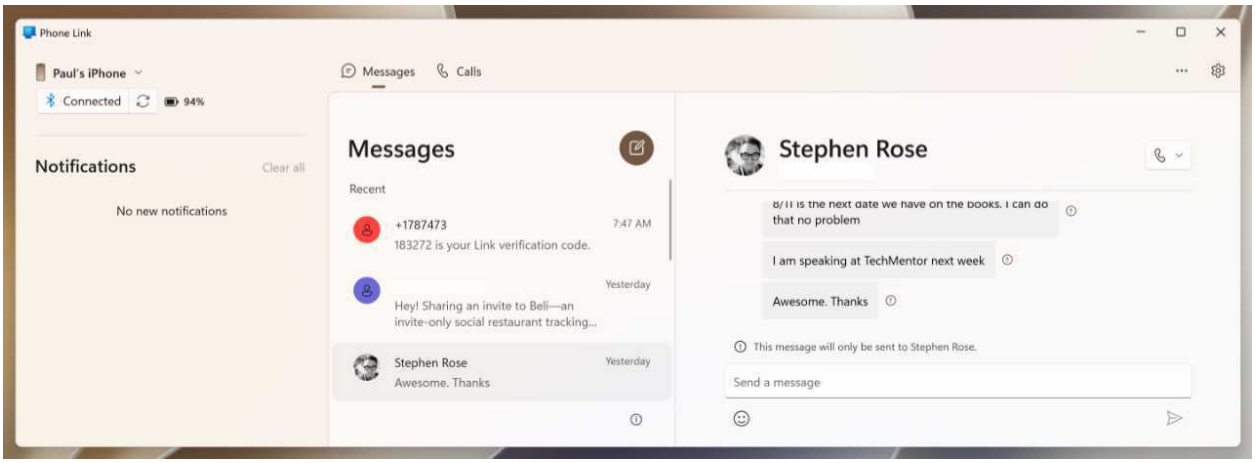
- **Create a new message**. Click the "New message" button to start a new text message. A "To" field will appear on the right so you can start typing the name of a contact (or, on Android, a group of contacts) using auto-complete. Type your message in the "Send a message" field and then click "Send" (or just tap Enter) to send it.



> **Tip**: If you're using an Android phone, you can also add emojis, GIFs, and images to a text message using the icons below the "Send a message" field. On iPhone, you can only add emojis.

> **Keyboard shortcut**: You can also type Ctrl + N to create a new message.

- **Read a text message**. When you receive a new text message, Windows 11 displays a banner notification, the Mobile devices slice displays an overlay badge on its Messages item, the Phone Link app shortcut in the Taskbar displays a badge with a number, and the Phone Link app displays a notification in the Notifications pane. To read a text message–along with the entire conversation you've had with that individual or group as well as any shared media–simply select it in the Recents area in the Messages tab. (Or select either notification.)



> **Tip**: This functionality is limited on iPhone: Previous text messages won't appear in Phone Link until the device syncs to your PC, and even then, some messages are lost.

- **Respond to a text message**. To respond to a text message from your PC, select the conversation, and then click the "Send a message" field. Type your reply and tap Enter–or click the "Send" button–to send the message.

> **Tip**: As above, this functionality is limited on the iPhone.

> **Tip**: If you're using an Android phone, you can also add emojis, GIFs, and images to a text message using the icons below the "Send a message" field. On iPhone, you can only add emojis.

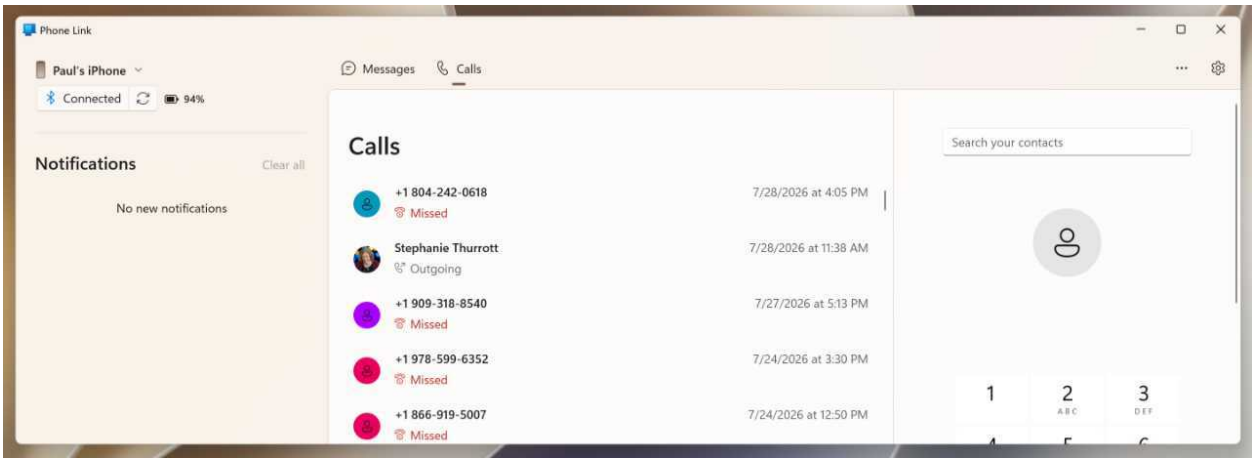
> **Tip**: A "Call" button also appears in the top right so you can make a call to the person you're texting with.

Calls

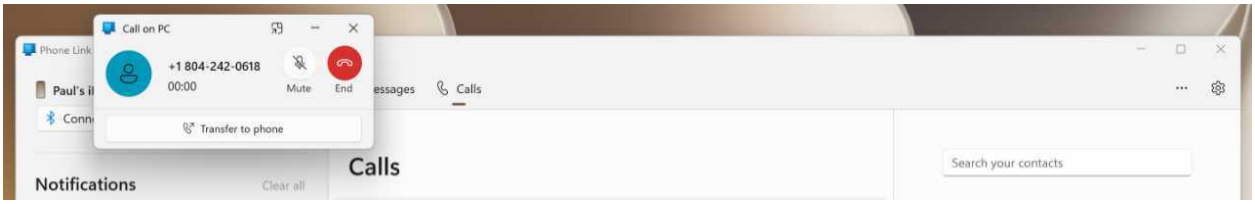
You can use Phone Link to view your phone's recent calls and to make and receive phone calls.

You can perform the following tasks from the Calls tab in Phone Link:

- **View your recent calls**. The Calls tab displays a list of your most recent phone calls in the center of the display. If you select one of these calls, icons for calling and texting that number will appear.



- **Make a phone call**. To make a phone call through your phone, but using the default microphone and speakers on your PC, use the rightmost pane in the Calls view to search for a contact or manually type in a phone number. A small "Call on PC" window will appear for the duration of the call, and when the call ends, it will be added to the top of the Recent calls list. The "Call on PC" window has buttons for transferring the call to your phone, which will switch to the phone's microphone and speaker, "Mute," "Keypad," "Hold call," and/or "End" buttons, all of which will be obvious to anyone who's made a phone call.



- **Answer a phone call**. When someone else calls you, a banner notification appears in Windows 11 so you can answer the call from your PC, decline the call, or send a text message to the person calling. If you accept the call, a “Call on PC” window appears during the call with mute, keypad, hold call, and end call options.

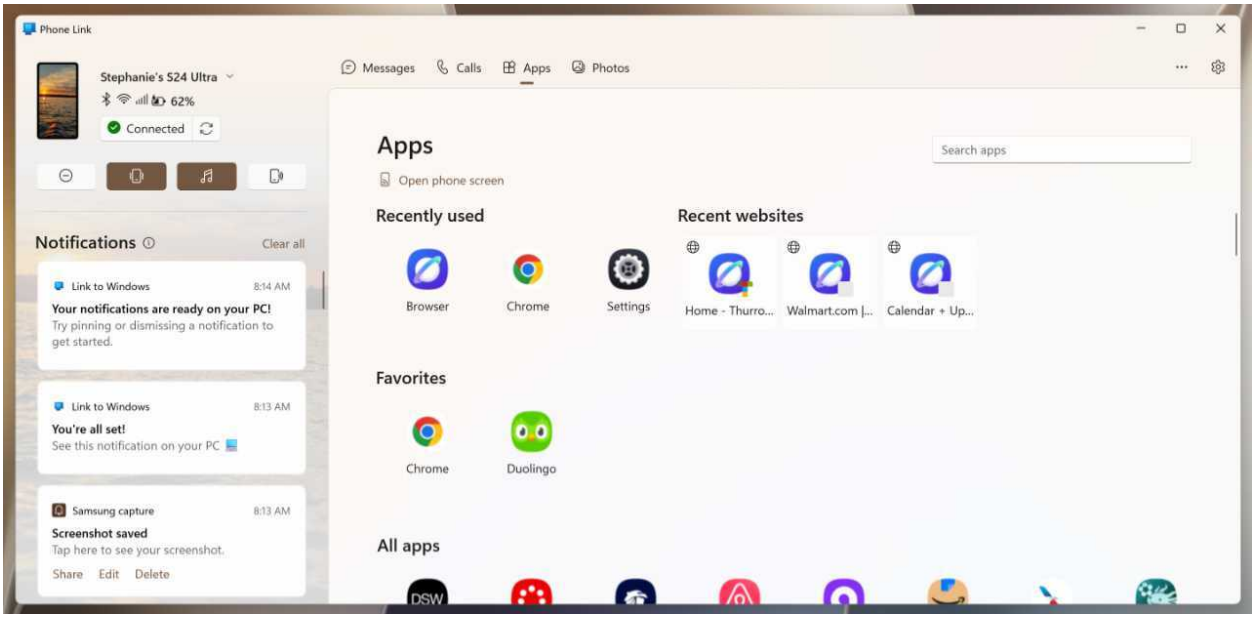
Tip: If you decline the call, it will go to voicemail.

Tip: What you can’t do here is manage your recent calls list in any way. You can’t remove calls from the list, for example, and there are no right-click options.

Apps

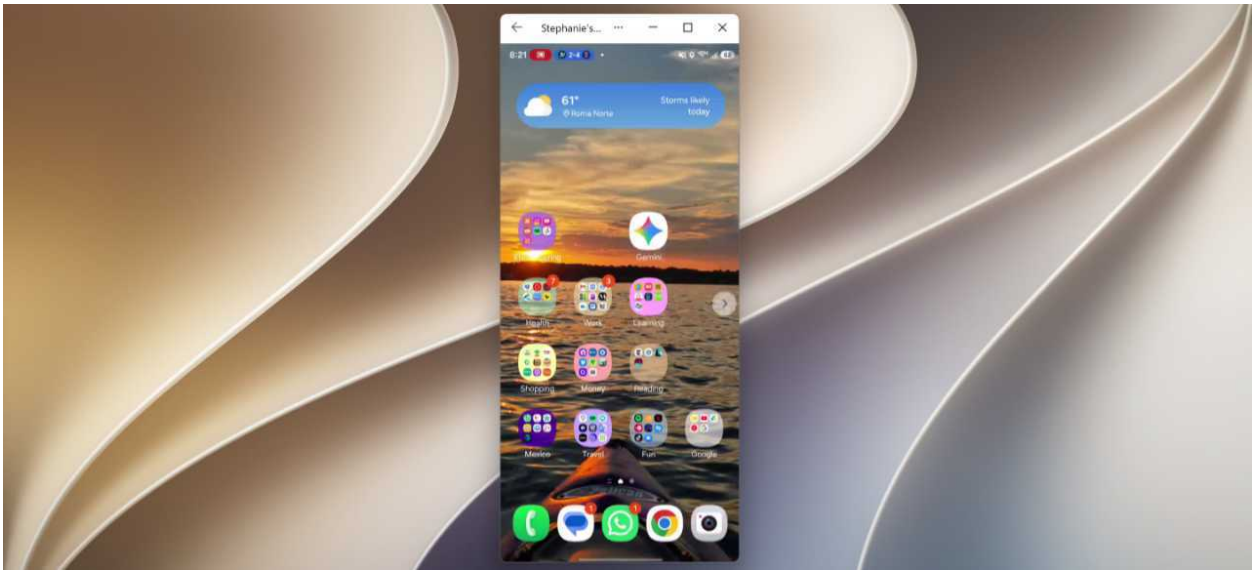
If you have a recent Samsung flagship phone, you can remotely display your entire phone’s screen or an app remotely in a window on the Windows 11 Desktop as if it were an app. And if you use the Samsung Internet web browser on your phone, you can access recently viewed websites as well.

These features are available via the Apps tab in Phone Link.

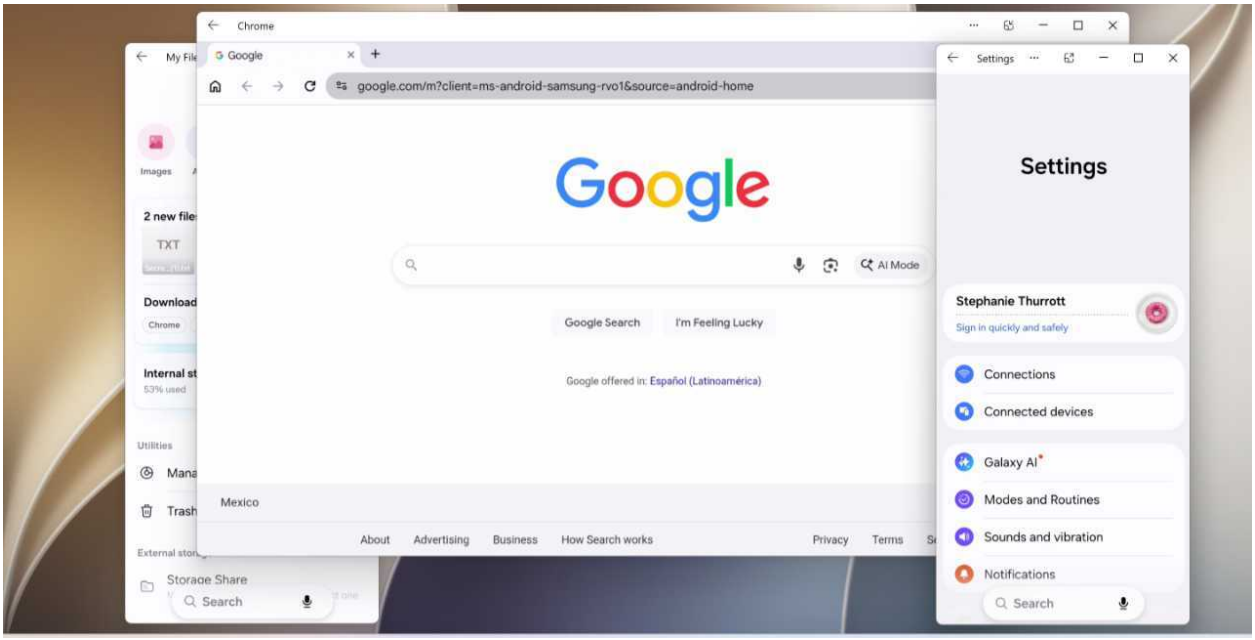


There are three main features here:

- **Open the phone screen as an app window**. To display your phone's screen in a resizable window click the "Open phone screen" link at the top of the Apps tab. A phone-shaped window will appear and display whatever is on your phone's display after you step through a few permissions prompts. You can use the phone normally through this remote view window, especially if you have a multitouch screen. But you can also use the mouse to emulate touches and taps by clicking, clicking and holding for a long press, swiping, and dragging, and so on. And a "Go back" (left arrow) button in the window's title bar can be used for the back gesture.



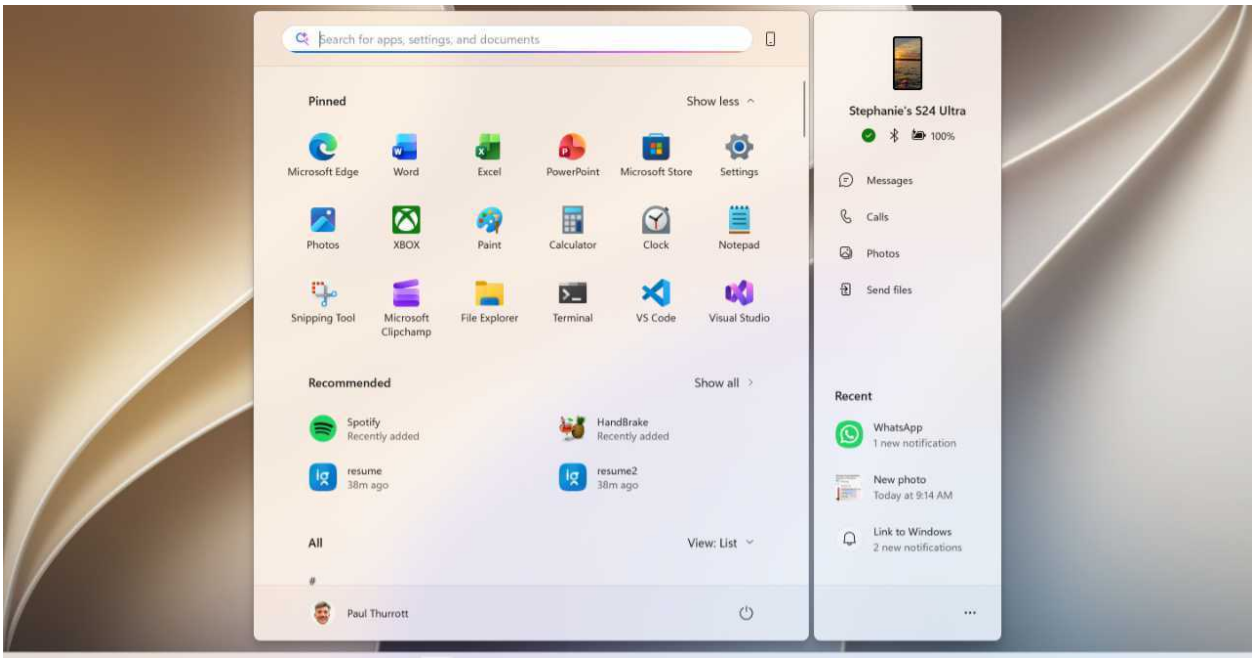
- **Open a phone app as app window**. You can also run any app on your phone remotely in its own window in Windows 11, and you can run multiple phone apps if needed, each in its own window. This works similarly to the phone screen feature noted above, but compatible remote apps also support an "Expanded screen"/"Compact screen" toggle so you can view the app in a wider window that looks more at home on the Desktop. (This window is likewise resizable.) You can find all the apps on your phone under "All apps" in the Apps tab and recently opened apps under "Recently used." Phone Link also lets you right-click apps here and add them to favorites, which will place each in the "Favorites" view.



- **Access a recent website**. If you use the Samsung Internet web browser on your phone, recently accessed websites will appear in the "Recent websites" section in the Apps tab. You can click any of these icons to display that site in your default web browser in Windows 11.

Access phone features from Start

When you use Phone Link and configure the system correctly, Start will display a Mobile devices *slice* on its right that lets you view phone status information, click into specific Phone Link experiences, and view recent photos, notifications, and other information.

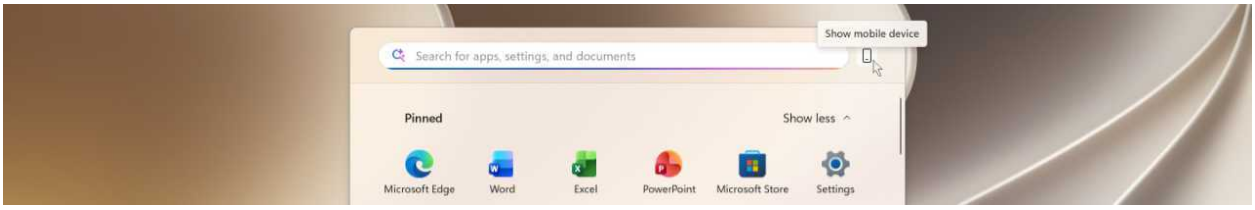


The Mobile devices slice isn't directly interactive, but the Messages, Calls, Photos, and Send files items (some are Android-only) are clickable and all but the latter will open the relevant Phone Link view; the "Send files" link opens the "Send do" dialog.

> **Learn more**: Share and send files to your phone

Likewise, the items under "Recent" will open Phone Link and navigate to the relevant view if needed.

Less obviously, there is a new "Hide mobile device"/"Show mobile device" toggle in the top right of Start, to the right of the search box, that you can use to hide of show the Mobile devices slice at any time.

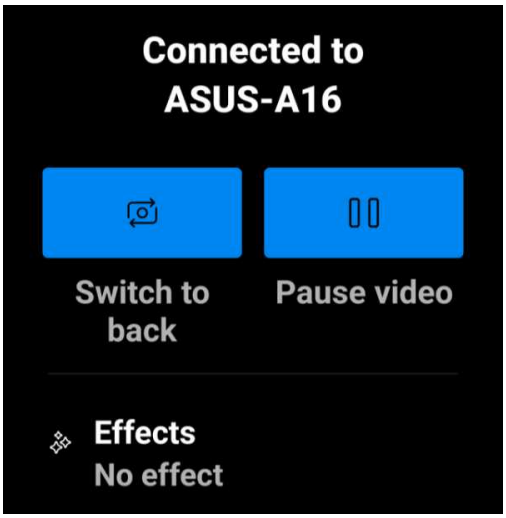


Use your phone as a webcam

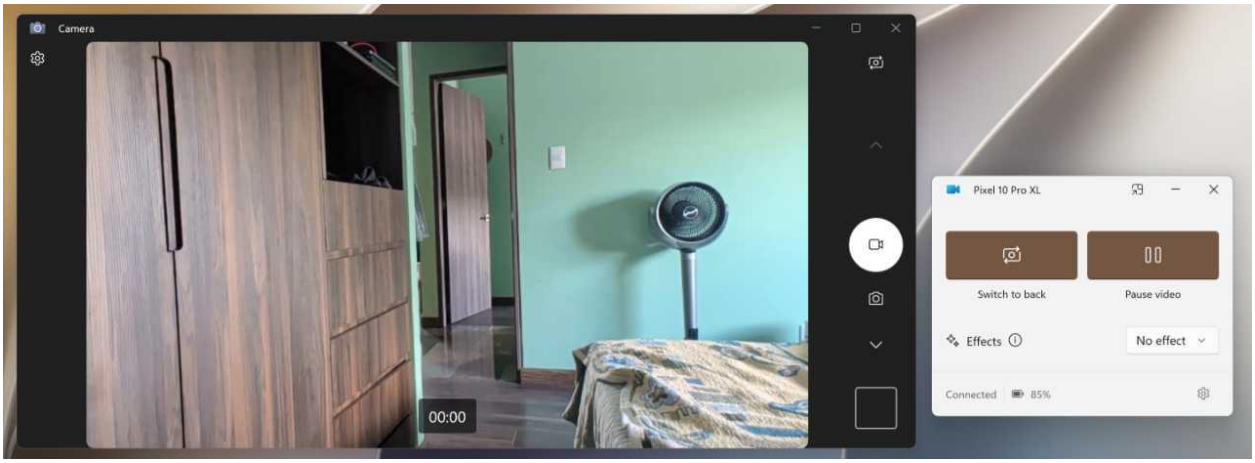
If you configured an Android phone with Phone Link, you can use that phone as a high-resolution webcam in Windows 11 wirelessly (or, optionally, over USB).

To do so, first unlock your phone and open Link to Windows. Then, open any Windows 11 app that supports webcams and select your Android phone as the webcam. This varies by app, but if you use the Camera app, you can click the "Change camera" in the upper-right to do so.

On your phone, Link to Windows presents a full-screen interface for switching between the front and rear cameras and enabling a Night effect that brightens the image.



But you don't have to configure any of that on your phone: Windows 11 also displays a small utility with the same controls.



Copy and paste between your PC and your phone

If you configured an Android phone with Phone Link, you can copy text or an image on your PC and then paste it in a compatible app on your phone. And if you have a recent Samsung flagship phone, you can copy information on that phone and then paste it on your PC, too.

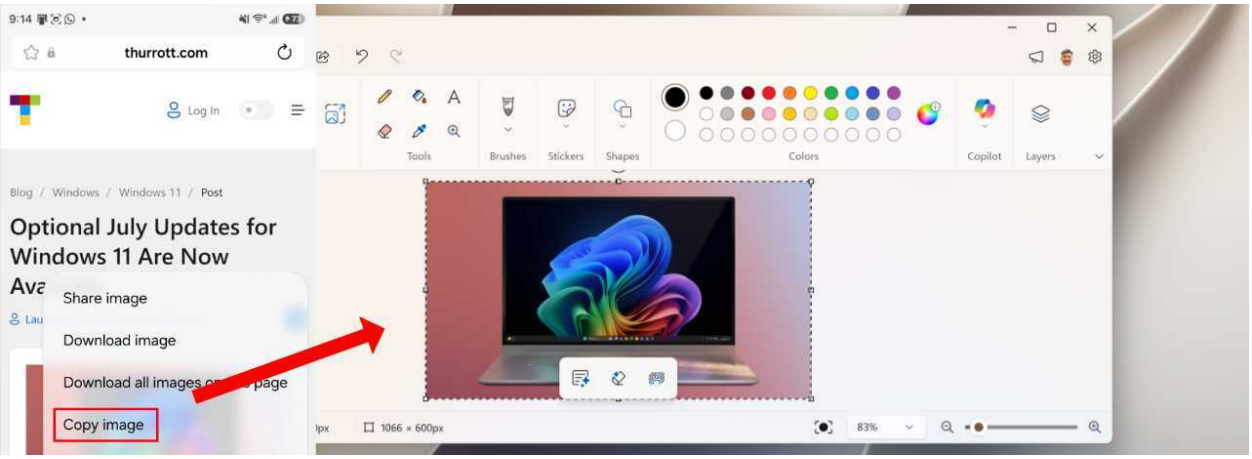
> **Tip**: Image files that are larger than 1 MB in size will be resized during the transfer.

You can copy and paste:

- **Text**. This works as you would expect. You can copy text to the Clipboard in Windows 11 and then pick up your phone and paste it normally there. You will likely see a quick link to that text at the top of your phone's virtual keyboard so you can paste it easily.

> **Tip**: With a recent Samsung flagship phone, you can do this in reverse as well.

- **Image**. To copy an image from your phone to your PC, press and hold on the image on your phone and select "Copy image" from the context menu that appears. Then, on your PC, just use Paste with a compatible app, like Paint. You can perform this operation in reverse as well. In each case, you will see a quick pop-up notification on the phone to tell you that the Copy or Paste operation occurred on your PC.



Use your phone as an Instant Hotspot

If you have a recent Samsung flagship phone, you can access its mobile hotspot feature a bit more seamlessly using a Phone Link feature called Instant Hotspot.

To enable this feature, click the "More options" ("...") link in Phone Link and then choose "Instant Hotspot." Then, click "Send notification" in the "Mobile hotspot permissions" window that appears. On your phone, approve the notification that appears. When you do, Quick settings opens in Windows 11, displaying your phone's mobile hotspot in the Wi-Fi interface.

Now, you can access your phone's mobile hotspot in several different ways, the most convenient being:

- **Quick settings**. If your phone is configured for use with Phone Link, its mobile hotspot is shown at the top of the list of available Wi-Fi networks you see when you click the right side of the "Wi-Fi" quick setting button.
- **Phone Link**. You can connect to your phone's mobile hotspot by clicking the "More options" ("...") link in Phone Link and then choosing "Instant Hotspot."

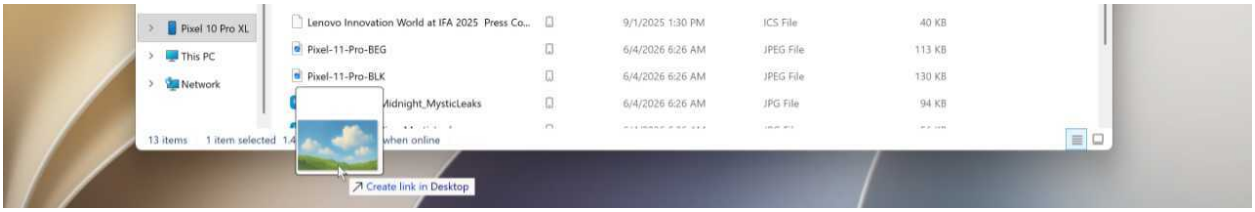
> **Tip**: If your phone doesn't support the Instant Hotspot feature in Phone Link, you can still configure its mobile hotspot as a Wi-Fi network as you do with any Wi-Fi network. In this case, you will need to know the hotspot's password, of course.

Copy a file between your PC and your phone

You can copy files between your PC and phone using various methods.

Copy a file with File Explorer

If you configured an Android phone with Phone Link, an entry for that phone will appear above This PC in the File Explorer navigation pane.



You can use this link to navigate through your phone's file system just as you would any removable storage device, and then copy files between the two devices. To be clear, this works over Wi-Fi and doesn't require you to connect your phone to the PC over USB.

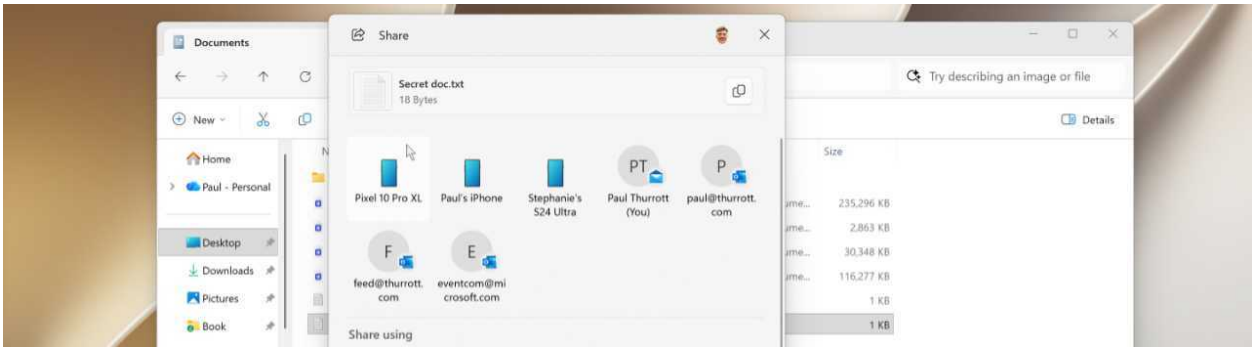
> **Tip**: Otherwise, you can connect your Android phone to the PC over USB, manually configure the phone for this capability in the notification shade on your phone, and then access the phone's file system that way.

Copy a file using Windows Share or Send to my phone

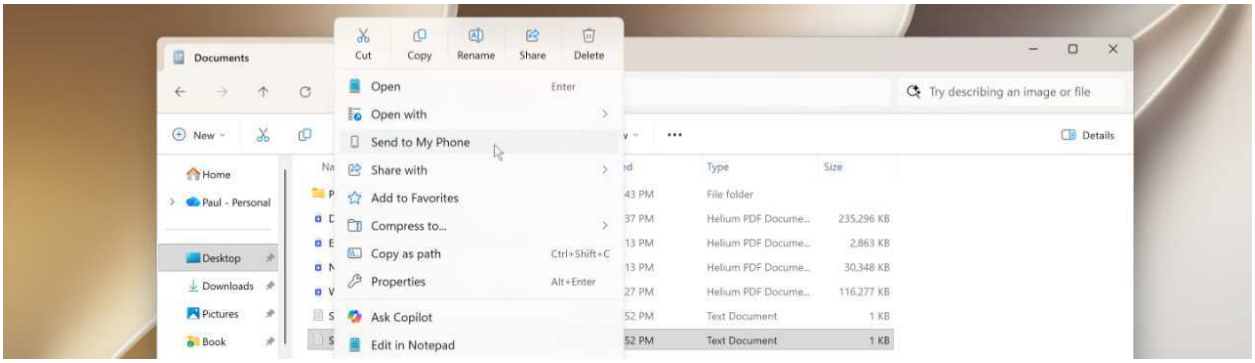
You can use two nearly identical Windows 11 features–Windows Share and Send to my phone–to wirelessly copy files from your PC to your phone. They both work nearly identically.

To get started, locate the file you wish to share in File Explorer. Then, do one of the following:

- **Use Windows Share**. Select the file, and click "Share" in the app's command bar to display the system Share dialog, and click the icon for your phone in the top area of the window.



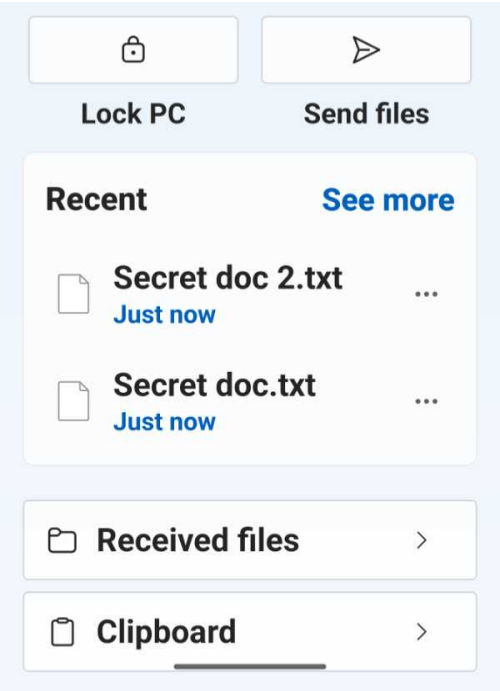
- **Use Send to my phone**. Right-click the file, click “Send to My Phone” in the context menu that appears.



In either case, a banner notification will appear while the file transfers. And on your phone, a notification appears to tell you that Link to Windows has received a file. You can tap that notification–or open Link to Windows and then tap the file in its “Received files” section–to view the file on your phone.

From there, you can share the file with other apps on your phone (and perform related actions like copying it to the phone’s clipboard) using the “Share” (magnifying glass) icon at the bottom of the screen.

You can also manage your received files from the “Received files” section on the Link to Windows app’s home page. Each received file has an associated “More options” (“…”) button from which you can select “Delete,” “Share,” and “Open folder in Files” choices.

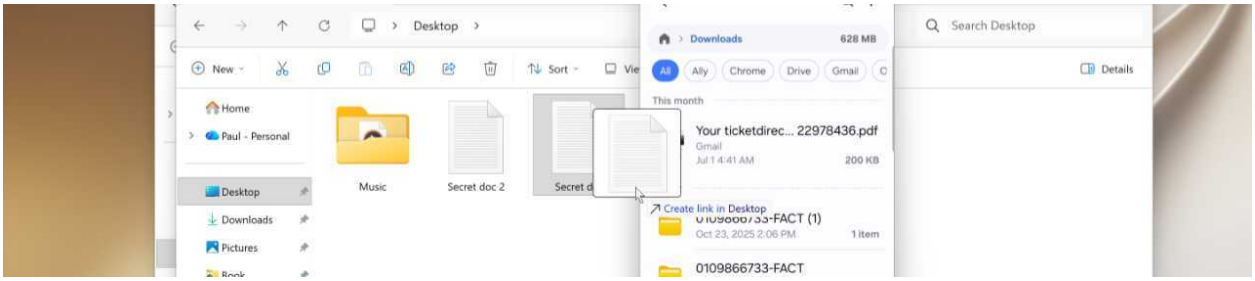


Tip: Link to Windows saves files received from your PC in the folder On My iPhone > Link to Windows > Files from my PC on the iPhone.

Copy a file with drag and drop

If you have a recent Samsung flagship phone, you can drag and drop to copy a file from your PC to your phone or vice versa. You do so using the remote phone screen and remote app capabilities that are unique to these devices. Unfortunately, this is limited to a few select phone apps at the moment, Gallery and My Files.

To do this, open your phone screen or a compatible Android app in an app window. Then, just drag a file from File Explorer or the Desktop onto the phone or app window. Or vice versa. You will see a pop-up notification in the remote screen or app window and a banner notification in Windows 11 indicating the successful file transfer.

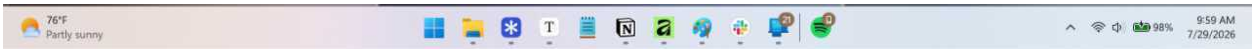


Resume a phone activity on your PC

Phone Link has a *Resume* feature that lets you continue an activity you started on your phone on your PC. This feature only supports a limited number of apps, unfortunately. On the iPhone, you can use Resume with the OneDrive mobile app. And on Android, you can also use Spotify, the vivo Browser, and WhatsApp.

> **Tip**: Before you use this feature, you should install the Desktop version of the app on your PC. Otherwise, you will be prompted to do so when you attempt to resume an activity.

To use this feature, just open a compatible app on your phone and use it. For example, you might start playing music in the Spotify mobile app. When you do so, a Spotify icon with a "Resume from your phone" overlay badge appears in the Windows 11 Taskbar with a separator between it and your other Taskbar buttons.



To resume this activity on your PC, mouse over the Taskbar button to display a "Resume on your PC" pop-up.

Then, just click the "Continue on this PC" link to open that app on your PC and continue the activity. With Spotify, this means that it will begin playing the song, album, playlist, or other content you were enjoying on your phone.

But wait, there's more: You can learn more about Resume on the Microsoft Support website.

View, share, and edit phone photos

In 2026, the ways in which one can access their phone-based photos in Windows 11 are changing: If you have an Android phone, you may still see a Photos view in Phone Link, but that interface is going away. So regardless of which type of phone you have, your options going forward–regardless of phone type–include the following:

- **File Explorer**. If you connect your phone to your PC using a USB cable and then permit this access on the device, you can browse the device's file system (to some degree on iPhone and more fully on Android) and then copy files between the two devices. When you do so, the phone appears as a removable storage device in the File Explorer navigation pane and in the This PC view.

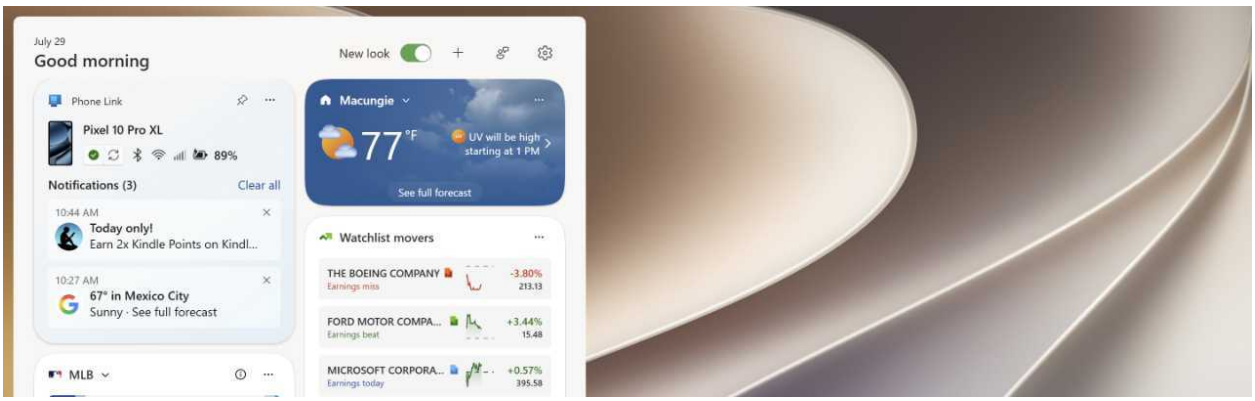
Learn more: Copy a file with File Explorer

- **Photos**. The Photos app displays your Android phone-based photos in the DCIM sub-item under "This PC." If you install the iCloud app on your PC and configure it properly. you will see all the iPhone-based photos you backed up to Apple's cloud storage service by clicking the iCloud Photos item in Photos.

Learn more: Photos

Access Phone Link in Widgets

While this is only passingly interesting, you can add a Phone Link widget to the Widgets board in Widgets. To do so, click the large "+" ("Add widgets") button in its upper-right, select the Phone Link widget, and click "+ Add widget."



Once on the Widgets board, you can position the Phone Link widget where you like and configure it to be a small, medium, or large size by clicking its "More options" ("...") button.

Interactive elements include:

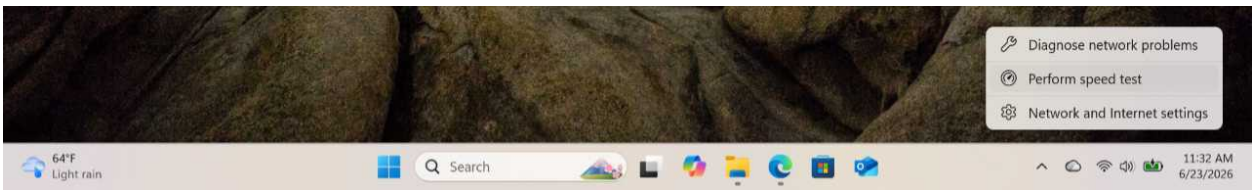
- **Open Phone Link**. Click the phone icon on the widget to open the Phone Link app.
- **Refresh the connection to the phone**. Click the "Connected" split button to refresh the connection to the phone over Bluetooth.
- **Clear all notifications**. You can click the "Clear all" link to clear all pending phone notifications.
- **Clear a single notification**. Click a notification's "Clear" ("x") button to clear only that notification.

Internet Connectivity

Windows 11 supports Wi-Fi, Ethernet, and cellular data connections along with Airplane mode and Mobile hotspot capabilities.

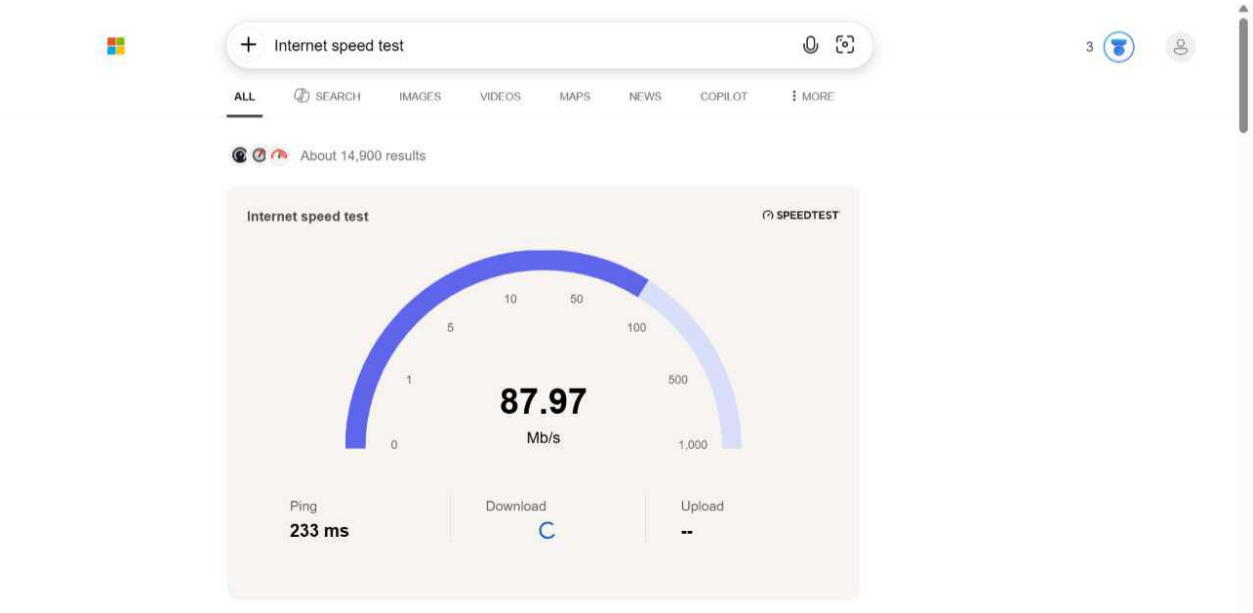
New to 2026, it also lets you perform a quick network speed test if it's not clear whether you're connected to the Internet or you want to make sure you're using the fastest connection type. The network speed test is available from Quick settings in the Taskbar in the following places:

- **Right-click**. If you right-click the "Network" system tray icon, you will see a "Perform speed test" option in the context menu that appears.



- **Wi-Fi**, **Ethernet**, **and Cellular quick settings**. If you click the right side of the "Wi-Fi," "Ethernet," or "Cellular" quick setting buttons, you will see a "Test internet speed" button (with no label) at the bottom of the window.

When you click either of these items, your default web browser will open a new tab and display a Bing search for "Internet speed test" that displays a graphical speed test above the results so you can perform the test immediately. Just click "Start" to see your download and upload speeds.



Wi-Fi

Windows 11 supports Wi-Fi ("wireless fidelity") networks, allowing you to wirelessly connect to the Internet, access connected PCs, printers, and other devices, and share your Internet connection with other PCs and devices.

Because Windows 11 requires you to be connected to the Internet when you first set up your PC, it's likely that you have already configured your PC to work with at least one Wi-Fi network. But if you own a laptop or other portable PC and use it in different locations, you will need to connect to, and potentially configure, Windows 11 to use other Wi-Fi networks as well.

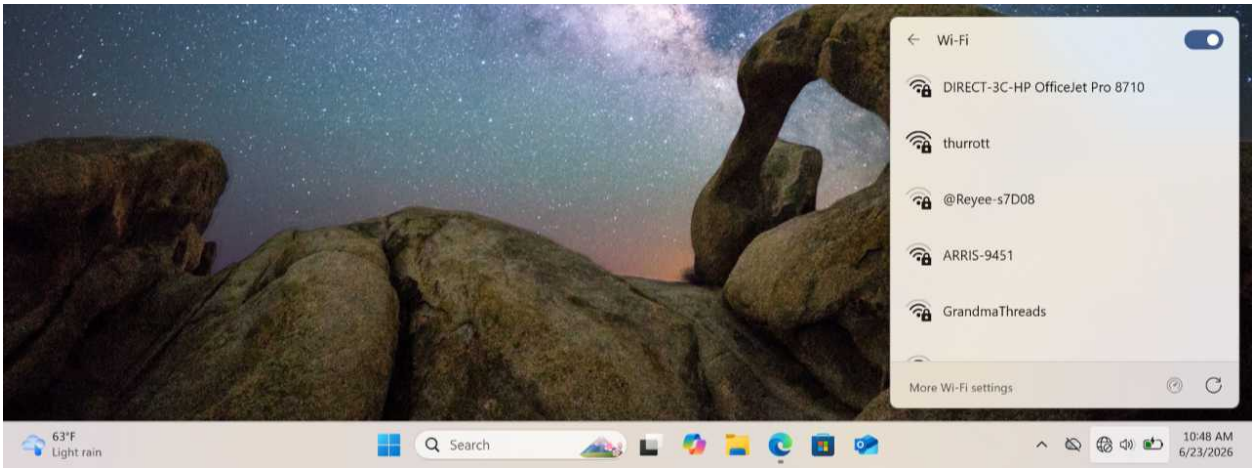
Find and connect to a Wi-Fi network

If you bring your PC to a hotel, airport, coffee shop, or another place with a Wi-Fi network for the first time, the "Network" icon in the notification area of the Taskbar will resemble a globe with a strikethrough symbol overlay to indicate you're offline.

You can find and connect to any available Wi-Fi networks with Quick settings, which is accessed by clicking the "Network," "Sound," or "Battery" icons in the system tray on the right side of the Taskbar.

Keyboard shortcut: You can more quickly open Quick settings by typing Windows key + A.

If Wi-Fi is enabled, the "Wi-Fi" quick settings button will display in an enabled state (using your configured accent color) and will note that Wi-Fi networks are "Available." To see which networks are in range, click "Manage Wi-Fi connections"–the right half of the Wi-Fi quick settings split button that's marked with the ">" label–to display the list of available Wi-Fi networks.



Private Wi-Fi networks, like those you might access at home or at work, display an icon with a lock overlay, indicating that you have to enter a password before you can connect. *Public* Wi-Fi networks, like those you might access at a hotel, airport, or coffee shop, will not have a lock overlay; these networks will still typically require you to authenticate somehow via a website after the connection is made but before you are connected to the Internet.

To connect to a Wi-Fi network, click it in the list. It will expand to display a "Connect automatically" option and a "Connect" button.

Click "Connect automatically" if this is a trusted Wi-Fi network that you use regularly. (Do not select this option at a hotel, airport, or another public place you visit infrequently or are perhaps doing so for the only time.) Then, click "Connect."

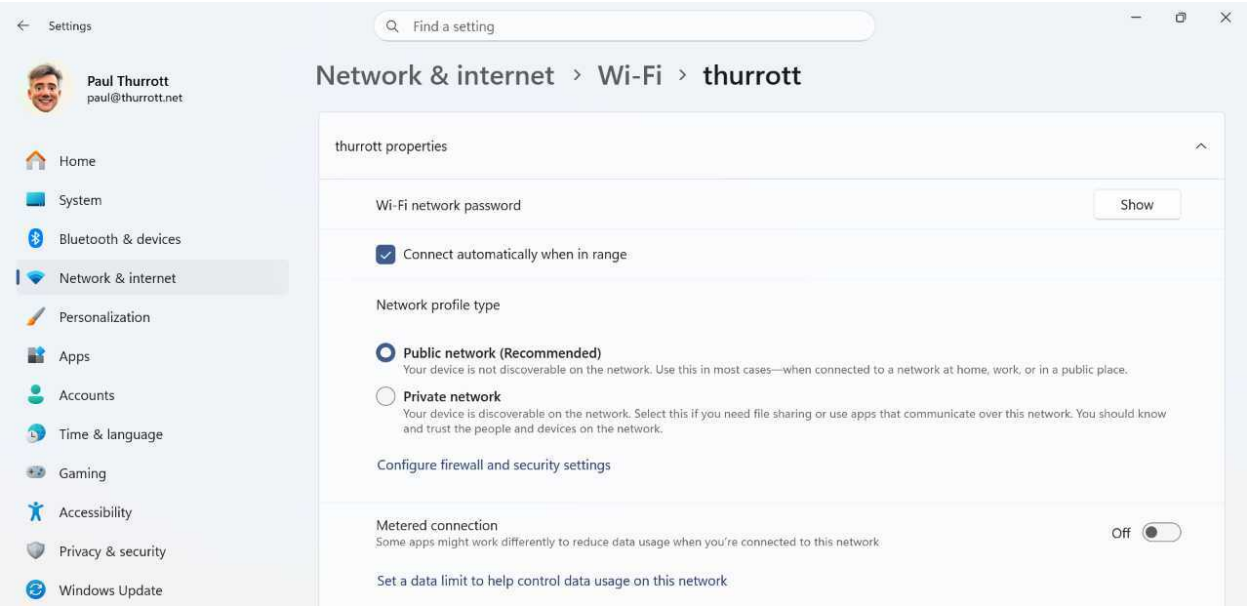
If this network is private, you will be prompted to enter its password. When you're done, click "Next" to complete the connection. When you do, the "Network" icon in the notification area will change to a Wi-Fi symbol that indicates the strength of the network when you've successfully connected. And the "Wi-Fi" quick setting button in Quick settings will indicate the name of the Wi-Fi network in its label.

Configure a Wi-Fi network

By default, Windows 11 configures all Wi-Fi networks with a *public* network profile that prevents your PC from being discovered by other devices–and their potentially malicious owners and software–remotely. Despite that name, a public network is typically the right choice, even if you're using a trusted network at home, work, or elsewhere. But you can configure a Wi-Fi network as a *private* network if you wish to share files with others or connect to printers on the same network.

> **Tip**: Don't confuse public and private Wi-Fi networks with public and private network profiles. The former are types of Wi-Fi networks that you, as a user, cannot change. The latter is a Windows 11 networking term that refers to whether your PC is discoverable over that network. Put simply, they are two different things that confusingly use the same terminology.

To configure the current Wi-Fi network, open the Settings app and navigate to Network & internet > Wi-Fi. Then, select "*Wi-Fi name* properties" to display the properties page for that Wi-Fi network.



> **Tip**: Alternatively, open Quick settings, click "Manage Wi-Fi connections," and then click "More Wi-Fi settings." Then, click the "*Wi-Fi name* properties" item.

For the most part, Wi-Fi will just work. But the following options are worth examining and knowing about.

- **Wi-Fi network password**. Click the "Show" button to see the password for the current Wi-Fi network. You can use the QR code to add this Wi-Fi network to your phone: Just scan the code with your phone's camera.

> **Tip**: To find the password for other saved Wi-Fi networks, open Wi-Fi settings, click "Manage known networks," and click the Wi-Fi network in the list. Then, click "Show" next to "Wi-Fi network password."

- **Connect automatically when in range**. When you first connected to this Wi-Fi network, you were presented with a "Connect automatically" choice. This option will be configured according to the choice you made at the time, but you can reconfigure it here.
- **Network profile type**. Here, you can choose between configuring this connection as a public or private network for discoverability and sharing purposes. Unless you have specific needs, this should be configured as "Public network (Recommended)."
- **Metered connection**. Most Wi-Fi networks are not *metered*–meaning they do not have a data cap and are a cellular data connection–so this option is usually set to "Off" by default. However, if you are using Windows 11's *mobile hotspot* feature or tethering your smartphone to share its Internet connection, this should be configured to "On" to minimize data usage.

> **Learn more**: Mobile hotspot

- **Random hardware addresses**. This privacy protection feature is curiously disabled by default. When enabled, it will create a random hardware address so that it seems like a different device to other devices on the same network. You can optionally configure this feature to change the hardware address every day for additional security.

> **Tip**: If you do enable "Random hardware addresses," you will need to disconnect from the Wi-Fi network and then reconnect for it to take effect.

- **IP and DNS server assignment**. Most users won't need to change the default IP and DNS server configurations, but if your ISP, workplace, or other trusted organization that manages the network instructs you to make changes, this is where you can do so.
- **Advanced Wi-Fi network properties**. Click the "Edit" button next to this option to display the legacy Wireless Network Properties control panel, which is rarely needed these days. This interface allows you to manually configure the security features your Wi-Fi adapter uses, but this is automatically configured optimally by Windows 11.

Disconnect from or forget a Wi-Fi network

Windows 11 stores the name and password of all the Wi-Fi networks you connect to so that you can seamlessly connect to them again if you return or use another PC. However, you may sometimes connect to the wrong Wi-Fi network or wish to manually disconnect from it without disabling your PC's Wi-Fi radio.

> **Tip**: If you sign in to Windows 11 with a Microsoft account, this Wi-Fi network data is also synced to your account so it's available on any PC you use.

You can do both from Quick settings: Click "Manage Wi-Fi connections"–again, the right half of the Wi-Fi quick settings split button–to display the list of available Wi-Fi networks. Then, right-click the Wi-Fi network you wish to change to diplay a context menu. There are three options:

- **Disconnect/Connect**. Choose this to disconnect from (or connect to) the selected Wi-Fi network.
- **Properties**. Select this to display the properties page for the selected Wi-Fi network in the Settings app as described in the previous section.
- **Forget**. Click this to remove the name and password of this Wi-Fi network from Windows 11 and your Microsoft account.

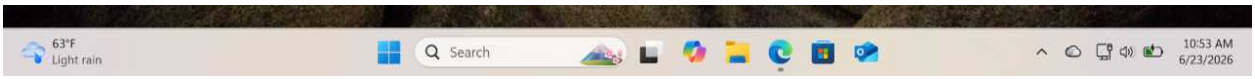
Ethernet

Windows 11 supports wired *Ethernet* networks, allowing you to reliably connect to the Internet and access other connected PCs, printers, and other devices on the same network.

Ethernet is more common in workplaces than in homes, but if you're lucky enough to have a wired Ethernet connection, you will experience faster speeds and better reliability than is generally possible with Wi-Fi or cellular data connections.

Connect to an Ethernet network

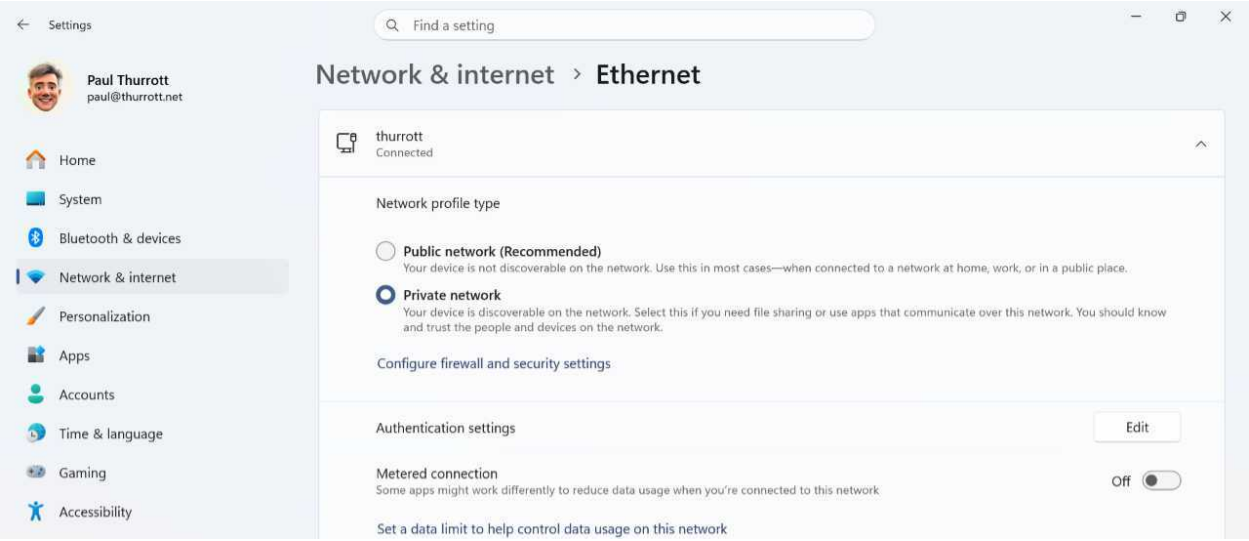
To use an Ethernet network, you need to physically connect your PC to an Ethernet port on your router or elsewhere in your home using an Ethernet cable. Once you do so, the "Network" icon in the Taskbar system tray will change to indicate that the connection is now available and working properly.



Configure an Ethernet network

By default, Windows 11 configures all Ethernet networks with a *public* network profile that prevents your PC from being discovered by other devices–and their potentially malicious owners–remotely. As with Wi-Fi networks, this is often the right choice, even if you're using a trusted network at home. But you can configure an Ethernet network as a *private* network if you wish to share files with others or connect to printers on the same network.

To configure the Ethernet network, open the Settings app and navigate to Network & internet > Ethernet. The Ethernet properties page appears.



There are only a few options here worth considering.

- **Network profile type**. Here, you can choose between configuring this connection as a public or private network for discoverability and sharing purposes.
- **Metered connection**. Most Ethernet networks are not *metered*–meaning they do not have a data cap–so this option is usually set to "Off" by default.

Cellular data

If your PC supports *cellular data* services provided by a mobile operator, you can use this connection to access the Internet. This is similar to how you connect to the Internet with your smartphone, but it's for mobile data only, without the voice calling and texting capabilities.

> **Tip**: Most Windows PCs do not have a cellular data radio. But you can always take advantage of the cellular data plan on your smartphone, most of which offer *hotspot* capabilities that let you share their data connection with other devices. A connection shared from your phone will appear

as a normal Wi-Fi network to your Windows PC.

As an individual, you will face a few barriers getting your PC connected to cellular data:

- **It's often expensive and limited**. While cellular networks are broadly available out in the world, the data-only plans you can choose from for your PC are typically expensive and have a *data cap*, or limit.
- **You're on your own**. It's up to you to find a mobile operator that provides cellular data access. This can be the company you use for your smartphone, in which case you may have a monthly subscription plan. Or it could be a standalone offering from a mobile operator or mobile virtual network operator (MVNO) that sells data-only cellular access with specific data and time limits. For example, you might pay for 2 GB of access that lasts for one day, 10 GB of data that lasts for one month, or whatever other combinations.
- **It's complicated**. Setting up and configuring cellular data capabilities in Windows 11 is more complicated than setting up Wi-Fi or Ethernet. Each mobile operator is a bit different and may require you to make specific configuration changes. If you don't configure this connectivity correctly, it won't work or you may quickly exceed your data cap.

Windows 11 treats a cellular data connection differently from Wi-Fi and Ethernet. This type of connection is what Windows 11 calls a *metered network* because of the data limits, and it provides a well-hidden interface you can use to configure those limits so the system will warn you if you're in danger of exceeding them. It also turns off certain services, like OneDrive sync, Windows Updates, and more by default to prevent unwanted data usage.

Tip: Tied to the above, cellular data connections are always private and cannot be configured with a public network profile.

Connect to a data plan

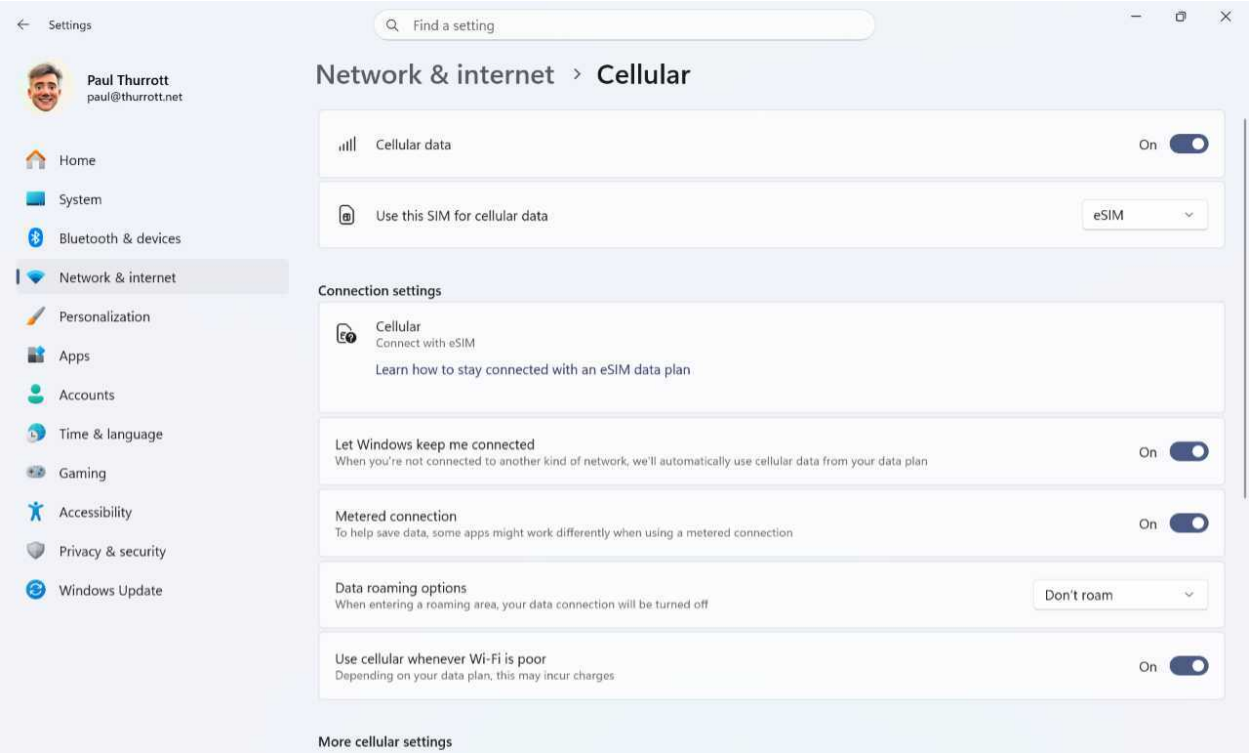
Depending on your PC, you may be able to connect to a cellular data plan using an old-school physical *SIM* (Subscriber Identity Module) card or a more modern *eSIM* (embedded SIM) that is configured electronically. Most PCs support both options, but eSIMs are much more convenient and versatile, and your PC can store multiple eSIM *profiles*, though only one can be active at a time. For this reason, I will focus on eSIM connectivity here, though using a SIM card is somewhat similar.

Before you can get started, you have to buy a data plan and then activate the eSIM profile the mobile operator provides on your PC. (If you're using a physical SIM, you will get that from

your mobile operator and insert it in the SIM tray slot in your PC.) The process varies by mobile operator, but it will at least provide a QR code, which is more easily used on a phone or other mobile device, and an activation code that's more PC friendly. You will need one or the other–and perhaps more information from the mobile operator–to configure and activate the connection.

Unfortunately, I can't help with getting the data plan. Again, this will vary by mobile operator and there are different offerings for use locally and if you're traveling internationally. All I can do here is assume you have paid for some form of cellular data access that provides an eSIM and you want to use it with a Windows 11 PC that supports this usage.

To get started using the cellular data with your computer, open Settings, navigate to Network & internet > Cellular. If this is the first time you've done so and you don't have an eSIM *profile* configured (or a physical SIM inserted), then you will see a "Learn how to stay connected with an eSIM data plan" link under "Cellular" in the "Connection settings" section.



Make sure "Cellular data" is configured to "On" and, if you're using an eSIM, that "Use this SIM for cellular data" is set to "eSIM." Then, scroll down this page and click "eSIM profiles" under "More cellular settings." The eSIM profiles settings page appears.

Click "Add profile" next to "Add an eSIM profile from your mobile operator." A dialog will appear, asking how you'd like to add the profile. Click "Let me enter an activation code I have from my mobile operator" and click "Next." The dialog that appears lets you scan the QR code, which can be awkward, or enter the activation code. Once that's done, click "Next," and Windows 11 will prompt you to download the profile. Click "Yes." After the profile downloads and installs, click "Close" to close the dialog. You will see the new profile listed in the top section of this page, "Profiles for cellular data."

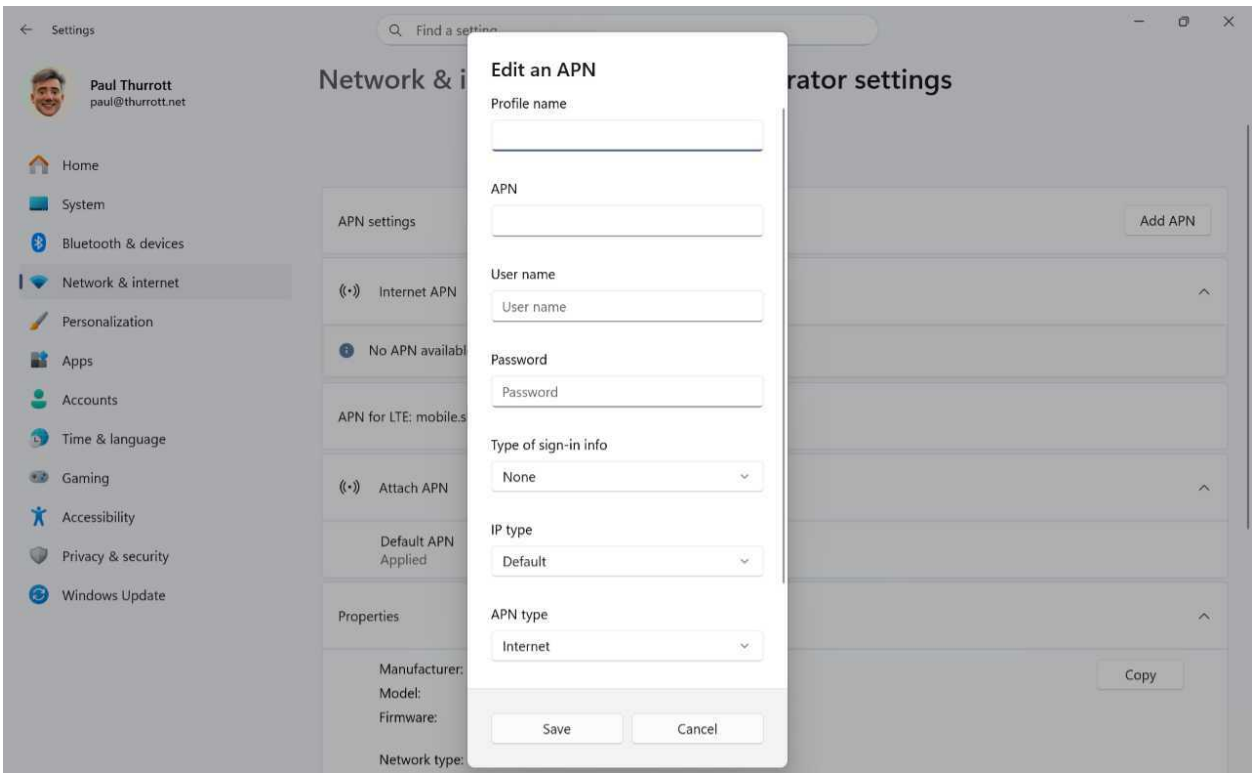
> **Tip:** You can expand the profile to access "Stop using," "Edit name," and "Delete" options.

You're not done. Depending on the mobile operator, you will need to configure some or all of the following. (The information you need will be provided by the mobile operator.)

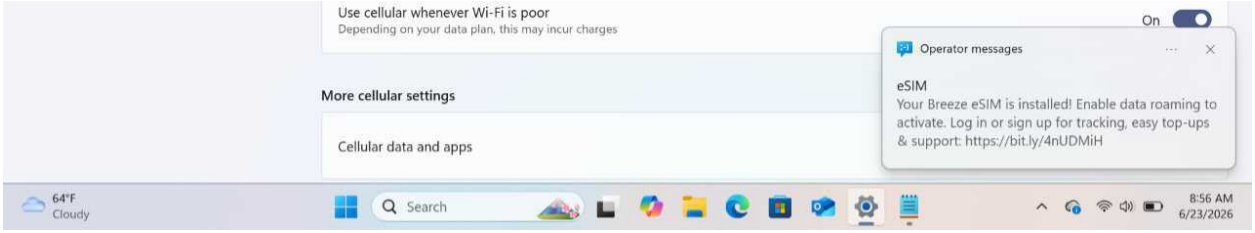
- **SM-DP server address**. On the eSIM profiles settings page, locate "Default SM-DP server address," click "Edit," and enter the SMDP/SMDP+ address provided by your mobile operator. SMDP stands for "Subscription Manager Data Preparation," and this is required to activate the connection. Click "Save" after you enter this information.
- **Data roaming**. You will usually need to enable data roaming because you are or will be

outside the geographic area where the mobile operator is. You do this on the eSIM profiles settings page: Under "Connection settings," configure "Data roaming options" to "On."

- **APN**. Each time you make a configuration change, like those noted above, Windows 11 reconfigures the cellular connection, so you may now see a "Can't connect to this network" warning that mentions an "APN" with the connection under "Connection settings" on the eSIM profiles settings page. APN stands for "Access Point Name," which acts like a network gateway. If you need to add this information, return to Cellular settings (Settings > Network & internet > Cellular) and click "Mobile operator settings" under "More cellular settings." On the Operator settings page, click "Add APN" next to "APN settings" and enter the APN. You can leave the other fields here blank unless your mobile operator instructs otherwise. Click "Save" when you're done.



If the stars align, an Operator message notification will appear telling you that you're connected. You did it.

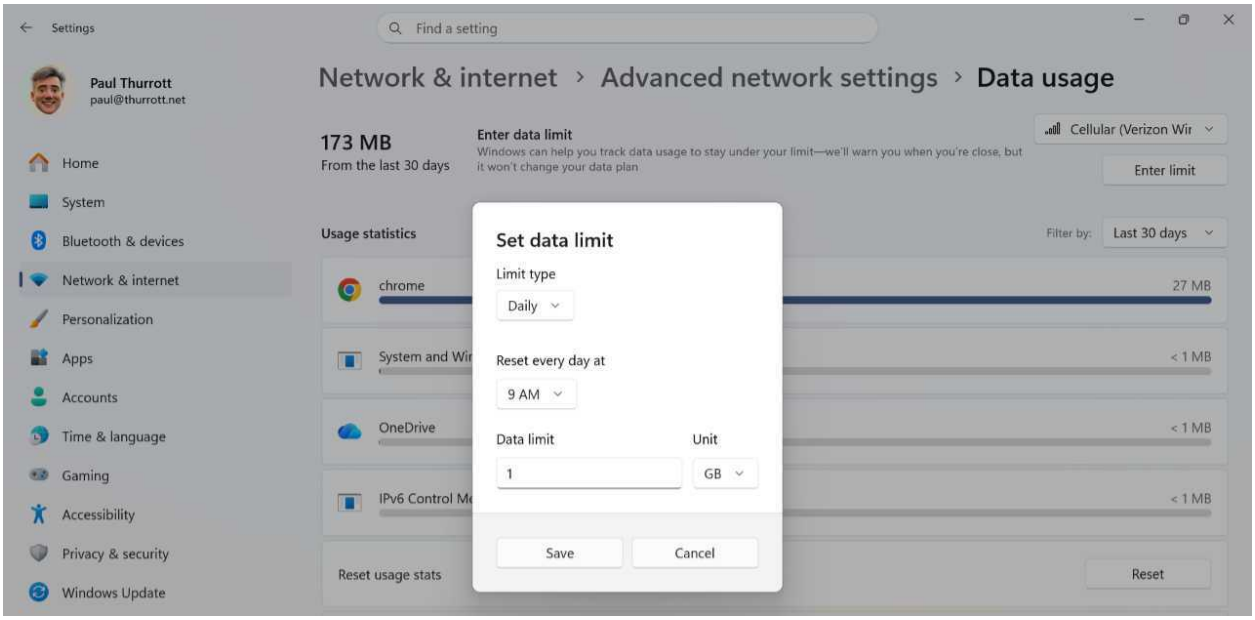


> **Tip**: If you're still not connected, you will have to consult your mobile operator's documentation. Sorry.

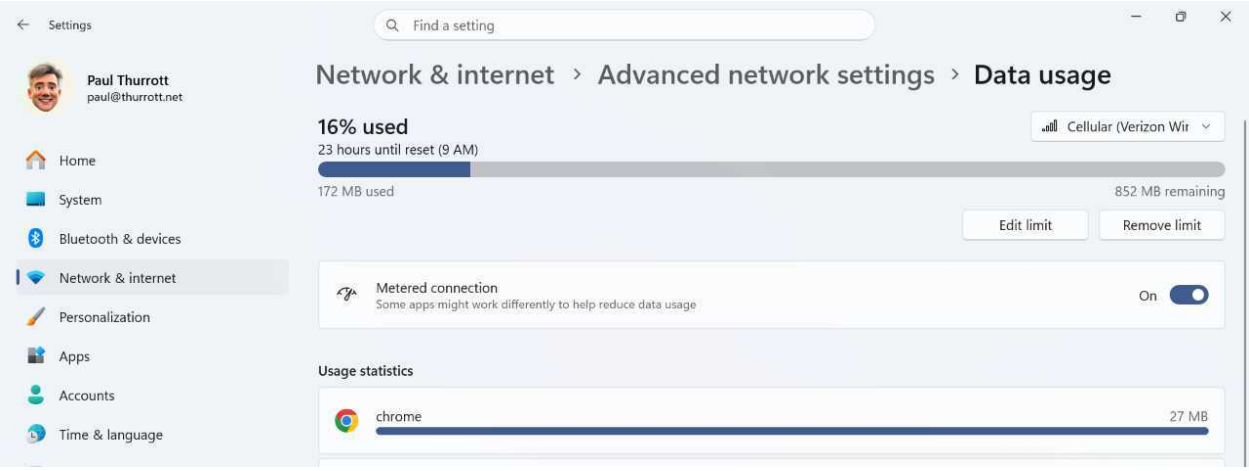
Configure a cellular data plan

There are some other settings to consider when using a cellular data plan.

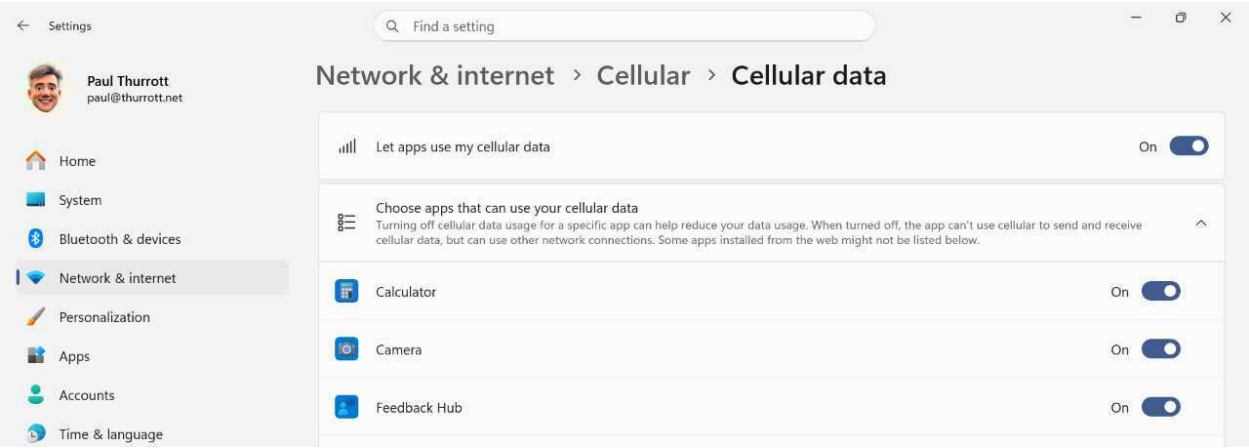
- **Let Windows keep me connected**. Windows 11 will use Wi-Fi (or Ethernet) when possible because it's not metered, but it will switch to cellular data when needed so that you can stay online. That's the right configuration for most. But if you prefer to manually connect to cellular as needed, you can configure "Let Windows keep me connected"–in Settings > Network & internet > Cellular–or Quick settings (via the Cellular quick setting button) to "Off". Conversely, you can also optionally disable Wi-Fi to ensure that the cellular connection is always used.
- **Use cellular whenever Wi-Fi is poor**. Tied to the above, this option, located in Cellular settings, is disabled by default. When enabled, Windows 11 will automatically switch to cellular data if the Wi-Fi connection is weak. That is, instead of just enabling cellular data when there is no Wi-Fi, this will always choose the better connection. Which can impact your data cap more.
- **Metered connection**. Because cellular data connections are metered and can be expensive, you will likely want to configure this feature. Unfortunately, it's not located in Cellular settings. Instead, navigate to Settings > Network & internet > Advanced network settings > Data usage. Select the cellular connection (not Wi-Fif) in the top right and click "Enter limit" to configure your data cap information, which will include the time frame. When you're done, click "Save."



Now, you can check in on this page to see where your data use is at any time, and Windows 11 will notify you when you're getting close to your limit.



- **Cellular data and apps**. If you find that a certain app is using a lot of cellular data–or, if you're just being proactive–you can configure how (or if) apps use cellular data in Network & internet > Cellular > Cellular data and apps. Here, You can globally toggle app access to cellular data on or off or, more commonly, determine which apps can or cannot use this data individually.



Enable and disable a cellular connection

Once you've configured an eSIM profile (or inserted a physical SIM card into your PC), Windows 11 can use it to get online and access the Internet. This will happen when the connection is enabled and according to the configuration you made, as above.

There are two places in Windows 11 where you can toggle your cellular data connection on and off:

- **Cellular settings**. In the Settings app, navigate to Network & internet > Cellular and toggle "Cellular data" to "On."
- **Quick settings**. In Quick settings, click the left half of the "Cellular" quick setting button. (You can also click the "Manage Cellular connections" side of the "Cellular" quick settings split button to switch between eSIM profiles if you have more than one and toggle "Let Windows keep me connected" for each.) When enabled, this button will display the mobile operator name and service level (typically LTE or 5G) of the cellular data network to which you are connected.

When you're connected to cellular data but not Wi-Fi, the "Network" icon in the Taskbar system tray will change to a triangular "five bars" cellular connection icon similar to what you see on your smartphone.

Airplane Mode

Like your smartphone and other mobile devices, Windows 11 has an *Airplane mode* feature that instantly disables all the wireless radios in your PC. Depending on the PC, this can include Wi-Fi, Bluetooth, cellular data, and Near Field Communication (NFC).

> **Tip**: Despite its name, Airplane mode isn't only useful when you're on an airplane. If you're using a laptop on battery power and don't need connectivity, you can enable Airplane mode to improve its battery life a bit.

Toggle Airplane mode

You can enable Airplane mode by opening the Settings app and navigating to Network & internet > Airplane mode. It's a simple toggle. But there's a faster way: Open Quick settings and click the Airplane mode button to toggle this feature on and off as needed.

When you do so, the "Wi-Fi" and "Bluetooth" quick settings buttons will be disabled and the "Network" icon in the system tray will change to an airplane-shaped icon. And if Nearby share is enabled, you'll be notified that this feature is not available because Bluetooth and Wi-Fi are disabled.

To disable Airplane mode and re-enable any impacted wireless radios, simply toggle it as you did before, either in Settings or Quick settings.

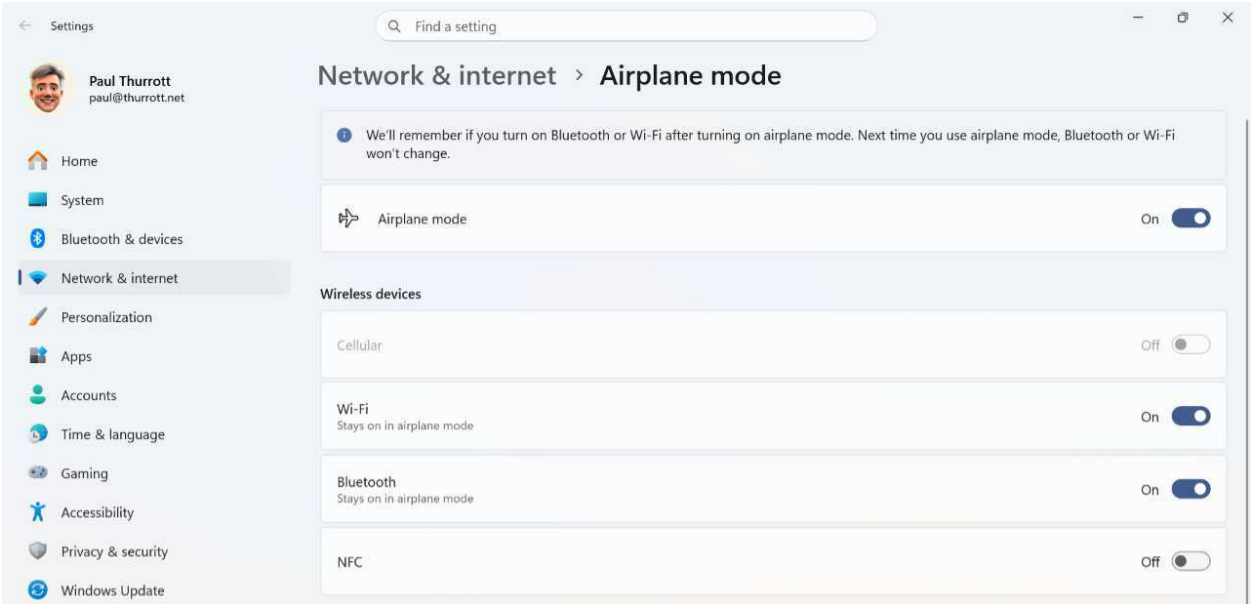
Configure Airplane mode

Airplane mode may seem simple enough, but it's more than a basic on/off toggle. If you enable Wi-Fi and/or Bluetooth while Airplane mode is engaged, Windows 11 will remember that and leave those radios enabled the next time you toggle Airplane mode on.

> **Tip**: There are many reasons why you might want to enable a wireless radio while in Airplane mode. The most obvious is to use a pair of Bluetooth-based earbuds.

The easiest way to do this is via Quick settings: With Airplane mode enabled, simply toggle on Wi-Fi or Bluetooth.

You can also use the Settings app to determine which wireless radios stay on while in Airplane mode. In Settings > Network & internet > Airplane mode, you can see which radios are enabled when Airplane mode is on and change the configuration as desired.



Mobile hotspot

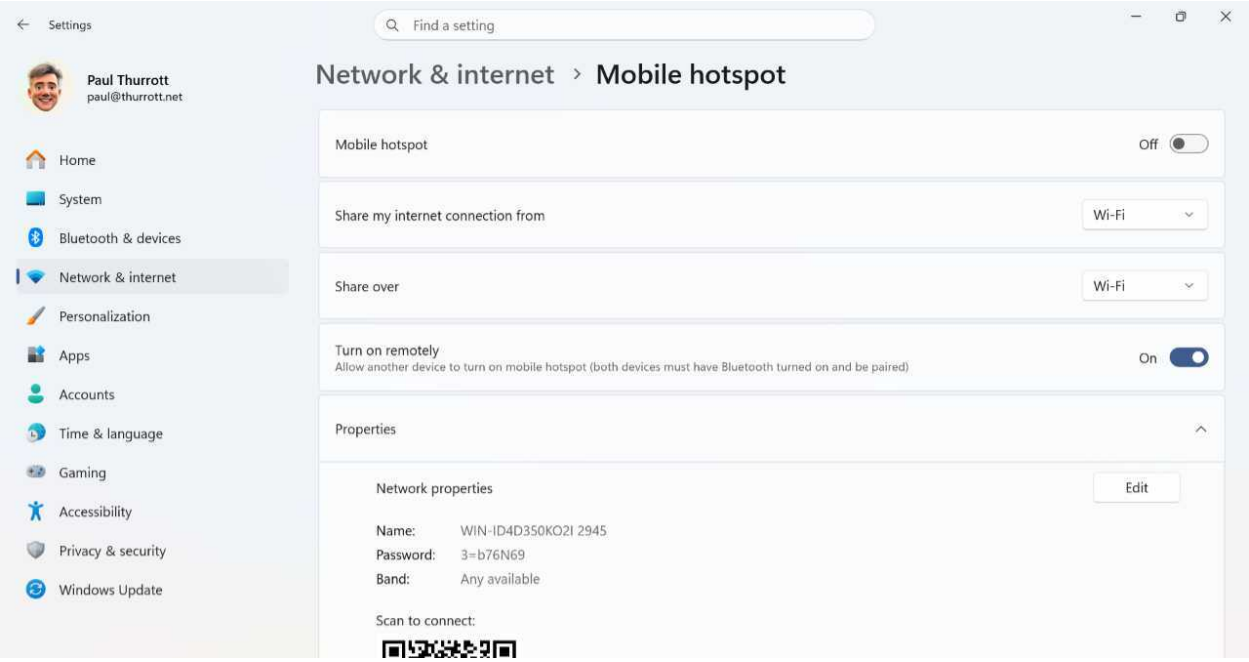
A Windows 11 feature called *Mobile hotspot* lets you share your computer's Internet connection with up to 8 other PCs and other devices.

A mobile hotspot can share your PC's Wi-Fi, Ethernet (wired), or cellular data connection. You can do so via:

- **Wi-Fi**. The shared connection works like any other Wi-Fi network, so it will be available to

devices with Wi-Fi capabilities, including your smartphones, tablets, other PCs, and more. You can share your connection with up to 8 other devices via Wi-Fi.
- **Bluetooth**. This type of hotspot requires you to first *pair* your PC with any Bluetooth devices that will share your PC's connection. It works with up to 7 other devices, but not with iPhones or other Apple devices.

Mobile hotspot is configured in Settings > Networking & internet > Mobile hotspot.



Determine which connection to share

Before you get started, you may need to determine *which* of your connections to share. The option "Share my internet connection from" will let you choose from Ethernet, Wi-Fi, or cellular data, depending on which are available on your PC includes.

> **Tip**: You should choose the fastest connection if possible. Ethernet will generally provide the best results, followed by Wi-Fi and then cellular data.

Configure Mobile hotspot

Though you can share your connection via Wi-Fi or Bluetooth, Wi-Fi is far more common, faster, and reliable, and it's easier to set up and works with all devices, whereas Bluetooth-based

connection sharing excludes iPhones and other Apple devices. So I will focus on sharing over Wi-Fi here.

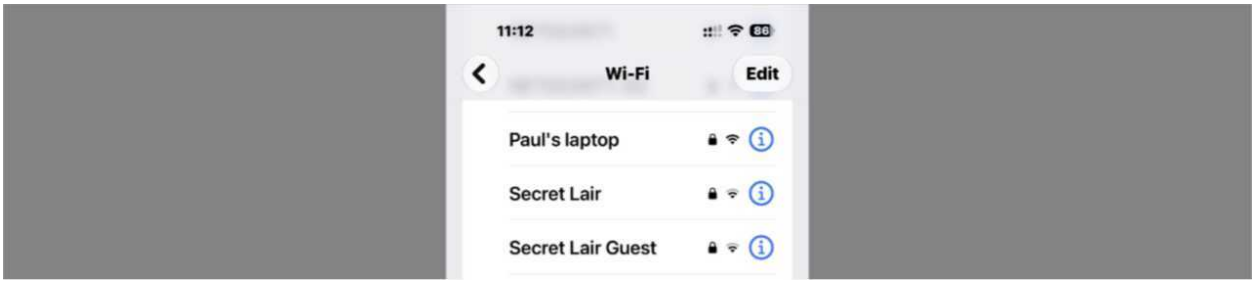
To get started, examine the options displayed in the "Properties" section. By default, Windows provides terrible, automatically generated default Wi-Fi names and passwords. You will want to change both to something more memorable. To do so, click the "Edit" button to display the Edit network info window and enter your own network name, password, and, optionally, a network band ("Any available" is best, but you can choose 2.4 GHz or 5 GHz, the latter of which is typically faster) and security type (WPA2/WPA3 is the most compatible).

When you enable this connection as described below, a new option, "Power saving," appears in Mobile hotspot and is enabled by default. This option determines whether Windows 11 automatically disables the hotspot after a short period of time if no devices are connected, which can save a bit of battery life.

Share your Internet connection with Mobile hotspot

You can enable your mobile hotspot from Mobile hotspot settings, but it's faster and easier to do so with Quick settings: Just locate the "Mobile hotspot" quick setting icon and toggle it on. When you do, the button's label displays the number of connected devices (like 0/8, 1/8, and so on) and the name of the Wi-Fi network it created.

Your shared Internet connection will now appear as a Wi-Fi network alongside other nearby Wi-Fi networks on your other devices. You can connect to it using the password you configured.



Devices that are connected to your mobile hotspot will appear in the Properties section of Mobile hotspot settings, and the "Mobile hotspot" quick settings button's label will update to display the connection.

You can toggle this feature off the same ways you enable it.

> **Tip:** If you don't want your mobile hotspot to automatically turn off when there are no connected devices, configure "Power saving" to "Off."

Apps

At its heart, Windows 11 is a full-featured and mature platform for *apps*, or *applications*, standalone software programs designed for work and play. It supports multiple types of apps, includes an in-box app store, and helps apps get your attention when needed with notifications.

App basics

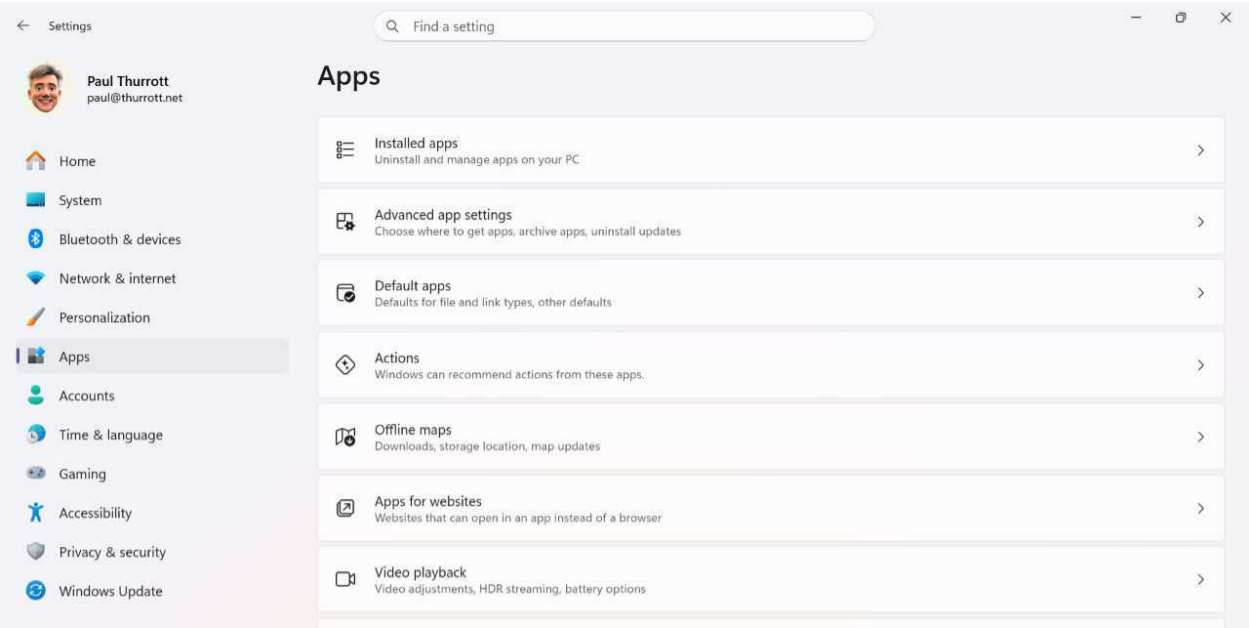
Windows 11 lets you run a wide array of *apps*. Some of these apps are included with Windows 11, but most are acquired elsewhere, typically from the web or from the Microsoft Store. For the most part, it's not necessary to understand the low-level differences between the different types of apps that Windows 11 supports. But here is a quick and high-level overview of the most common app types you will encounter.

- **Desktop apps**. This app type uses technologies that dates back to the 1990s, but it is also the most powerful type of app because it can integrate with the system at a deeper level than Store or web apps. Desktop apps are typically dense with commands and include their own internal mechanisms for downloading and installing updates. Typical examples include Microsoft Word and Excel, Google Chrome, and Adobe Photoshop.
- **Mobile apps**. Since Windows 8 in 2012, Microsoft has given developers a variety of mobile app platforms that let them create mobile apps that run in Windows, similar to those found on smartphones and tablets. Mobile apps simpler and less powerful than Desktop apps, but also more modern and efficient. Many of the apps that come with Windows 11 use the latest version of this mobile apps platform or related technology, including Clock, Media Player, Photos, and others.
- **Web apps**. Many developers create *web apps* using modern web technologies that are installed and run on your PC like other apps. Web apps can be quite sophisticated and though they are by nature cross-platform, they can also utilize the native Windows 11 user interface and features like notifications, storage, and more. Web apps can be acquired on the web through web browsers like Microsoft Edge or through the Microsoft Store, and they are updated automatically either way. Clipchamp (a video editor included with Windows 11) and Spotify are web apps.
- **Store apps**. This isn't so much a *type* of app as it is a description of where one acquires such apps, via the Microsoft Store, an app that is included with Windows 11 and works much like the App Store on an iPhone or iPad, or Google Play Store on Android. Many Store apps are modern mobile apps, but some are specially packaged Desktop and web apps. Regardless of how the apps were made, there are benefits common to most apps acquired from the Store, even if they're also available on the web.

- **Command line apps**. Windows 11 includes a *Terminal* app that can run *command-line apps* in several different environments, including the MS-DOS-style *Command Prompt* and the .NET-based *PowerShell*.
- **Linux apps**. Thanks to a technology called the *Windows Subsystem for Linux*, or WSL, it's possible to install one or more Linux *distributions* in Windows 11 and then install and run Linux command line and graphical apps. This environment targets developers specifically, but anyone can use it to learn the ins and outs of this interesting open source operating system.

App management

You manage the apps installed on your PC using Apps settings, which is found in the Settings app by navigating to Apps.

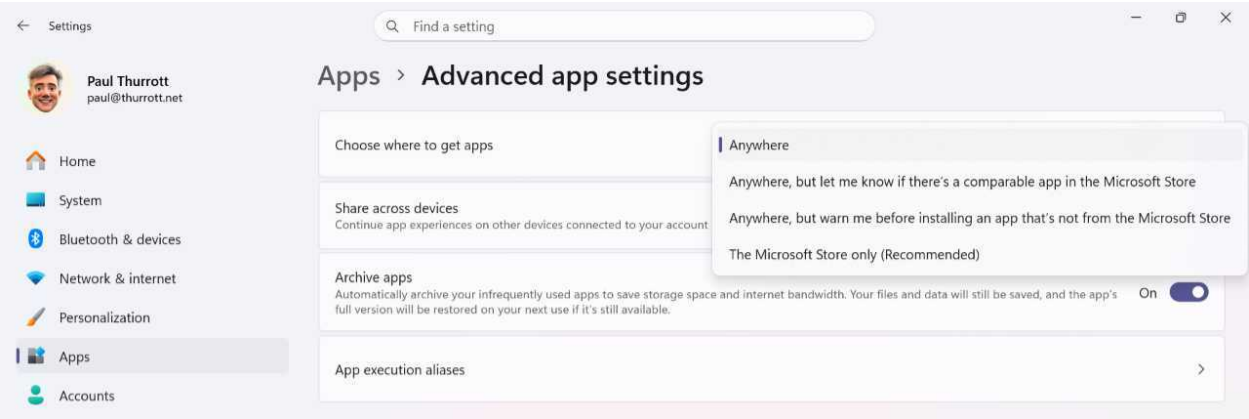


The next few sections detail the most important options here.

Configure where you can get apps

By default, Windows 11 allows you to install apps from anywhere, but you can optionally configure the system to prefer apps from the Microsoft Store or, even more aggressively, to only allow you to install apps from the Microsoft Store and not from the web.

To configure this feature, open the Settings app and navigate to Apps > Advanced app settings.



The first option here, "Choose where to get apps," is set to "Anywhere" by default. But you can change this to "Anywhere, but let me know if there's a compatible app in the Microsoft Store," "Anywhere, but warn me before installing an app that's not from the Microsoft Store," or "The Microsoft Store only (Recommended)."

Because the selection of apps in the Microsoft Store is unlikely to meet all your needs, I don't recommend changing this to that last option. But there's no reason not to consider either of the middle two options if you want to have the best experience.

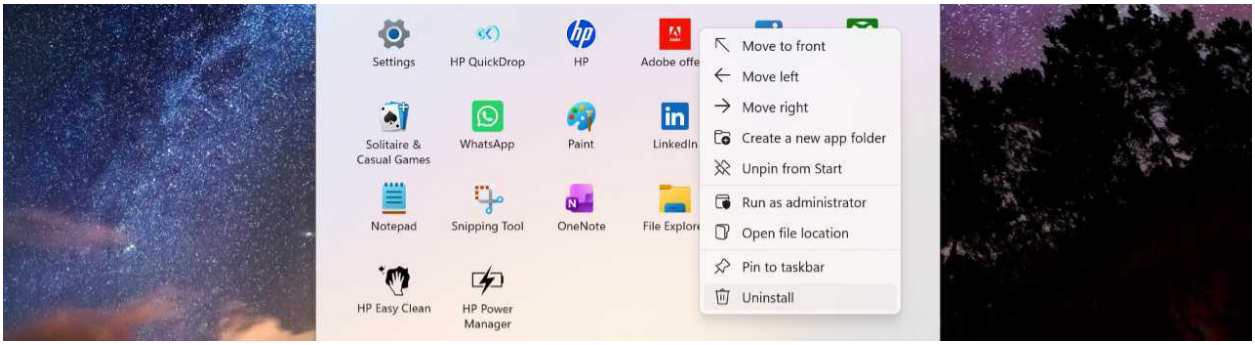
> **Tip**: Because most users won't restrict app installs to the Microsoft Store, Windows 11 also includes a feature called *Smart App Control* that can help protect you from malicious and untrusted apps that you download and install from the web. It's a bit aggressive and had some undesirable requirements.

Uninstall an app

Though you can acquire apps from the web, the Microsoft Store, and other sources, Windows 11 provides a reasonably consistent experience for uninstalling apps.

You can uninstall apps via:

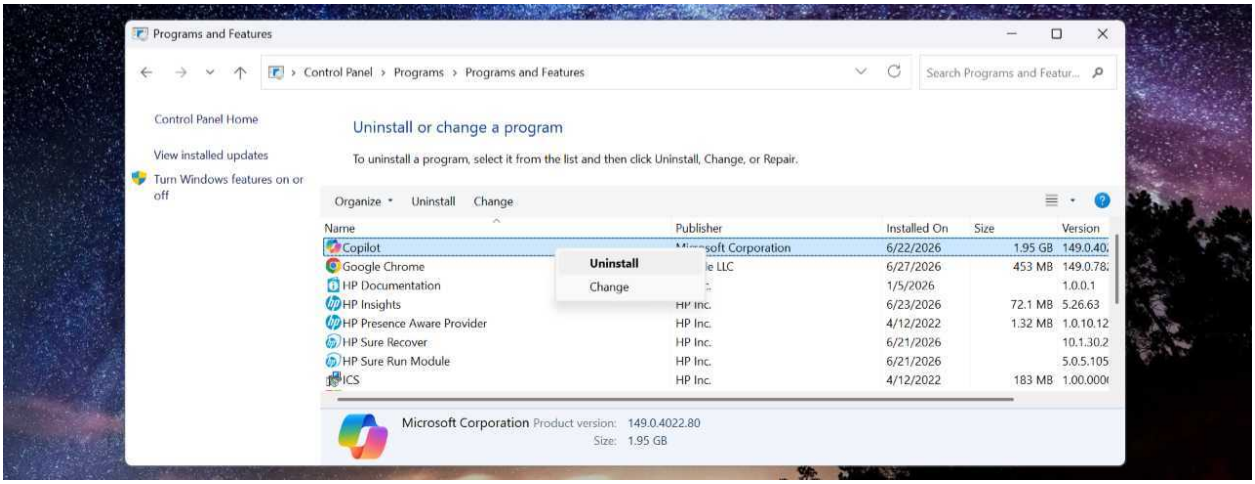
Start. This is typically the easiest method: Right-click an app in Start and choose "Uninstall" from the context menu that appears. If it's a Store or web app, Windows 11 will uninstall it immediately after prompting you to be sure. If it's a Desktop app, Windows 11 will open the Settings app as described below.



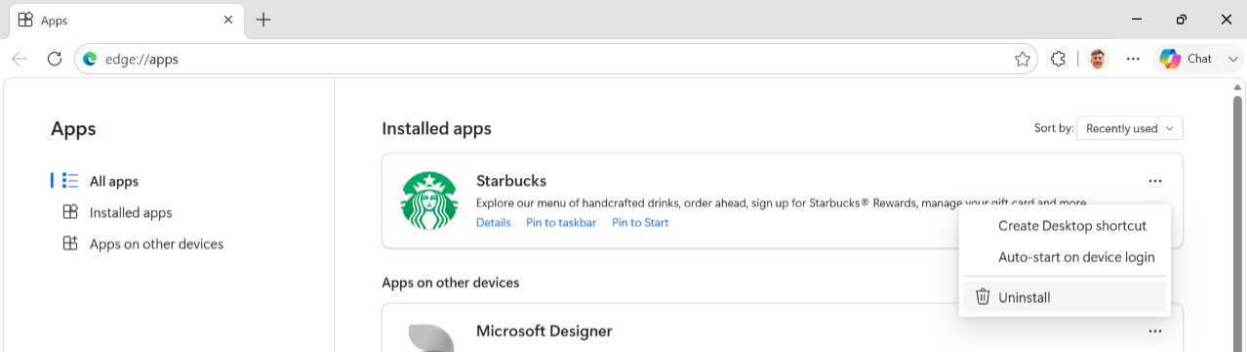
> **Tip**: If you don't see an "Uninstall" option in the context menu, the app may be a so-called stub, a shortcut for a promotional app that will install when you click it the first time. You can choose "Unpin from Start" in the context menu to remove it.

Settings. Installed apps settings (in the Settings app at Apps > Installed apps) lists all the apps installed on your PC. To uninstall one, locate it, click its "More options" ("...") link, and then click "Uninstall." After a dialog-based prompt, it will then uninstall the app or run the app maker's uninstall routine.

Control Panel. This legacy management utility can be found with Windows Search. It provides an "Uninstall or change a program" interface (at Programs > Programs and Features > Uninstall a program) that only lists installed Desktop apps that you can uninstall with a right-click. This shouldn't be your first stop when you need to uninstall an app, but I've found that some apps, including some bundled with new PCs, appear here but not in Installed apps settings.



Microsoft Edge. If you installed a web app with Microsoft Edge, you can also uninstall it from that browser using its Installed apps interface. Just click "More options" ("...") next to the web app you wish to uninstall and then click "Uninstall" in the context menu that appears.



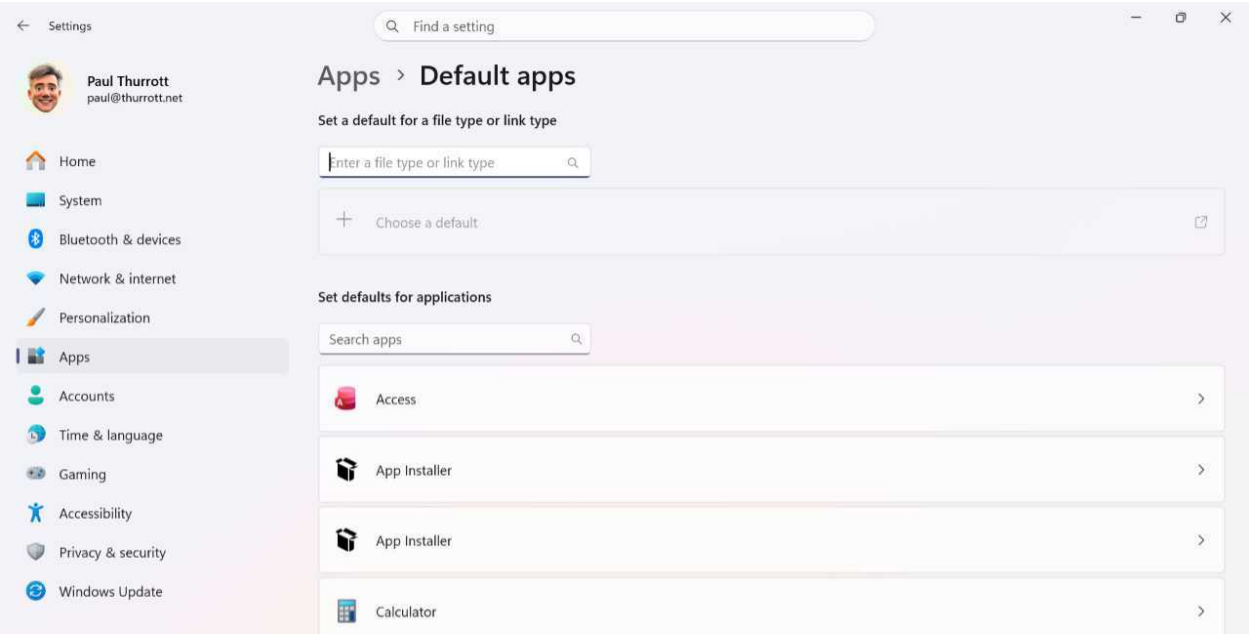
Configure default apps

Windows 11 lets you determine which apps to use by default when opening specific file types and web browser link types. For example, you may wish to use Notepad to open text files (with a .txt file extension), or Google Chrome to open web links (via the HTTP and HTTPS protocols).

Unfortunately, the interface Microsoft provides for this is purposefully convoluted and tedious. And Windows 11 will prompt you to choose a new default app for certain file types after you install a new app that can open them.

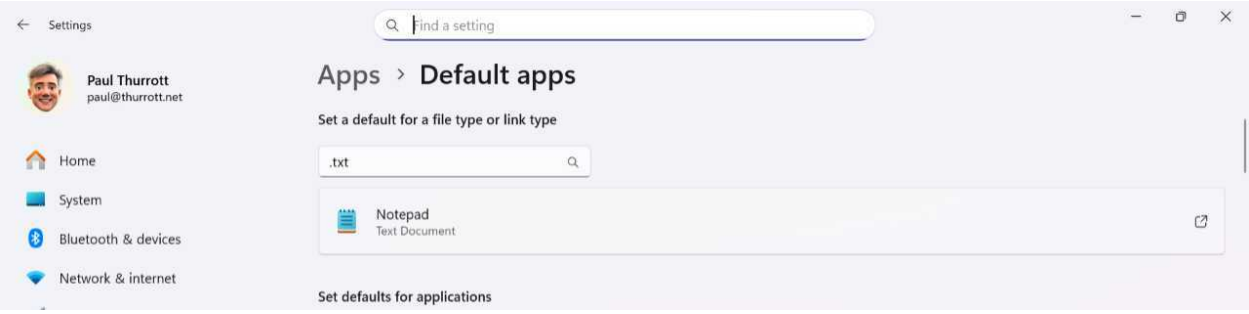
Configure an app to open a specific file or link type

You configure the default apps for specific file and link types with Default apps settings in the Settings app (at Apps > Default apps).

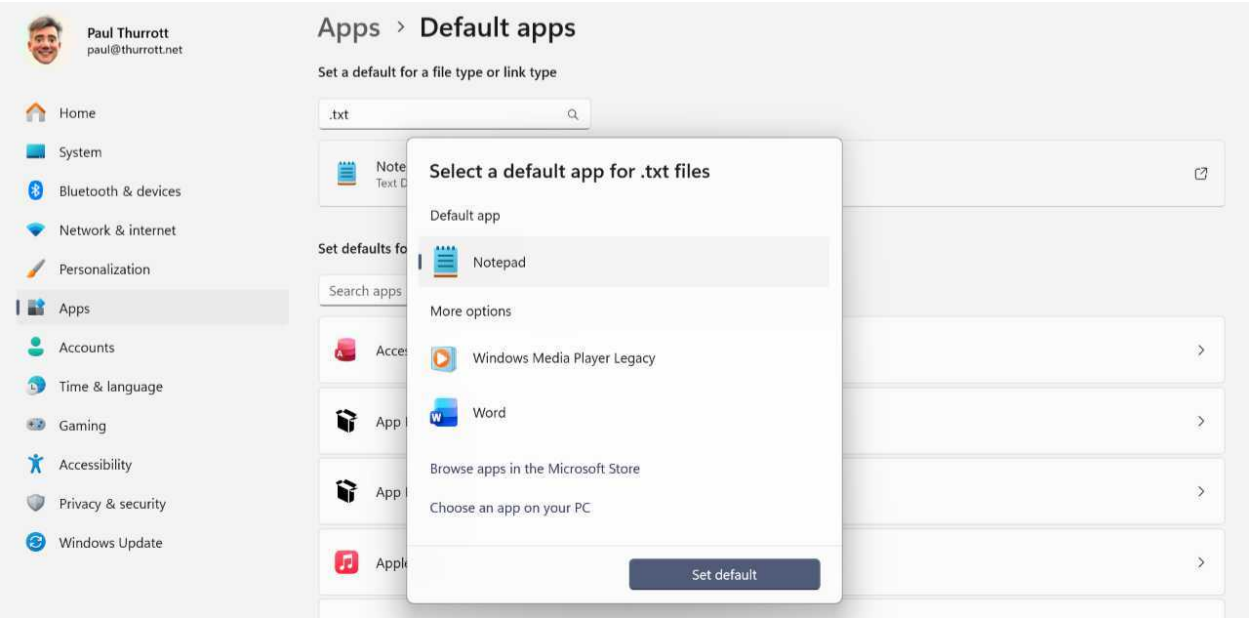


There are two ways to configure this association: You can search for a file or link type using the search box at the top, or you can select an app from the list below that to view and configure the file and link types that can be associated with that app.

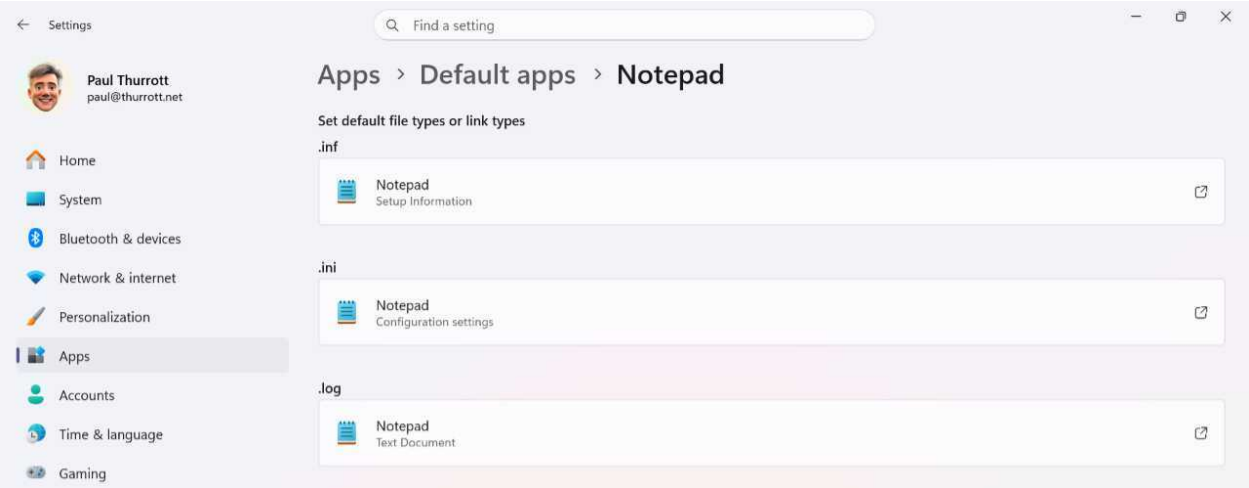
To configure a file or link type with a specific app, use the search box at the top of this page. For example, if you wish to change the app that's used to open a text file (.txt), you will search for *txt* and choose that term from the search results. When you do so, the configured default app will appear under the search box.



Click it to display the "Select a default app for files" window and select a different app.

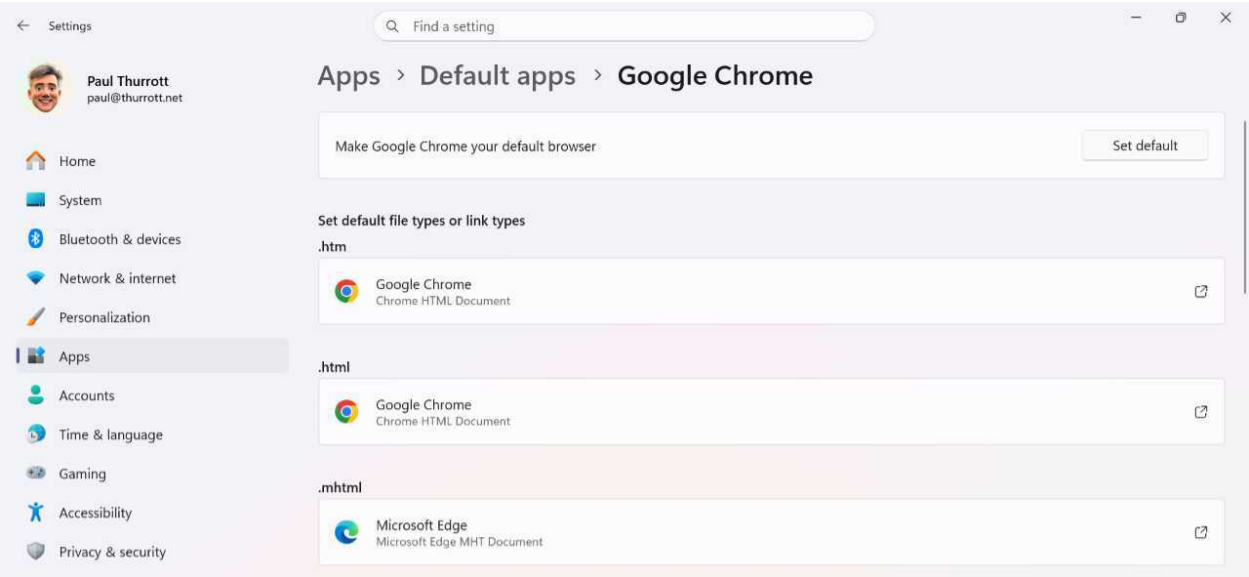


To view and configure the file and link types that are associated with an app, find the app in the list and click it. The page that appears provides a list of available associations.



To change a specific file or link type association, click it in the list and use the “Select a default app” window to choose the app you prefer as the default.

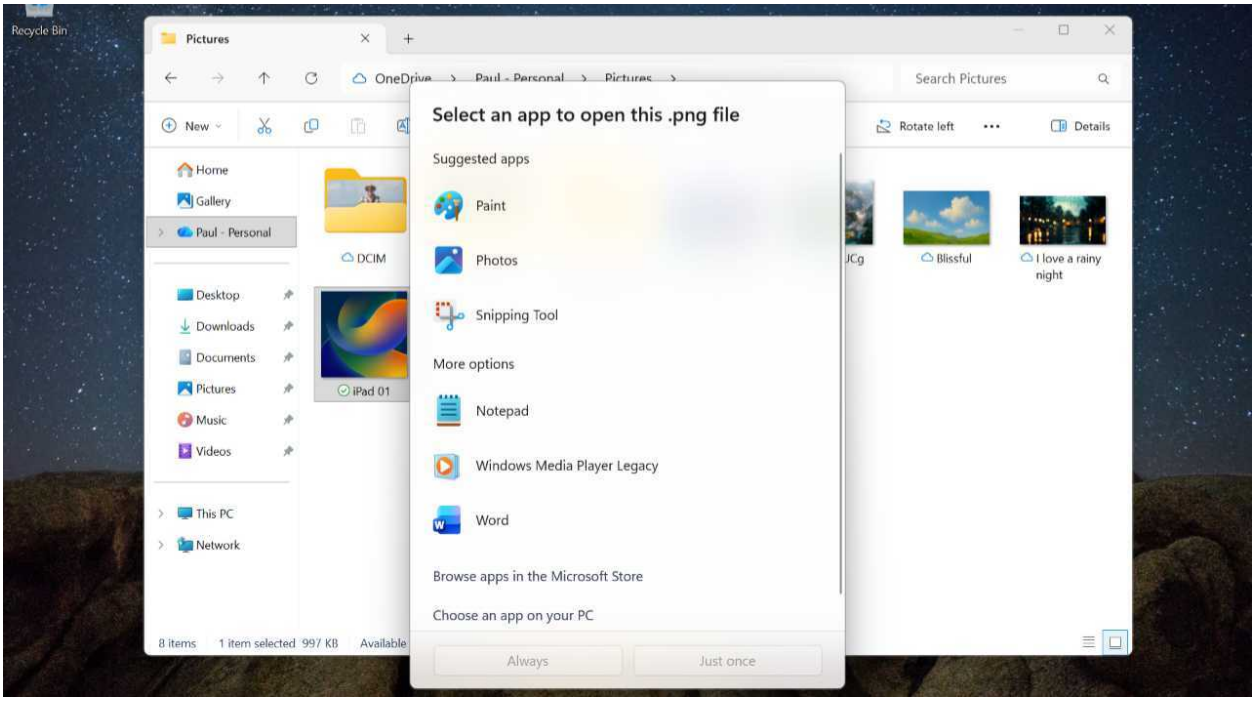
If the app is a web browser, you can use the “Set default” button to configure several associations–the .htm and .html file types and the HTTP (URL: HyperText Transfer Protocol) and HTTPS (URL: HyperText Transfer Protocol with Privacy) link types–at once. A checkbox will appear to the left of “Set default” when you make this change.



Configure a default app for a specific file type on the fly

You don't have to use Settings to configure default apps. You can also configure file associations at any time directly in File Explorer or on the Desktop. And you can open a specific type of file with a non-default app without changing the association.

To configure a new file type association, find the file on your Desktop or with File Explorer, right-click it, and select "Open with" and then "Choose another app" from the context menu that appears. The "Select an app to open this file" window appears.



If you see the app you wish to use as the default, select it. Otherwise, you can find it with "Choose an app on your PC." When you find the app you wish to use as the default, click "Always."

To open a file of a specific type with a different app just this one time, perform the same actions as above but choose "Just once" in the "Select an app to open this file" window. The next time you open that file normally, it will open with the default app.

> **Tip**: You will often see a "Select a default app for file" window after you've installed an app that can open that file type. This can be annoying if you already went to the trouble of configuring file associations, but you can simply choose the app you were already using.

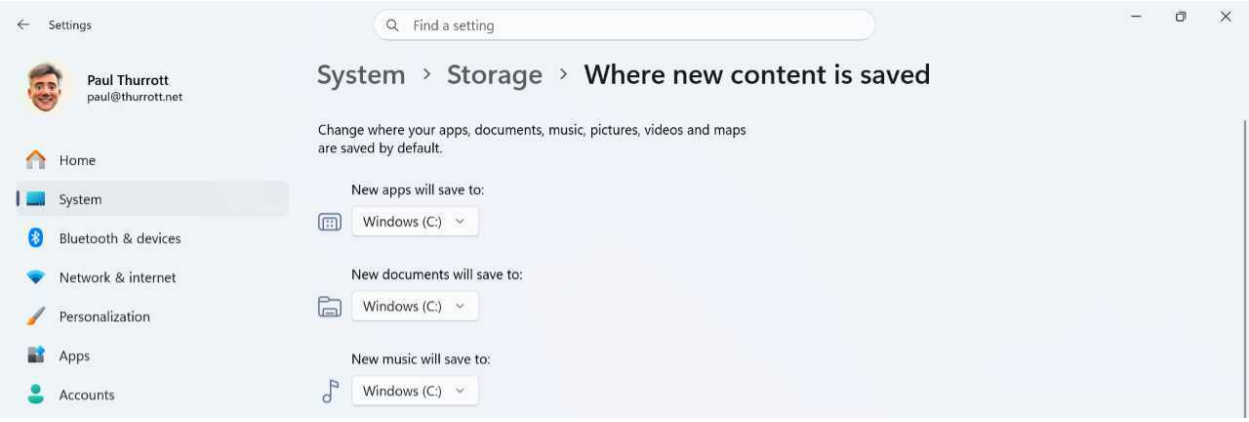
Configure where apps are located

By default, Windows 11 installs apps on the C: drive–also called the *system drive*–though the location can vary, depending on the type of app. For example, most Desktop apps are installed in C:Program Files or C:Program Files (x86). Store apps are often installed in C:Program FilesWindowsApps, which is hidden by default in File Explorer. And games installed from the XBOX app are typically found in C:XboxGames, which is also hidden by default.

You can't easily change the specific locations in a drive where Windows 11 installs new apps (and games). But you *can* configure which drive it uses. This can be useful if you have a C: (system) drive and a second drive (D: or whatever) with more storage. You can also move many Store apps that are already installed to a different drive.

Determine where new app installs are located

To determine where apps are installed by default, open the Settings app and navigate to System > Storage. Then, expand "Advanced storage settings" and click "Where new content is saved." The "Where new content is saved" page appears.



To change the location for new app installs to another drive, click the drop-down under "New apps will save to:" and select the new location.

Move an existing app to a new location

You can also move many Store apps to a different drive. This is helpful if you are running out of space on a drive, or have installed a new drive for this purpose.

To do so, open the Settings app and navigate to Apps > Installed apps. Then, select the More options ("…") link next to the app you wish to move and choose "Move."

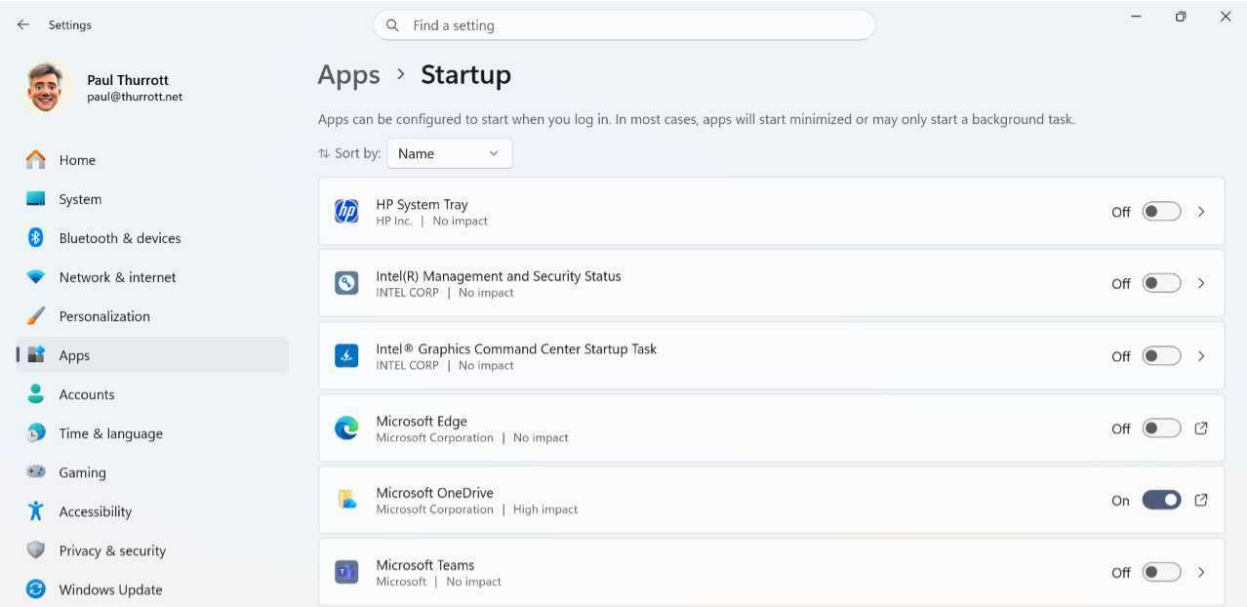
> **Tip:** If this option is *not* available, then it's not possible to move that app. Most Desktop apps and some Store apps cannot be moved this way.

When you do so, you are prompted to select the drive to which you'd like to move the app install. Select accordingly and then click "Move."

> **Tip**: If you are running low on disk space on C: and wish to move some big apps to free up space, you can sort the list of apps displayed here by size. To do so, select the "Sort by" drop-down at the top right of the list and choose "Size (Large to small)."

Determine which apps are allowed to start when you sign in

Windows 11 offers multiple ways to configure which apps start when you turn on or wake up your PC and sign in to Windows 11. But the friendliest and most modern interface can be found in the Settings app by navigating to Apps > Startup.



To make this interface easier to use, you can sort the list of apps by Status. When you do, all the apps that are enabled to auto-start are placed together at the top of the list, while all the apps that can be enabled to do so but are not are placed together at the bottom. To sort by Status, click the "Sort by" drop-down control and choose "Status."

To prevent an app from running at startup, change its On/Off slider to "Off."

> **Tips**: Unfortunately, some apps will auto-start when you sign in and not appear in this interface. In some cases, like Spotify, you need to root around in the app's settings interface to disable this behavior. Others, like Intel's driver support and graphics utilities, are even more insidious, and you will need to use an antiquated Services app to find the offending startup items and disable

them. Here, Google or your favorite search engine can help.

Consider which apps you might disable from auto-starting

Determining which startup apps to disable can be daunting, especially if you're not familiar with some of them or how Windows works. Some startup apps are desirable–if you use OneDrive, for example, it makes sense for it to run when you sign in–but others are less so. The problem, of course, is that it's not always obvious whether some startup apps are useful or even necessary. So let's consider a few common startup apps and app types.

Microsoft Teams. If Microsoft Teams auto-starts and you never use this app, this is an easy choice: Disable it.

Microsoft Edge. Microsoft Edge is configured to run at startup, and like Teams, it does so in the background without opening a window. If you use Edge, this is useful because the app window will launch faster when you do open it. But if you use Google Chrome, Mozilla Firefox, or another app as your default browser, there's no reason for Edge to run in the background, so you should prevent it from starting up automatically.

Apps that auto-start after you run them once. Some apps–like Spotify and the XBOX app–silently configure themselves to run at startup after you open them for the first time. If this isn't what you want, you can easily prevent that from happening here.

Device driver apps and services. You will often see apps related to device drivers, like those for your PC's speakers, in the Startup list. These can be difficult to resolve. In some cases, this type of app may literally be necessary for audio to work–look for the word *service* in its name and leave it alone if found–but some are just audio-related utilities that may or may not be useful. If you're unsure, Google (or Bing) it.

The Startup settings page also lets you sort the list by Startup impact, so that those that task the PC's microprocessor and disk the most at startup are listed at the top. This may seem like an ideal way to choose apps to disable at startup. But be careful: Some of the apps with the biggest impact, like Microsoft Edge and OneDrive, should be allowed to auto-start if you use them regularly.

Configure an app to run at startup

The Startup page in Settings is useful for preventing an app from auto-starting, but it doesn't offer a way to arbitrarily configure *any* app to auto-start. If you want to auto-start an app that isn't on the list, there's no way to add it here.

But that doesn't mean you can't auto-start any app at sign in. Some apps offer their own interfaces for doing so–this will vary by app, of course, so you may need to do some spelunking in its menus and settings interface–but Windows 11 offers a secret way to auto-start any app. All you have to do is copy a shortcut for that app to your Startup folder.

Of course, that requires you to know how to create an app shortcut and where the Startup folder is located, and neither is obvious. So let's step through this process using Notepad as an example.

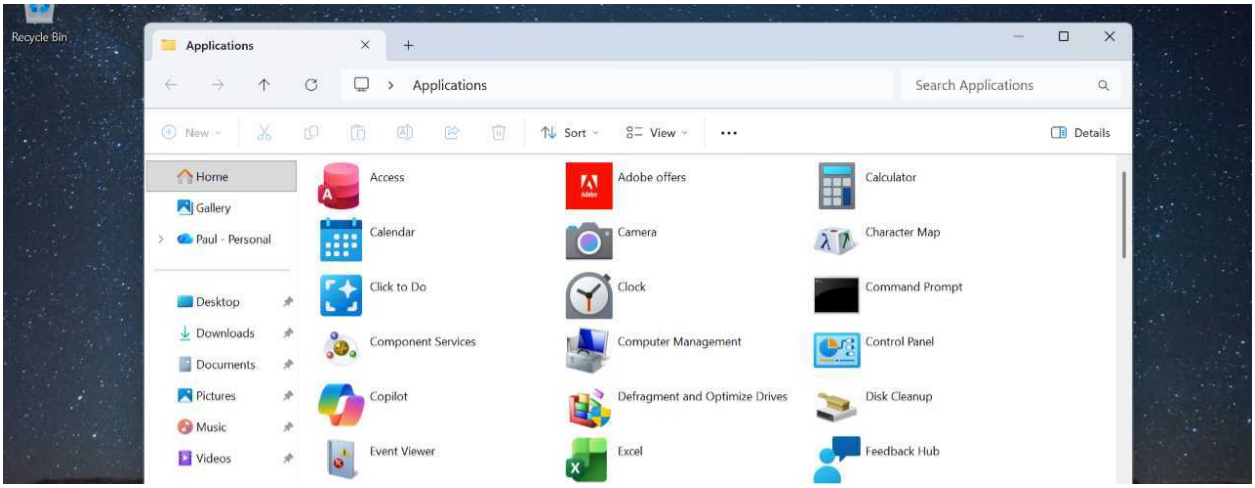
To create an app shortcut, you need to find the app *executable* (typically an "EXE" file, meaning a file with a .exe extension) in your PC's file system, and many of them are in hidden folders which makes doing so difficult. It's possible to do this with *some* apps in Start—if you right-click an app and see an "Open file location" option, you're good—but not others. Fortunately, Windows 11 provides a virtual view of all the apps on your PC, which makes this much easier.

To find it, open the Run app–search for *run* in Start–and type the following command:

shell:appsfolder

Keyboard shortcut: You can also type Windows key + R to open the Run app.

When you tap Enter, a File Explorer window opens displaying your apps.



Next, browse through the list of apps or use the search box to find the app you want. Then, right-click it and choose "Create shortcut" from the context menu that appears. Windows will tell you that it can't create a shortcut here and offers to create one on the Desktop instead. Click "Yes." A shortcut named "Notepad - Shortcut" is placed on your Desktop. (You can close the File Explorer window.)

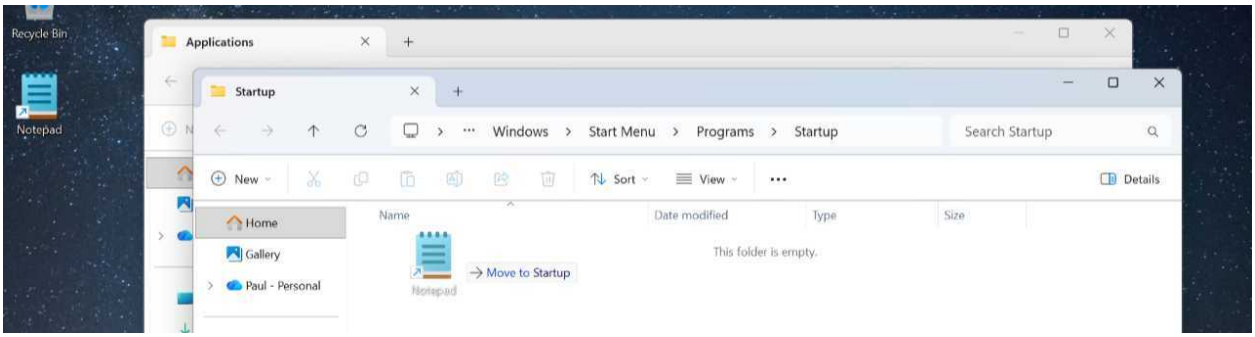
Now, open the Run app again and type the following command:

shell:startup

When you tap Enter, File Explorer opens and displays the hidden Startup folder.

> **Tip**: Unlike the Applications view, Startup is a real folder: It's located in C:Users*your-user-name*\AppData\Roaming\Microsoft\Windows\Start Menu\Programs\Startup by default.

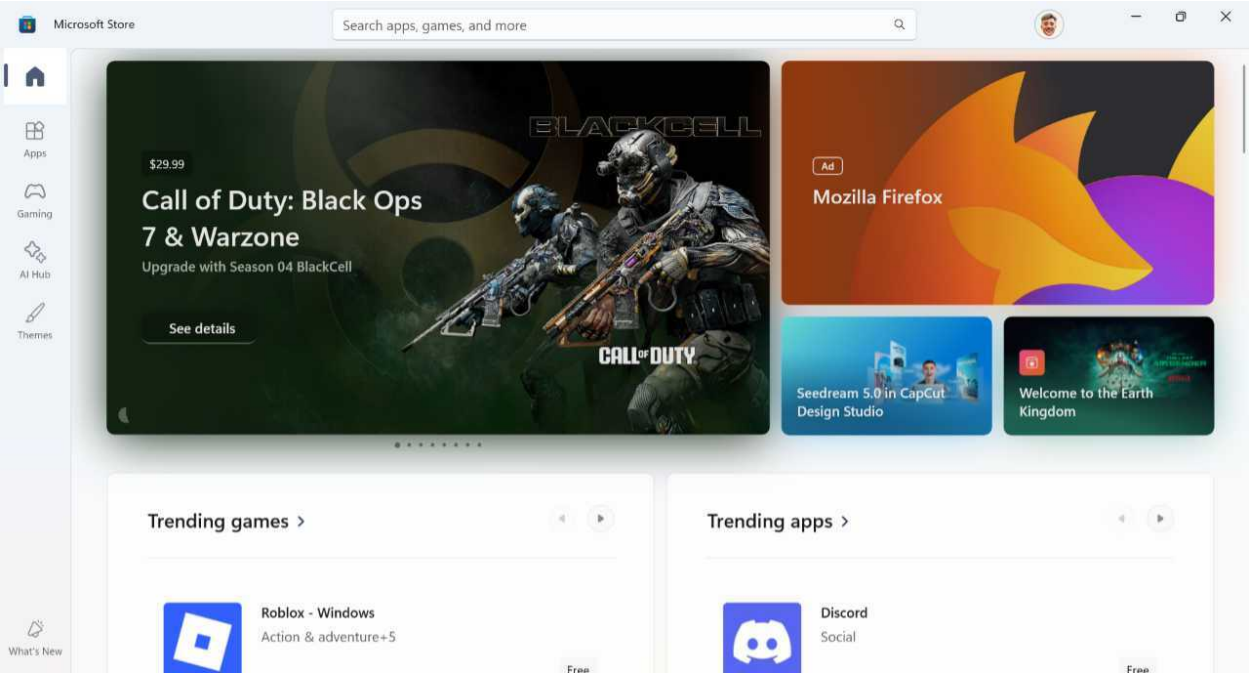
Now, move the app shortcut you created into the Startup folder using drag-and-drop.



You can also configure *how* the app runs at startup. By default, it is configured to run normally, meaning you will see its app window open when you sign in. But you can also configure it to run using a minimized or maximized window. To do so, right-click the shortcut in the Startup folder, choose "Properties" to display its properties sheet, and then click the "Run" drop-down in the Shortcut tab to make your choice.

If you wish to prevent the app from auto-starting later, just open the Startup folder again and delete the shortcut: Apps that auto-start this way cannot be configured in Apps > Startup in Settings (or in the Startup apps view in Task Manager).

Microsoft Store



The Microsoft Store helps you find, download, and buy apps, games, and themes for Windows 11. This app, which is often simply referred to as the Store or the Store app, should be familiar since it's so similar to the App Store on Apple's mobile devices and Google Play Store on Android. It's also been significantly updated with a refreshed user experience for Windows 11. A navigation bar on the left provides top-level access to various content types and your personal library of previously downloaded and purchased content.

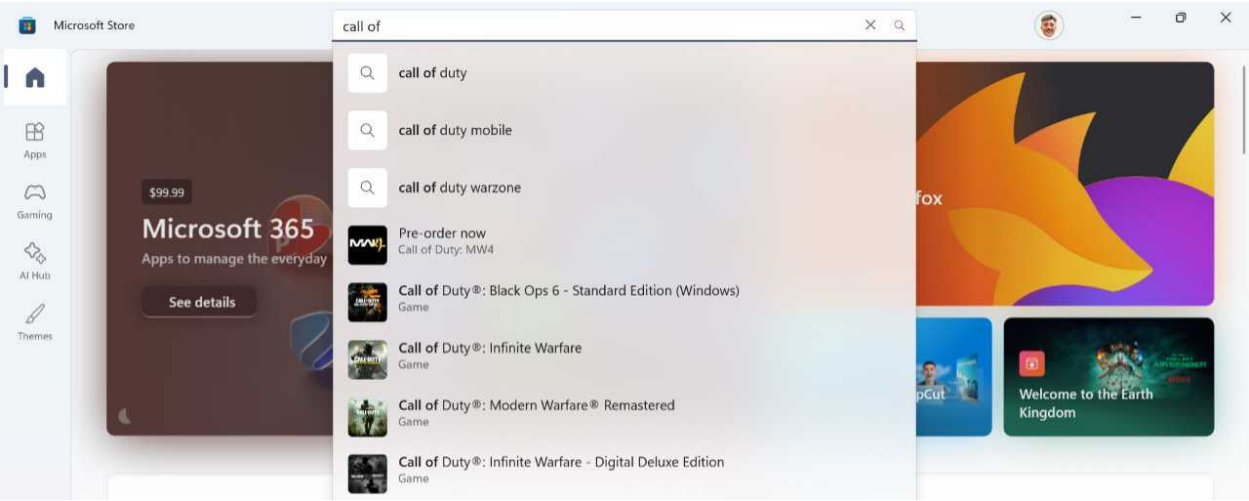
Defaults

Microsoft Store is a simple app with a simple layout and a hierarchical navigation model.

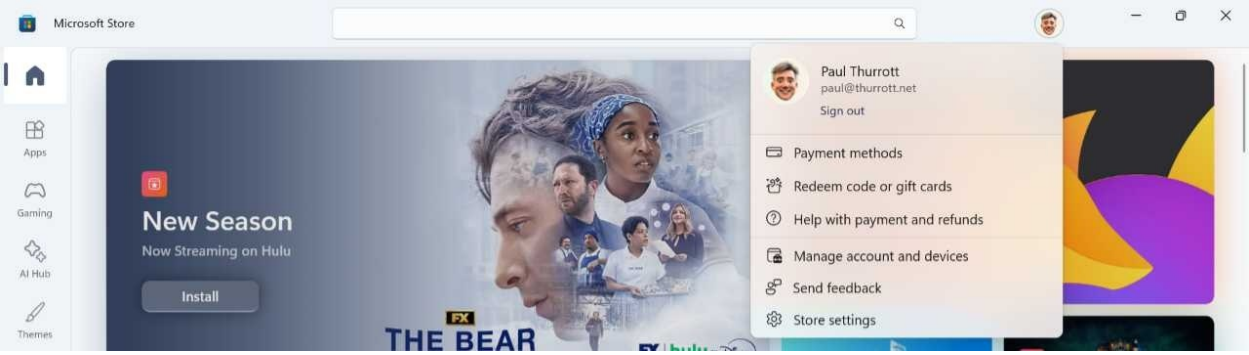
Key Store interfaces

In addition to the vertical navigation bar on the left, key interfaces in Microsoft Store include:

Search. You can use the Search box to find apps, games, themes, and other content. A drop-down results pane appears as you type, and you can tap Enter to view the results directly in the app.



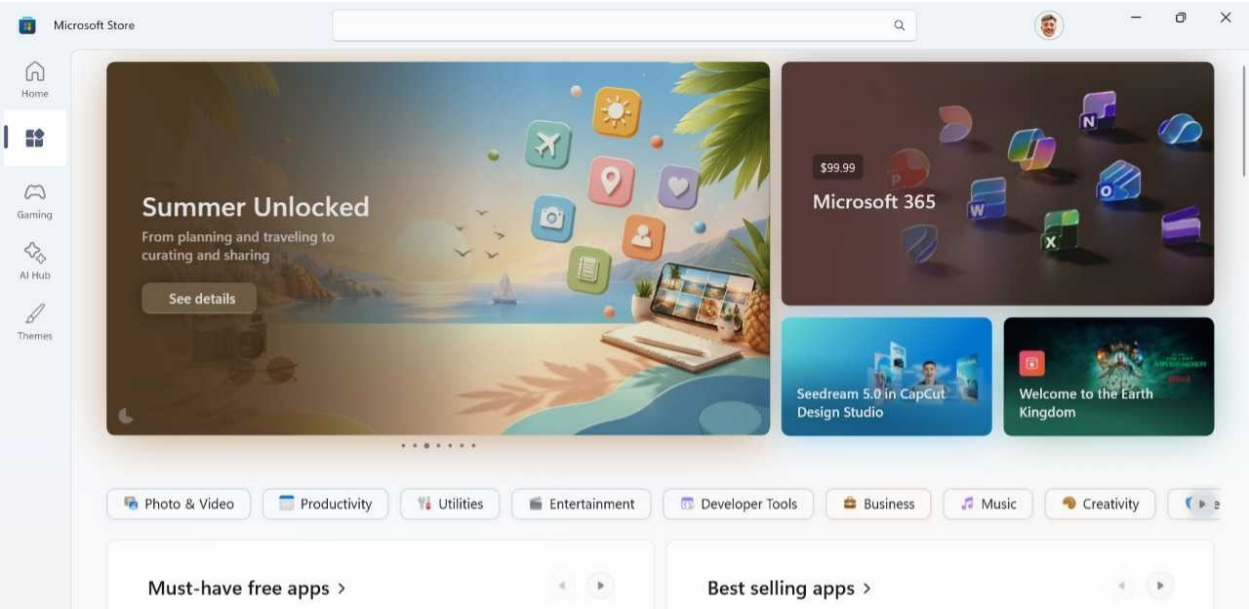
Profile. This icon to the right of the Search box provides a menu-based list of options that include links to manage your payment methods, redeem gift cards and codes, manage your account and connected PCs, and access Store settings.



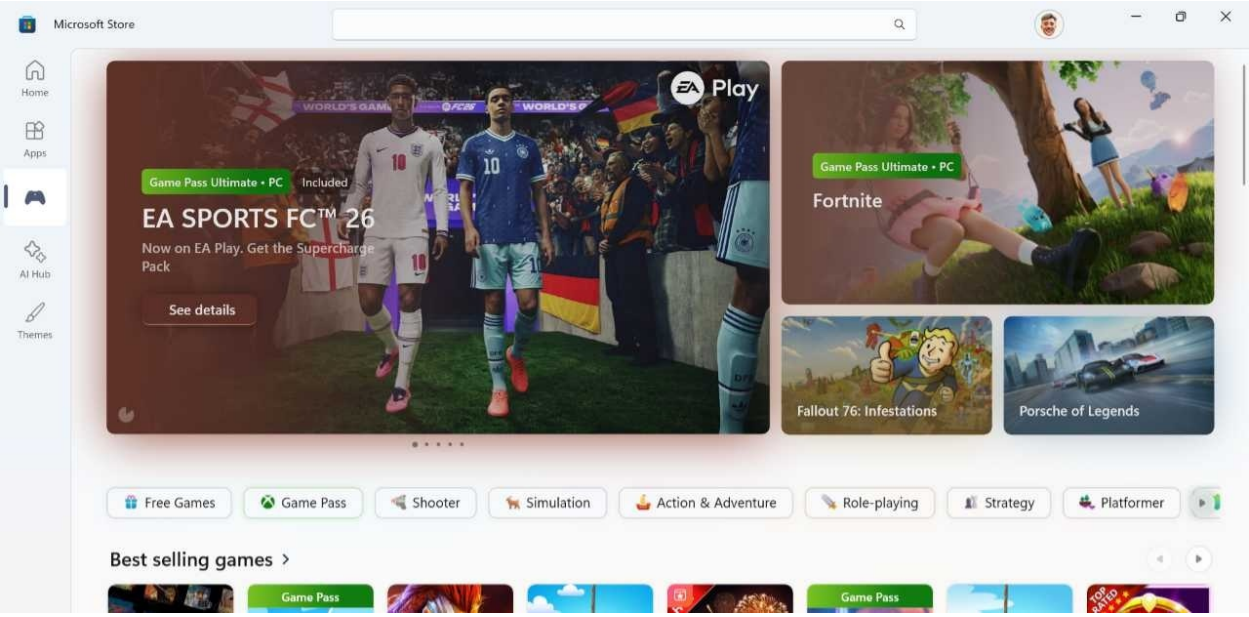
> **Tip**: If you sign in to Windows 11 with a local account and haven't signed into this app with a Microsoft account, the "Profile" button displays a default image and contains just two menu items, "Sign in" and "Settings."

Home. This is the default view each time you run the app. There are no surprises here: This view promotes content in the Store dynamically, so the presentation and content selections you see will change from time-to-time. Generally speaking, you can expect an animated carousel of promotions at the top and then various sections below listing apps, games, and other content.

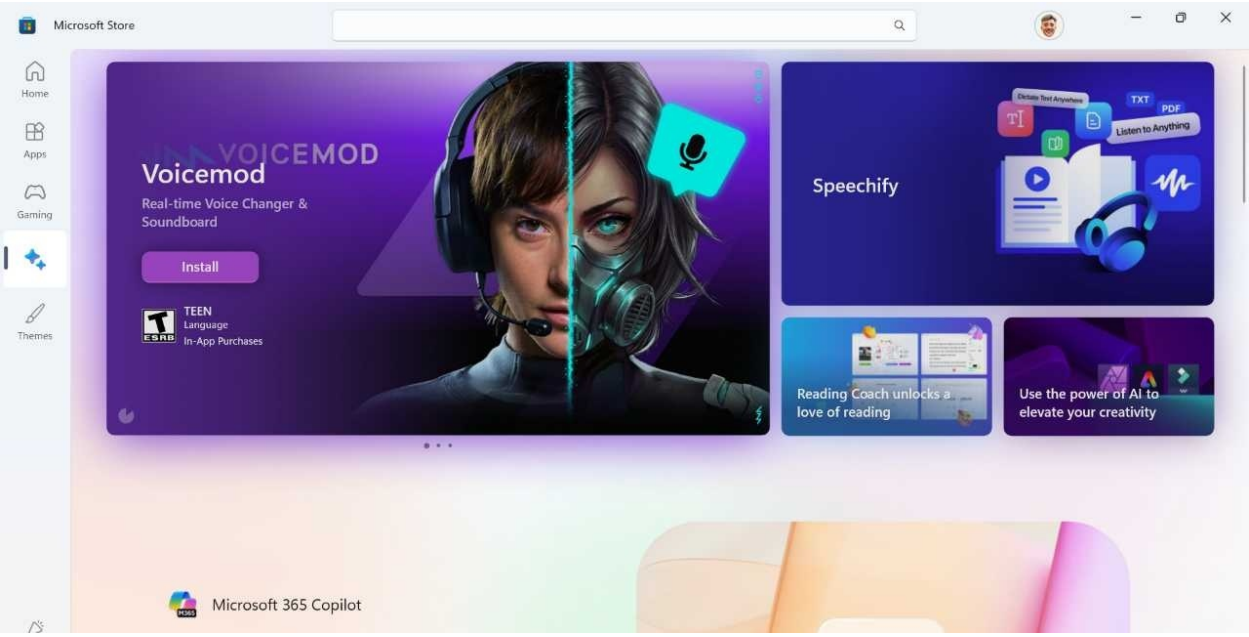
Apps. This page works like the Home view, with a dynamic presentation of content selections, but dedicated specifically to apps.



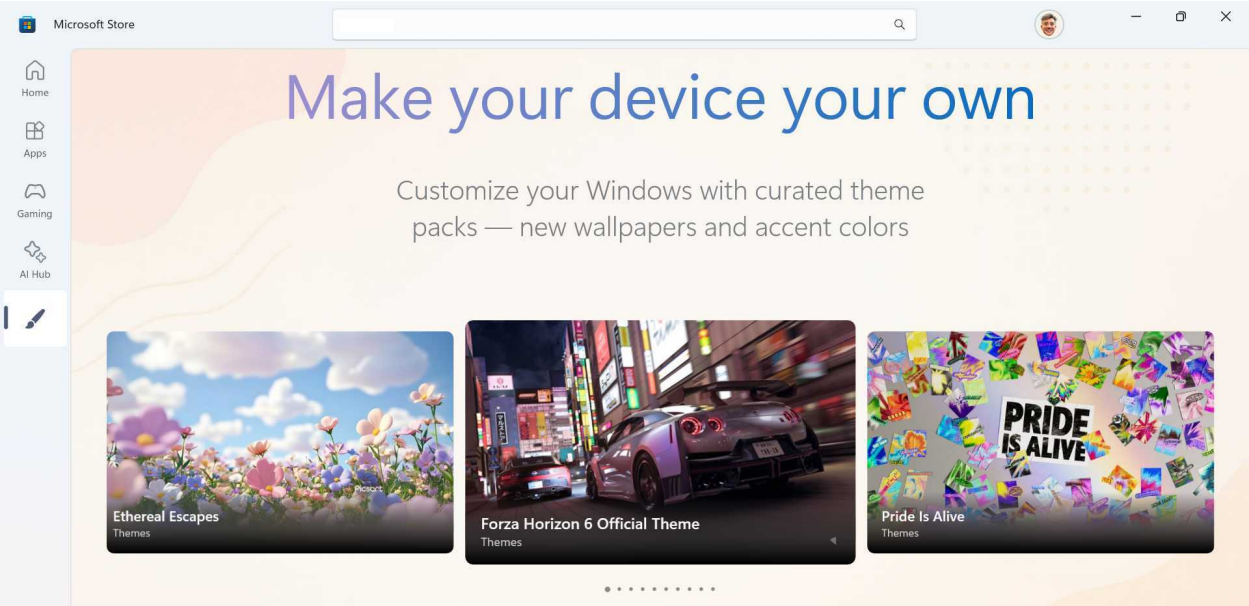
Gaming. This view is dedicated to games and is dynamic like Home and Apps. The titles you see here are standalone games–some paid, some free, and some free with in-app purchases–and *Game Pass* titles that are available for those with a Game Pass subscription.



AI Hub. This view highlights a growing library of AI-powered apps, many of which are photo editors, video editors, or other creative apps. Like the other top-level Store views, AI hub is dynamic and changes regularly as new content is added or promoted.



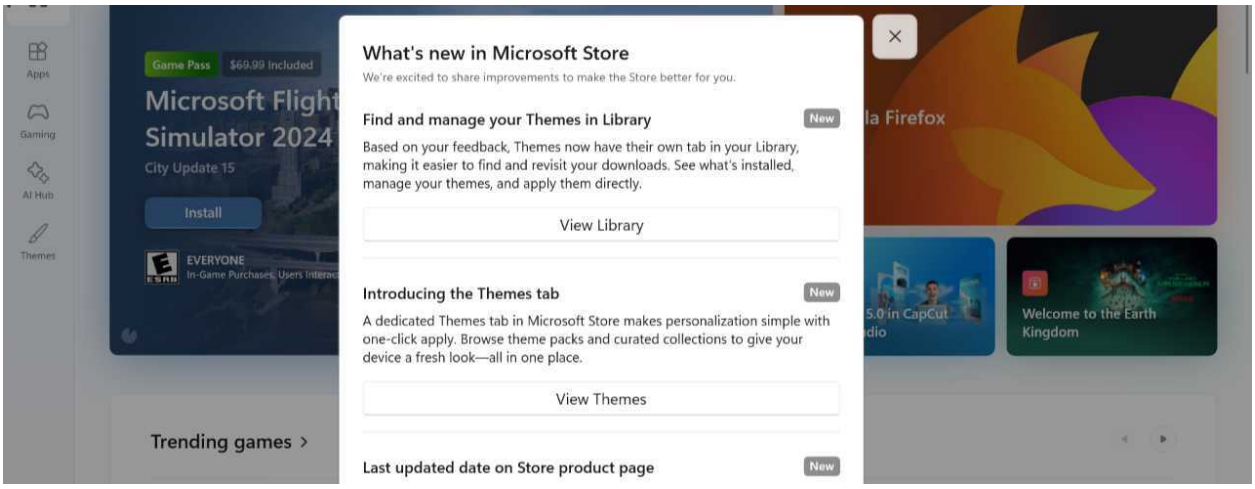
Themes. This view provides a collection of theme packs–bundles of wallpapers, colors, mouse cursors, and sound schemes–you can install in Windows 11 and then customize as desired.



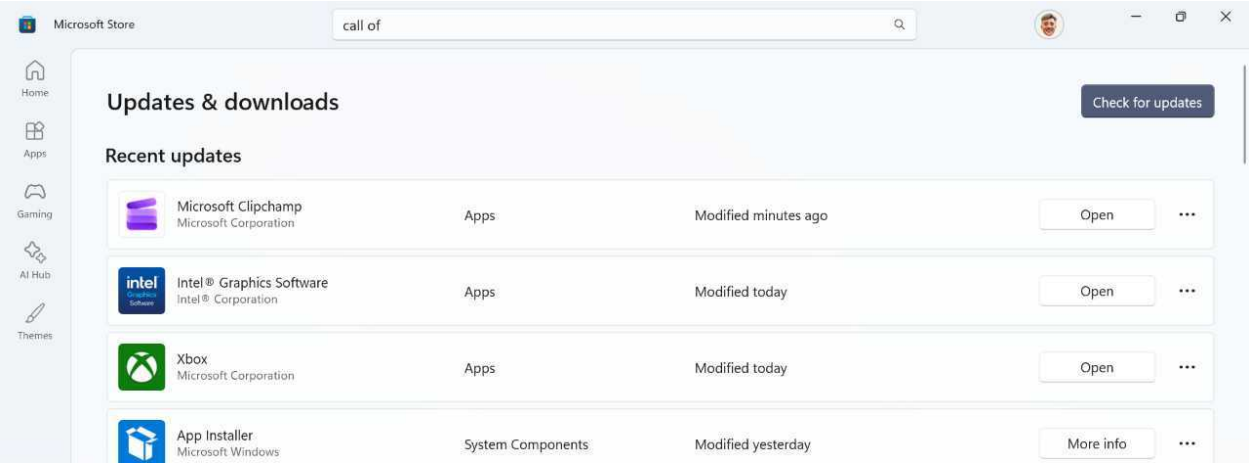
> **Tip**: You can enable, change, and customize themes in the Settings app by navigating to Personalization > Themes.

What's new. This link displays a "What's new in the Microsoft Store" window over the main app

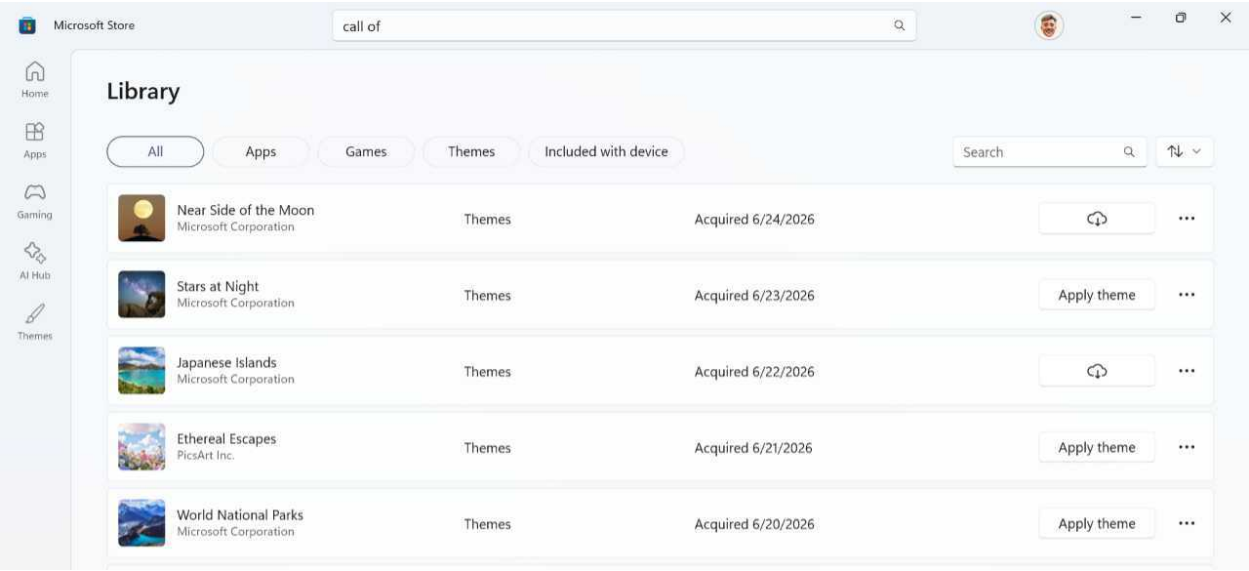
window so you can see a rundown of recent improvements that Microsoft made to its Store.



Downloads. This link brings you to the Updates & downloads view, which lists the apps, games, and themes you've installed on this PC and lets you check for updates, update all apps with pending updates, or update individual apps or games. Though the Store automatically manages and updates most apps and games, it's still a good idea to visit this page from time-to-time because because some need to updated manually.



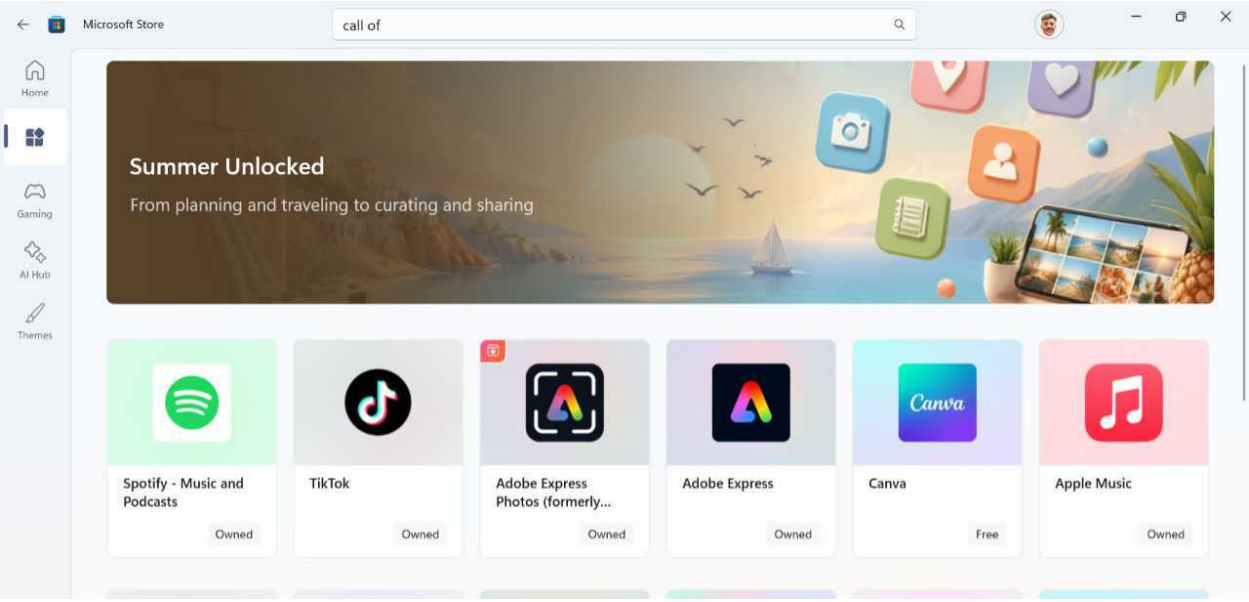
Library. The Library view lists the apps, games, and themes content in the library associated with your Microsoft account. This content could be installed on the PC or something that was previously purchased or downloaded elsewhere. You can sort the view by content type and find content using the search box. And there's an "Included with device" filter to see whether your PC came with additional content.



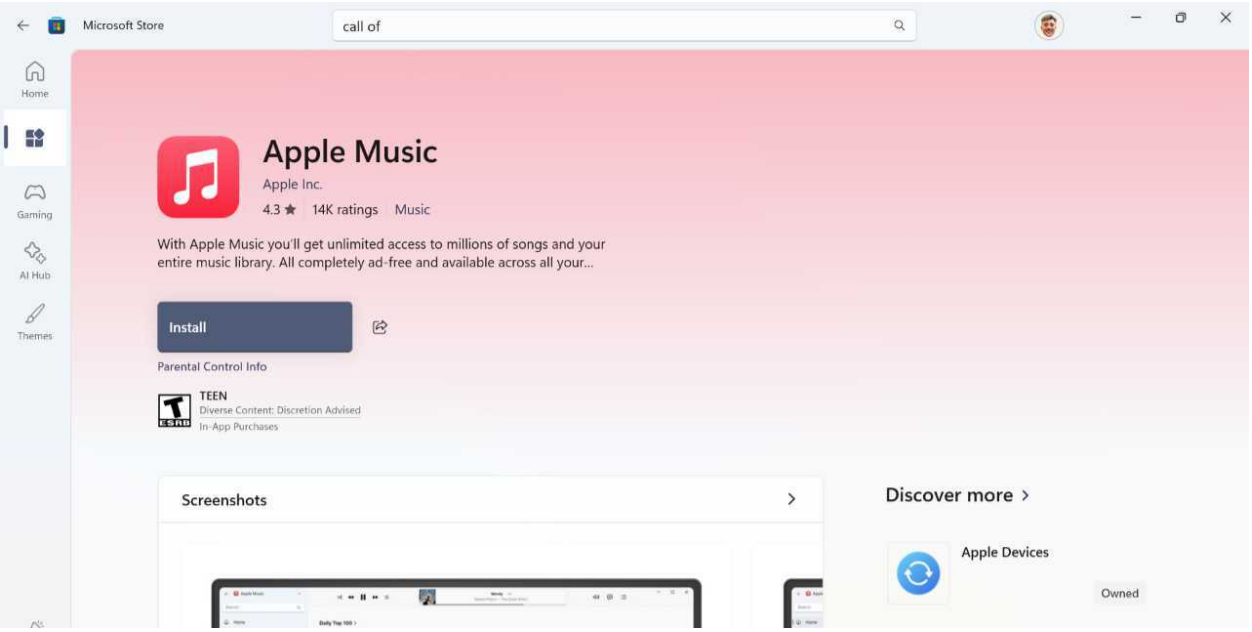
App navigation

The Microsoft Store is a simple app, and navigation works much like a website. The Home view sits at the top of the Store navigation hierarchy, and the other top-level views–Apps, Gaming, AI Hub, Themes, Library, and Downloads– are logically below Home.

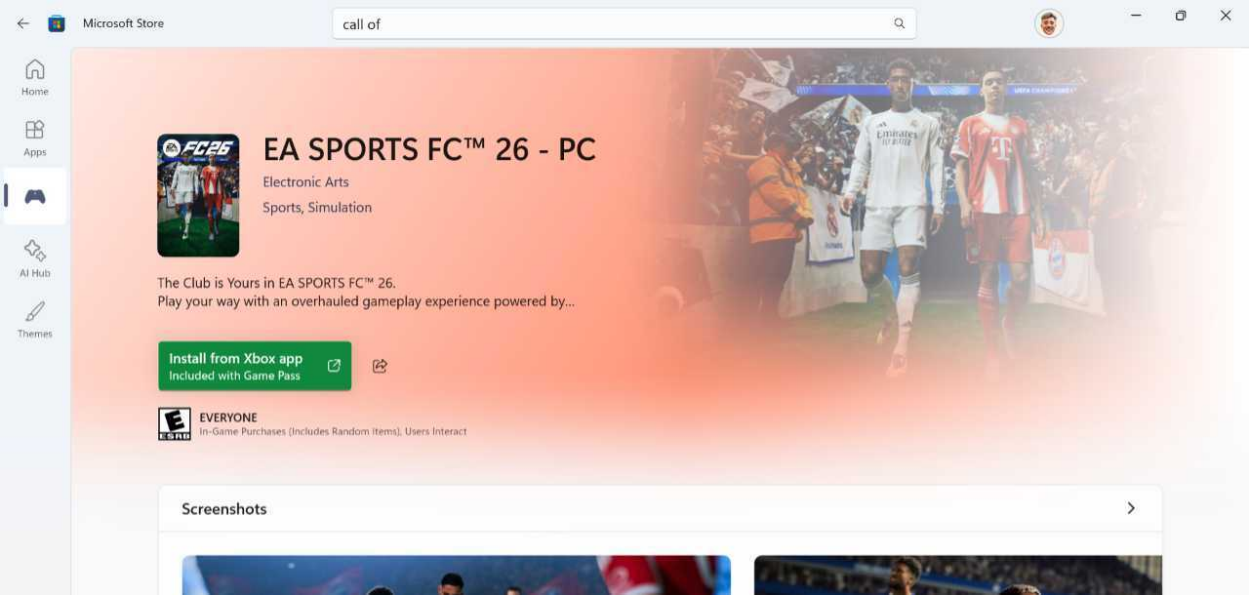
Each top-level view displays content blocks called *collections* and individual content items that are arranged in groups. When you select a collection, Store navigates into the collection, which displays individual content items in a grid.



When you select a content item from any view, Store navigates to that item's *landing page*.



What you see on a landing page varies by the content. Apps and games will typically display an “Install” or “Get” button, screenshots, a description, ratings and reviews, what’s new, system requirements, and other information. If the app or game can be purchased, you will see a “Buy” button. And other content types can provide different options. For example, games available via a Game Pass subscription will display an “Install from XBOX app” button.



Like a web browser, you can back out of the current view at any time by pressing a “Back” button. It’s a bit subtle in the Store app, as is the case with many modern Microsoft apps, but you can find this button in the upper-left corner of the app window.

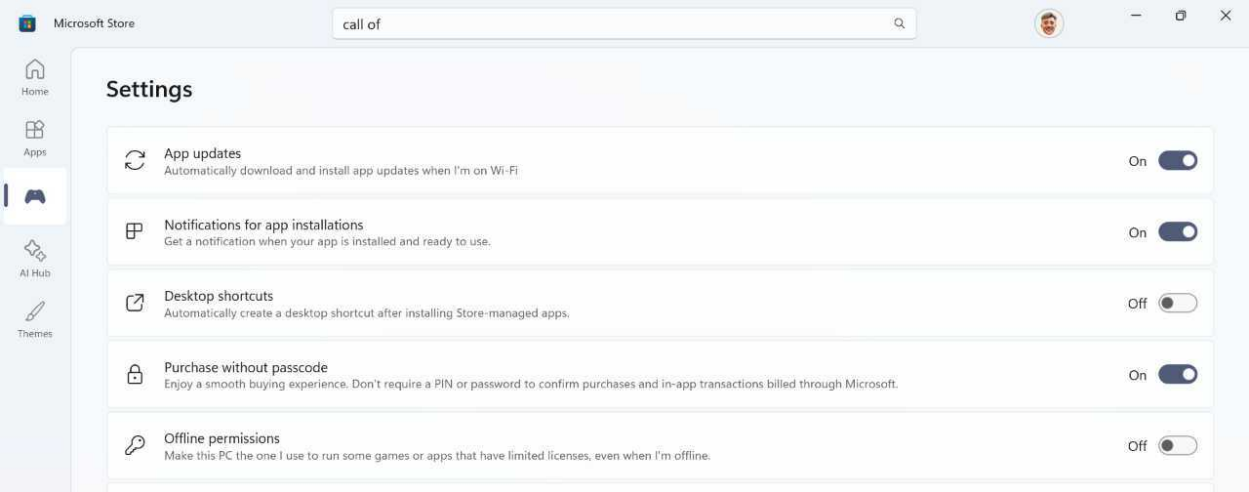
And don't forget about the navigation bar. You can click any top-level item, including Home, to go immediately to that view.

Customize and configure

The Microsoft Store apps offers a surprisingly broad range of configurable settings. But there are also some related to your account and payment options you should configure or at least make sure are up-to-date before diving into this app.

Store settings

You access Microsoft Store settings by clicking the profile icon in the top right of the app and choosing "Store settings" from the menu that appears.



This settings page is quite busy, though most of the options here are straightforward and easily understood, and the defaults are generally fine for most people. But a few that might not be so obvious include:

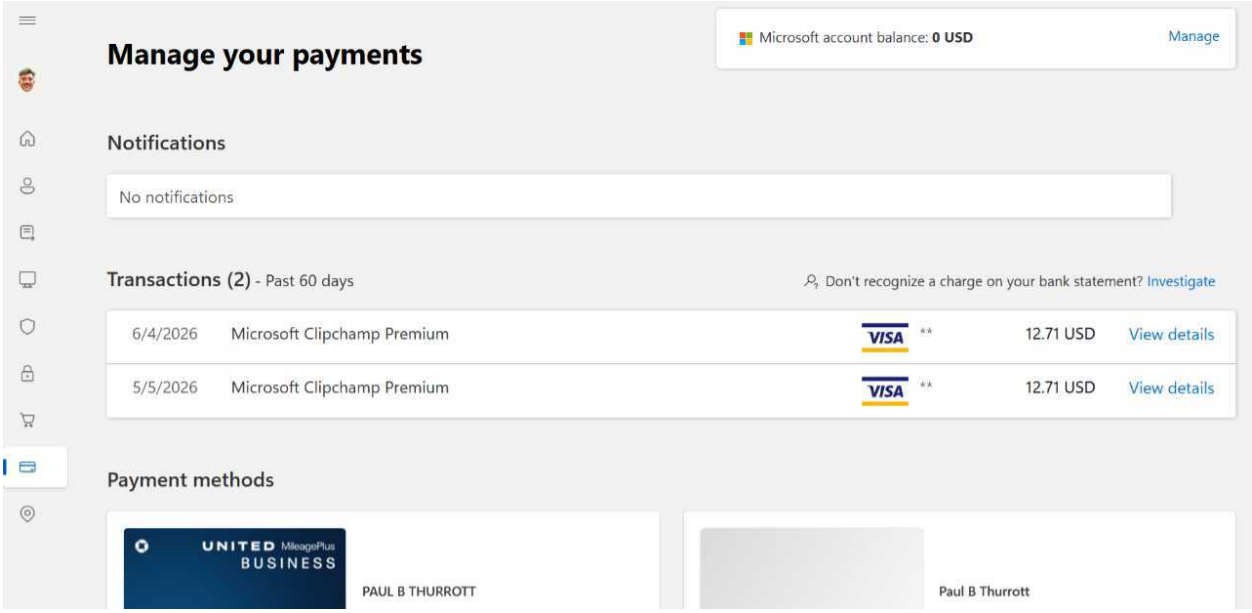
Offline permissions. This option lets you designate this PC as being the one (and only) PC linked to the Microsoft Store–and to your Microsoft account/XBOX account–that's allowed to play purchased games while the PC is offline. You can change this designation three times each year, so be sure this is the right PC.

Game installation options. This expandable set of options lets you configure the drive and folder, respectively, where Microsoft Store and XBOX games get installed.

Manage your payment options

Before diving into the Store, you should spend a few moments to ensure that your Microsoft account and whatever payment method(s) you prefer to use for paid apps and other content is configured correctly. That way, you won't need to hunt around for a credit card or some other payment information the first (or next) time you want to buy something.

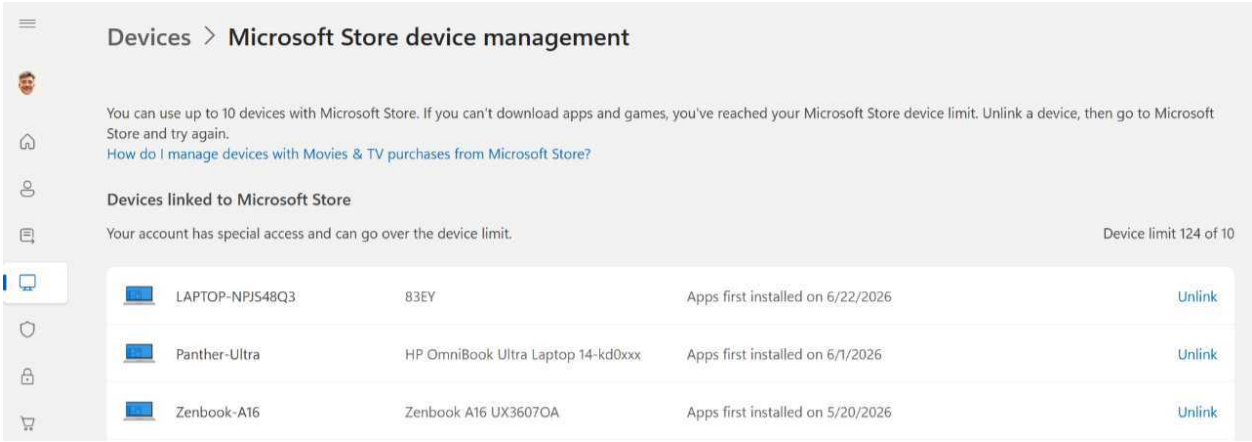
This information is configured using the Manage your payments page on the Microsoft account website, not in the Store app. But you can get there directly from the Store by clicking the "Profile" icon at the top of the app and choosing "Payment methods" from the menu that appears. Yes, it will use your default browser and not force Edge on you.



Here, you can add, delete, and manage payment options tied to your Microsoft account. These include credit and debit cards, a Microsoft gift card account balance, mobile billing through your wireless carrier, and PayPal. There are also views of notifications and recent transactions.

Manage PCs linked to your Microsoft account for purchases

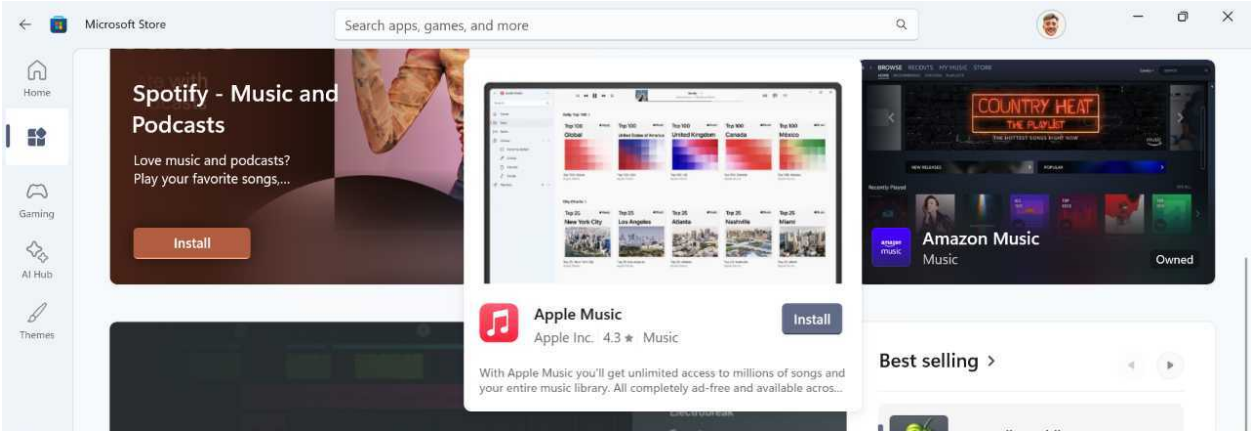
Microsoft lets you download Store apps and games to up to 10 Windows PCs at once. You can view and manage your linked PCs on the Microsoft Store device management page on the Microsoft account website. If you see any out-of-date PCs in this list, you can remove them by clicking the appropriate "Unlink" link.



Find and install apps and games

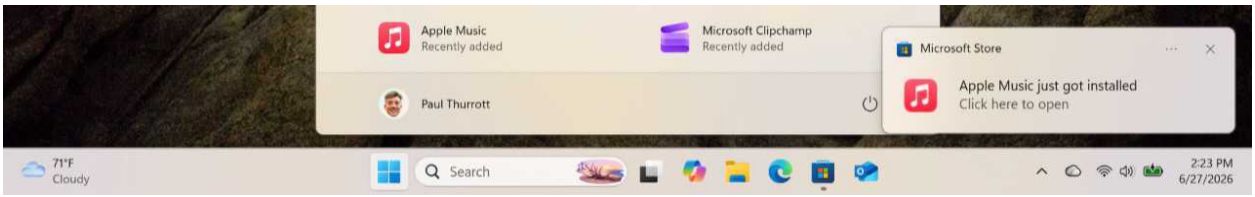
The Microsoft Store offers various ways to find and install apps and games. This process will be obvious to anyone who has used a mobile app store in the past decade. But in addition to the basic navigation and search capabilities described above, there are a few unique items of interest related to acquiring apps and games from the Microsoft Store.

Install an app or game from a pop-up. While you can navigate in and out of app and game landing pages and click the "Install," "Get," or "Purchase" button you find there to download that content, the Microsoft Store lets you save a step. Instead of clicking on a content item to display the landing page, simply mouse-over it instead: Microsoft Store will display a pop-up pane with an "Install" or "Get" button so you can get started right away. (If you see a "More info" button, you'll need to navigate into the landing page instead.)

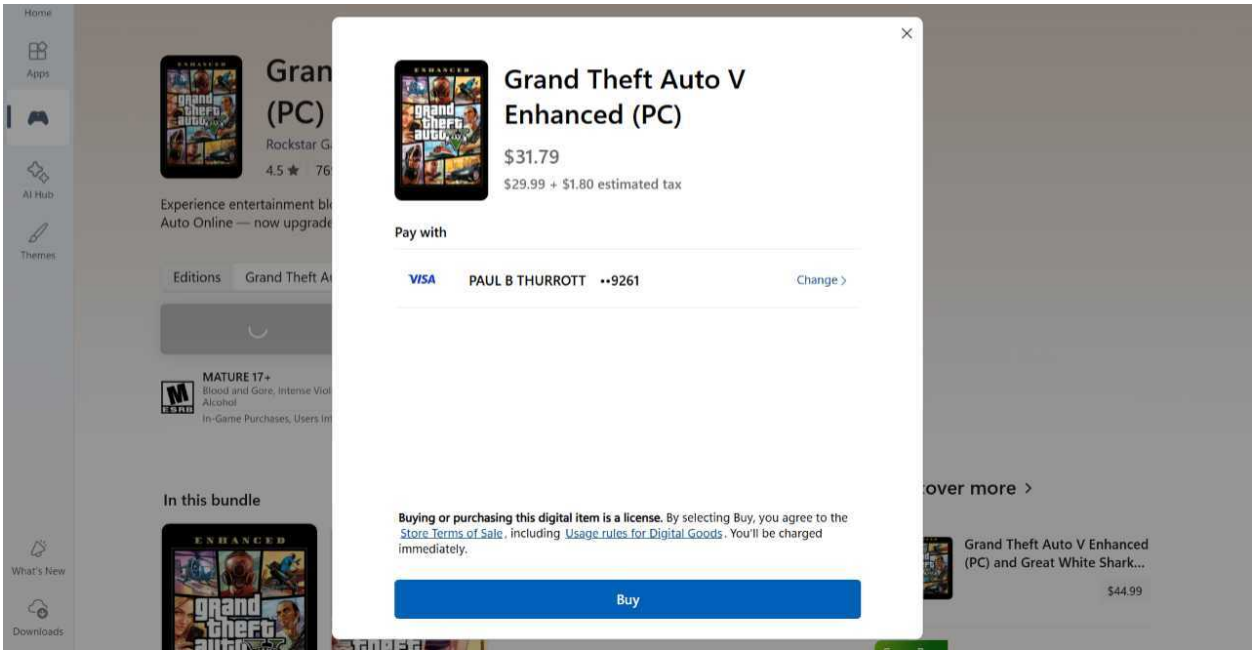


Find an app or game after you've downloaded it. Windows 11 displays a notification banner when you install an app or game from the Microsoft Store. If you're quick, you can click this notification to run it immediately. (Otherwise, you will find the notification later in the Notifications center.) Windows 11 also places recently installed apps and games at the top of the Recent section

in the Start menu by default. And any app or game you've installed from the Microsoft Store will appear in the Start "All" area too.



Purchase an app or game. Downloading and installing a free app or game is simple enough. But purchasing a paid app or game requires a few more steps. The Store will prompt you to sign in–using Windows Hello-based authentication if you set up your PC correctly–and then ask you to confirm which payment method you prefer to use. From there, the download process proceeds normally.



> **Tip**: If you want to streamline the app purchase process by removing the authentication requirement, you can do so in Store settings, which is accessed by selecting Profile > "Settings" > "Purchase without passcode." I don't recommend making this change: It's always a good idea to carefully consider any purchase, and this authentication prompt provides the necessary pause.

Make an in-app purchase. Some free apps–especially games–offer *in-app purchases*, which is a way for developers to monetize their work without requiring an upfront, one-time payment. (Another approach is to provide in-app advertising.) The types of in-app purchases you'll see will vary from app to app, but the purchase process is the same. Like any Store purchase, you will need

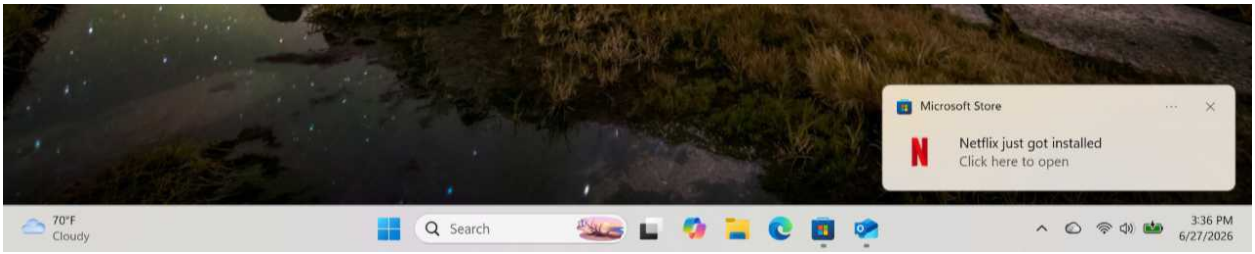
to authenticate and choose a payment method.

Notifications

Like your smartphone, Windows 11 supports *notifications* so that the system and apps can alert you about events that are unrelated to what you're currently working on. It also provides a *Notifications center* so you can review notifications you've missed.

Defaults

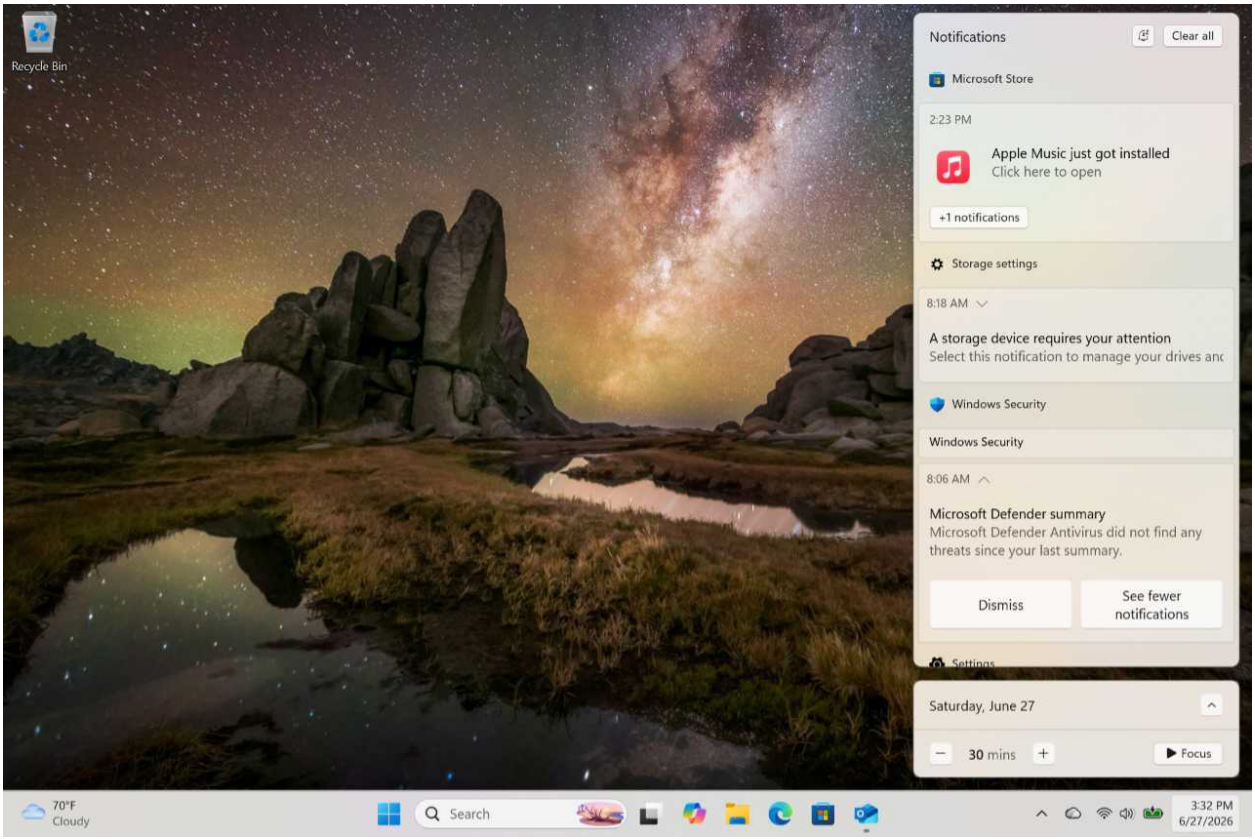
When Windows 11 or an app needs to deliver a notification–perhaps because of a new email arriving, an event reminder, alarm, or similar occurrence–it does so via a pop-up *banner*, a small interactive window that appears in the lower right corner of the screen.



Notification banners can take many different forms, and it's up to the app maker to decide which features to use. Most are simple, with some text and a few buttons, but they can also include images, quick reply boxes, context menus, progress bars, and other controls.

> **Tip:** Internally, notification banners are referred to as *toast* notifications because the first version of this user interface popped up from the bottom of the screen, similar to toast coming out of a pop-up toaster.

Notification banners appear on-screen for a few seconds before disappearing. If you ignore or miss a notification, Windows 11 will move it into the *Notifications center* so that you can review it later.



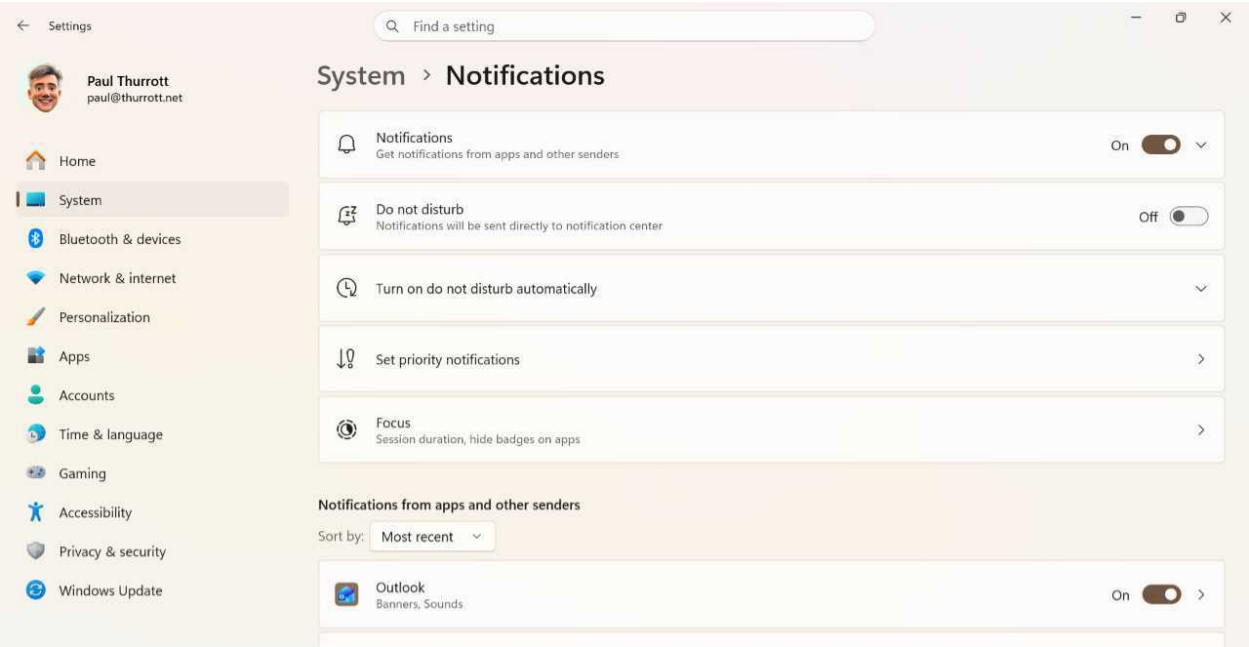
You open this interface, which consists of a Notification pane and a semi-related and collapsed Calendar pane stacked vertically, by clicking the time/date display in the system tray in the Taskbar.

> **Keyboard shortcut**: You can open the Notifications and Calendar panes even more quickly by typing Windows key + N.

Customize

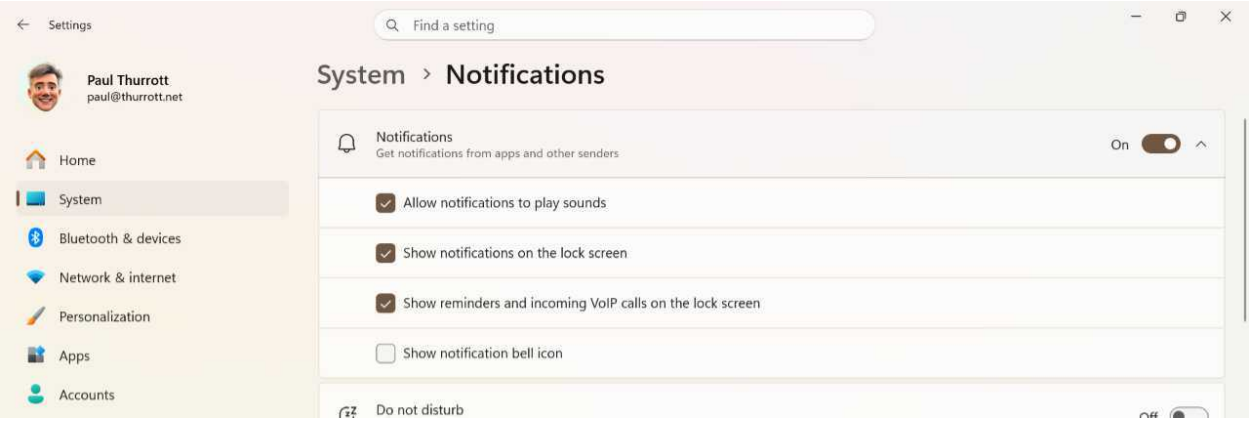
Depending on how you work and which apps you use, you could find yourself dealing with notifications frequently. So you may wish to spend some time configuring how notifications work.

You do so by opening the Settings app and navigating to System > Notifications.



> **Tip**: You can also get here by right-clicking the time/date display in the system tray and choosing "Notifications settings" from the pop-up menu that appears.

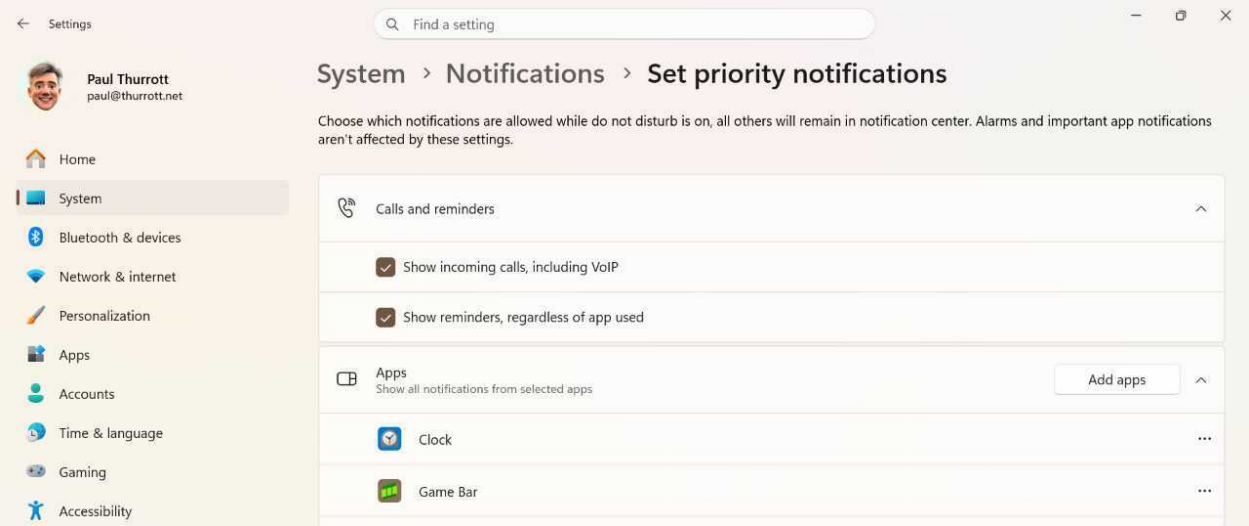
Be sure to expand the "Notifications" option at the top of this page.



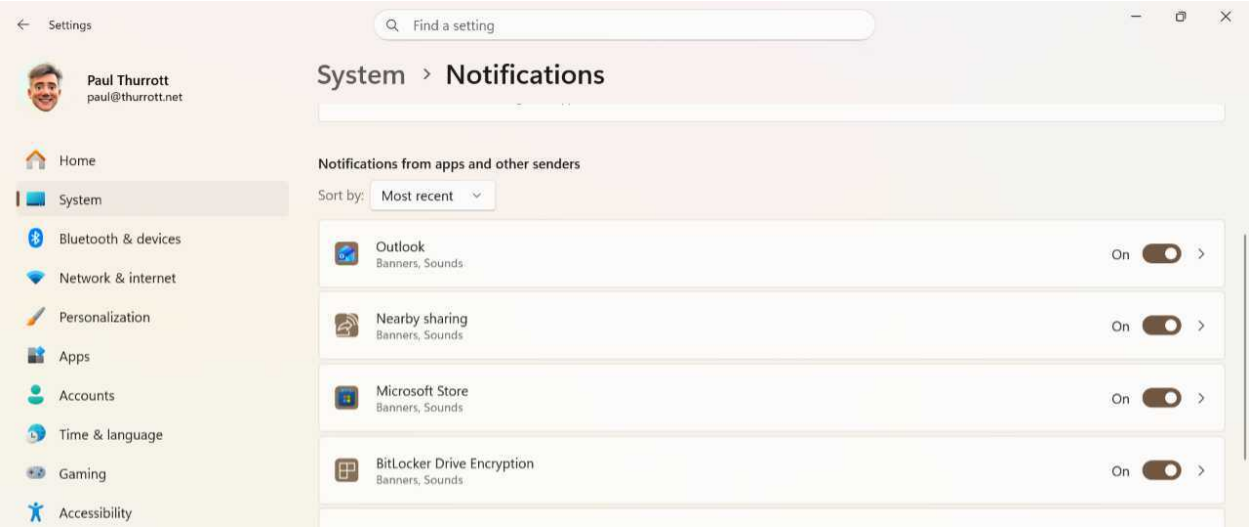
Most of these options are obvious, but a few options to consider include:

Show notification bell icon. You can use this option to enable a notification bell icon next to the time/date display in the system tray that indicates whether you have any pending, unseen notifications. This used to be visible by default, but it's disabled now and you can (re)enable it here.

Set priority notifications. This link opens a page where you can configure which notifications will appear even when Do not disturb is enabled.



Notifications from apps and other senders. This area lets you configure notification settings on a per-app and system service basis. This capability is described in the next section. You can click into any listed app to configure how notifications appear, the priority of those notifications, and several other options.



> **Tip**: If Windows 11 notices that you aren't interacting with notifications from a particular app, it will prompt you–yes, with a banner notification–and suggest that you turn off these notifications.

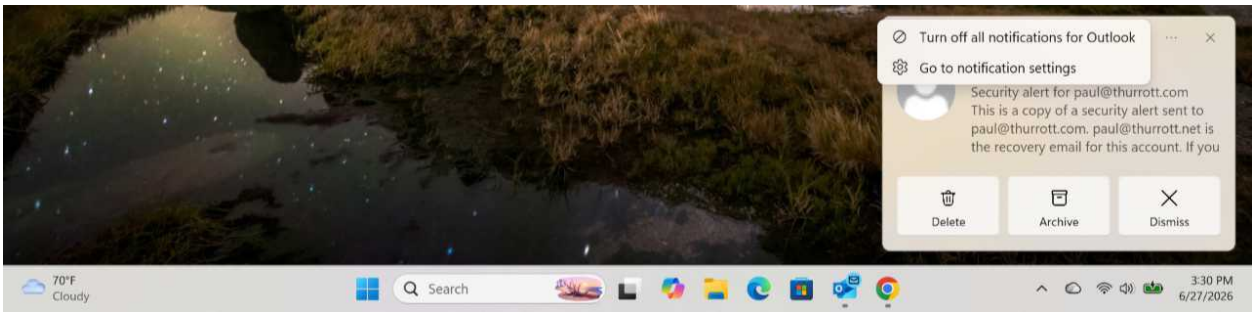
Handle an app notification as it appears

Windows 11 will trigger a notification *banner*–a floating window that appears in the lower-right corner of the screen–whenever it or an app fires a notification. This banner will appear regardless of what you're doing for the most part–it can appear over the desktop, over apps, and over the Lock screen by default–though banners are disabled in some situations–during full-screen games, for example–and if Do not disturb is enabled.

As noted previously, notification banners vary by app and some provide options right on the window for dealing with the cause of notification. In the image above, for example, you can see that Outlook notifications related to email let you delete, flag, or dismiss a new email message right from the banner, without any need to launch the app.

If you select a notification banner before it disappears–it only stays visible for a few seconds–the underlying app that triggered that notification will open. But if you ignore or miss a notification banner, you can later view it and other notifications in the Notifications pane, as described below.

Notification banners also provide other options via the small "Settings" ("…") and "Close" ("X") buttons, the latter of which dismisses the banner.



If you click "Settings," it will display a menu with the choices "Turn off all notifications for *app name*" and "Go to notification settings," which opens the Settings app and navigates to System > Notifications.

Some apps customize their notification banners. For example, Windows Security provides a weekly status update via a notification banner and it has a third item in its Settings context menu, "See fewer notifications."

Handle previous app notifications

Notifications you miss or ignore are collected in the Notifications center so you can manage them later.

Here, you can do the following.

Remove all notifications with one click. Click the "Clear all" button to immediately remove all notifications in the Notifications center.

Open the app that triggered a notification. To open the app that triggered a notification, click the notification here. If you click the notification for a newly installed app, that app will launch. In some cases, the app will navigate to a specific interface. For example, if you click a notification for a new email message, that message will open in the appropriate app.

> **Tip**: When you click through to an app this way, the notification is removed from the Notifications center.

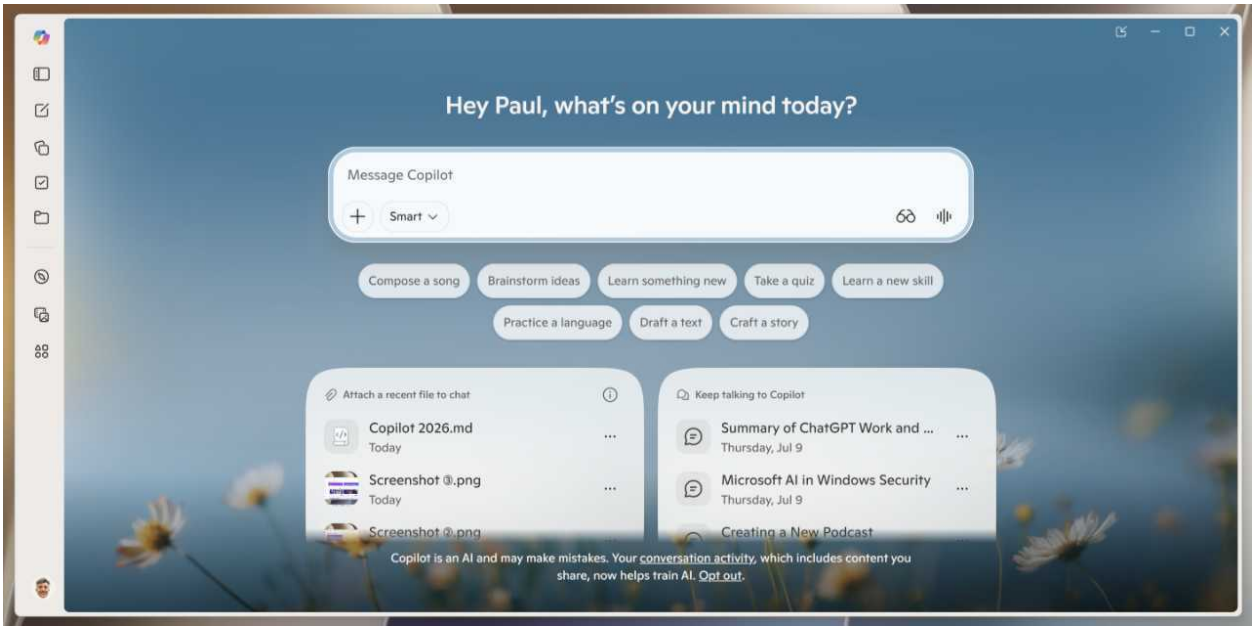
Expand or collapse a notification. If the content in a notification is too big, it will display in a collapsed view. You can expand it in place by clicking the "Expand/Collapse" toggle next to the time in the upper-right of the notification.

Access other notification options. Notifications in the Notifications center behave as they do when they first appear in a banner. And you can mouse over the header above a notification to see a "Settings" ("...") link with app-level options: "Turn off all notifications for *app name*," "Go to notification settings," and "Make *app name* high priority."

Recycle Bin
Notifications
Clear all
Turn off all notifications for Microsoft Store
Go to notification settings
Make Microsoft Store high priority
Click here to open

Copilot

Windows 11 includes a conversational AI-powered assistant called *Copilot* that brings the ever-improving productivity and creation capabilities of the cloud-based Microsoft Copilot to your PC.



> **Note**: Copilot is the most complex app in Windows 11 and the most difficult to document because it changes and improves continuously, and often in lockstep with other AI assistants. Indeed, Copilot is a worthy topic for a standalone book, or it would be if it weren't for how frequently it changes. As such, this chapter serves as a general overview of the app and its capabilities. But if you're familiar with any other AI assistant, Copilot works similarly.

Defaults

Copilot uses cloud-based AI to interact with you, so your PC must be online to use this app. But depending on your PC, you will see one of the following two Copilot apps preinstalled with Windows 11:

- **Microsoft Copilot**. This is the version aimed at individuals using their own personal computer. It's the version you will see on a Windows 11 PC for consumers.

- **Microsoft 365 Copilot**. This is the version for businesses and it's preinstalled on a Windows 11 PC when the the PC maker bundles the *commercial* versions of the Microsoft 365 Desktop apps with their hardware.

This book focuses on individuals, not business users, so this chapter covers Microsoft Copilot, not Microsoft 365 Copilot. The latter includes most of the same features as the consumer Copilot, but it also includes advanced productivity functionality that integrates with Desktop apps like Microsoft Word, Excel, and PowerPoint.

> **Tip**: Anyone can download the Microsoft Copilot app or Microsoft 365 Copilot app from the Microsoft Store at any time if needed.

Free vs. subscription

The functionality you receive from Copilot can vary because some features are available to everyone for free while some features–or more liberal usage limits–are only provided to those who have an eligible consumer Microsoft 365 subscription. That's bad enough, but Microsoft confuses matters even further by imposing other restrictions:

- **You must sign in with a Microsoft account to access most Copilot features**. If you sign in to Windows 11 with a local account and don't sign in to a Microsoft account with Copilot, you are restricted to using basic chat features and the Discover feed, which includes a Copilot Daily voice-based news of the day overview.
- **You must have a Microsoft 365 Personal, Family, or Premium subscription to access exclusive Copilot functionality**. A Microsoft 365 Basic subscription is ineligible.
- **You must be the *subscription owner* to access exclusive Copilot functionality**. Microsoft 365 Family and Premium both support multiple users, but only the first user–the subscription owner–gets access to the exclusive Copilot functionality. (If you have a Microsoft 365 Personal subscription, you are automatically the subscription owner.)

> **But wait, there's more**: You can learn more about the Microsoft 365 subscriptions for consumers on the Microsoft website.

On that note, I focus only on the Copilot features that everyone has access to in Windows 11 in this book.

How to launch Copilot

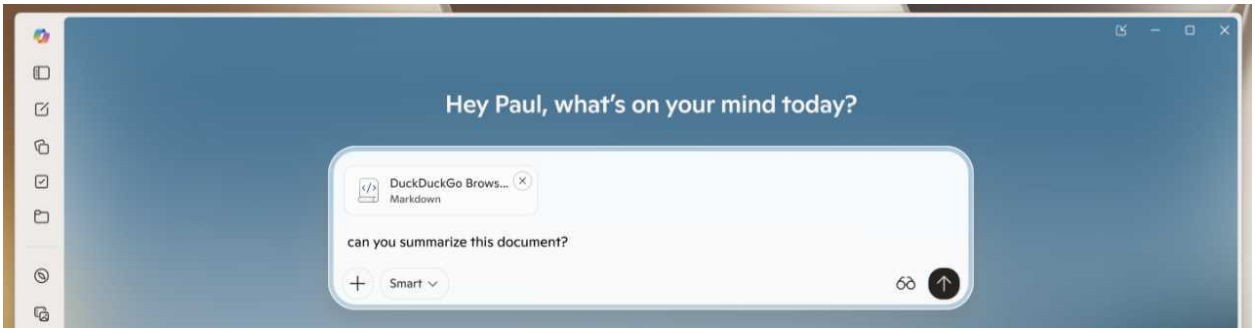
You can launch Copilot in more ways than is typical with in-box Windows 11 apps:

- **Taskbar**. If you have a consumer PC, Copilot will be pinned to the Taskbar by default for easy access.
- **Start**. can also run Copilot using its Start-based shortcut or Windows Search, of course.
- **Keyboard shortcut**. Copilot can be configured to appear when you type the Alt + Space keyboard shortcut.
- **Copilot key**. Most modern PCs now include a Copilot key with their keyboard, typically located between the Right Alt key and the Arrow keys. When you tap this key, Copilot appears.

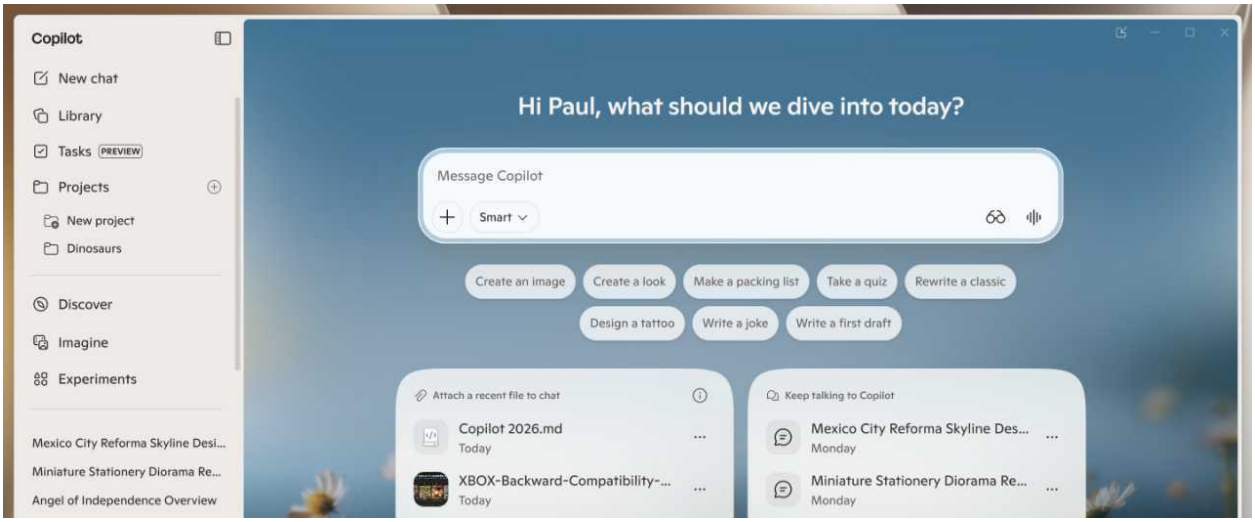
The first time you launch Copilot, Windows 11 adds it to the list of apps that run automatically in the background when you sign in.

Copilot provides a familiar AI *chatbot*-like interface by default with the following controls:

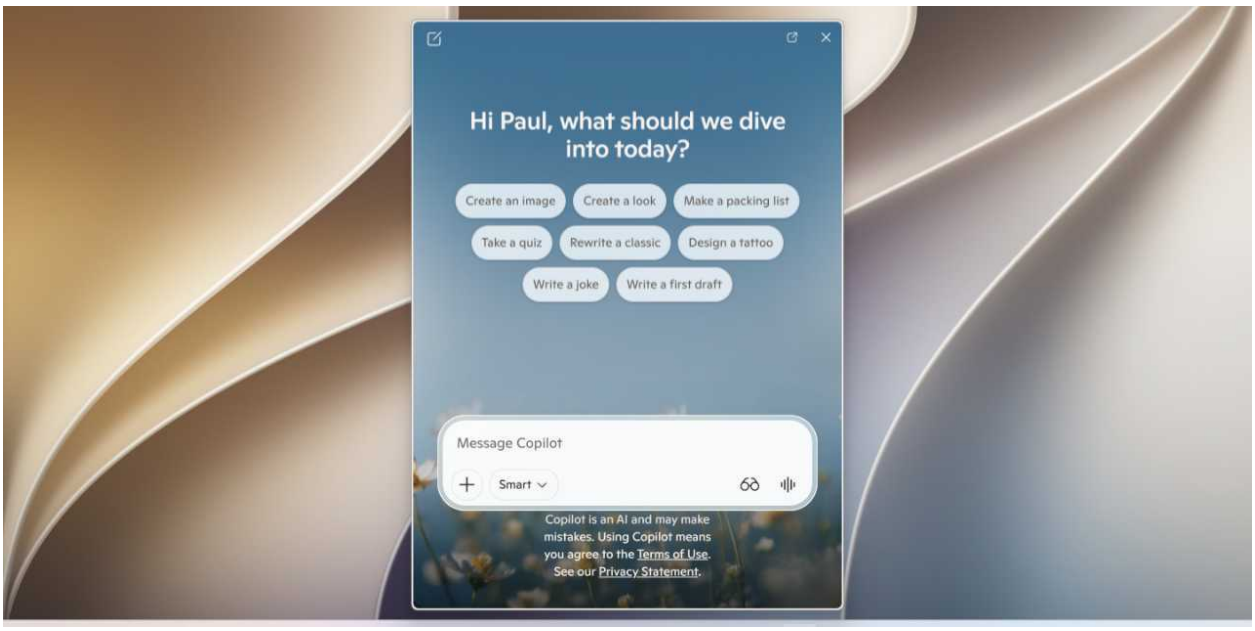
- **Chat box**. The prominent text box in the center of Copilot is used to converse with the AI assistant using text or, optionally, your voice, and you can customize how it interacts with its underlying cloud-based AI models and share your screen with Copilot from here as well.



- **Suggestions**. Copilot displays several suggestions–"Create an image," "Write a speech," and so on–below the Chat box to help you get started interacting with the AI assistant.
- **Files**. On the lower-left is a list of documents and other files you recently accessed on this PC so you can attach one or more to a chat and use the AI assistant to learn more, get a summary, and otherwise analyze that information.
- **Recent chats**. Copilot displays your most recent chats the lower right so you can quickly continue a recent conversation.
- **Sidebar**. The Copilot sidebar is collapsed by default, but you can expand it to access additional Copilot features, including an Experiments view where you can try Copilot Labs experiments that may become standard Copilot features in the future.



- **Quick view**. Barely visible in the upper-right of the Copilot app window is a control you can use to toggle its Quick view, a smaller, simpler, and always-on-top version of Copilot that's useful when you want to use the AI assistant to interact with other apps or anything else that's on-screen.



Customize

Some system-wide Copilot behaviors are customized in the Windows 11 Settings app. But Copilot also has its own in-app settings interface for configuring this app further.

Uninstall Copilot

Given the relative lack of popularity it has compared to AI assistants like Anthropic Claude, Google Gemini, and OpenAI ChatGPT, it's possible or even likely that you will never use Copilot. Fortunately, you can uninstall it easily using the normal methods. If you do uninstall Copilot, be sure to look at the Copilot key item in the next section too.

> **Tip**: This is true of Microsoft 365 Copilot as well.

Customize Copilot in Settings

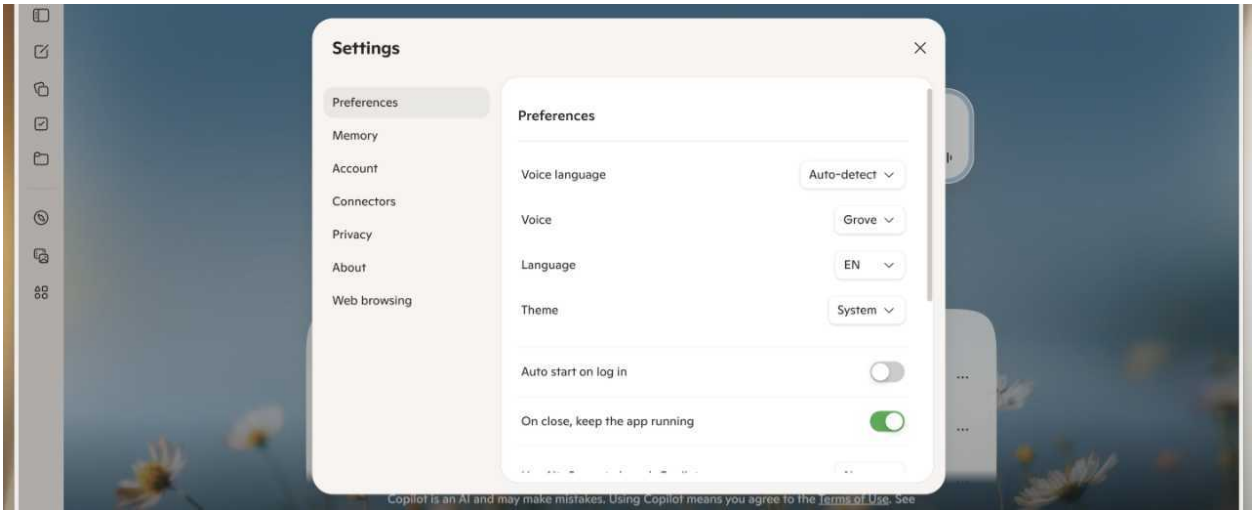
There are two key Copilot-related options in the Windows 11 Settings app you should look. Inconveniently, they are located in different places.

- **Auto-start**. You can determine whether Copilot auto-runs each time you sign in to Windows 11 by navigating to Apps > Startup. Locate Copilot in the list of apps and enable or disable it as desired.
- **Copilot key**. You can determine what the Copilot key on your keyboard does to some degree by navigating to Bluetooth & devices > Keyboard. Locate the option "Customize Copilot key on keyboard" under "Shortcuts and hotkeys"; you can configure it to "Search," "None selected," or "Custom." Note, however, that "None selected" is a terrible option as this Settings page will launch every time you hit this key if you choose that option.

> **Tip**: You can use the Keyboard Manager utility in Microsoft PowerToys to configure this key to do anything you want. I configure it to perform the same action as the key to its right (usually Left arrow, but it varies by keyboard).

Customize the Copilot app

Copilot offers an astonishing range of functionality, so it is perhaps not surprising that it also offers numerous ways to customize how this app works. If you're going to use Copilot in Windows 11, you should spend the time to examine its settings interface, which you can see by clicking the "Account" button (which will display your profile picture if you sign in to Windows 11 with a Microsoft account) and then Settings.



Some of the key options to consider here include:

- **Voice**. Copilot offers a nice selection of realistic sounding voices to choose from at Preferences > Voice for your voice-based interactions
- **Auto-start and close behaviors**. The Preferences > Auto start on login and Preferences > On close, keep the app running options determine whether Copilot is always available.
- **Keyboard shortcut**. You can optionally launch Copilot using the Alt + Space keyboard shortcut at Preferences > Use Alt + Space to launch Copilot.

> **Tip**: Unfortunately, this is a popular keyboard shortcut in Windows 11 and enabling this feature may conflict with other system features or apps. For example, you can use Alt + Space to access the legacy window menu in any app or window in Windows 11. And if you install Microsoft PowerToys, the Command Palette utility uses Alt + Space as its keyboard shortcut by default.

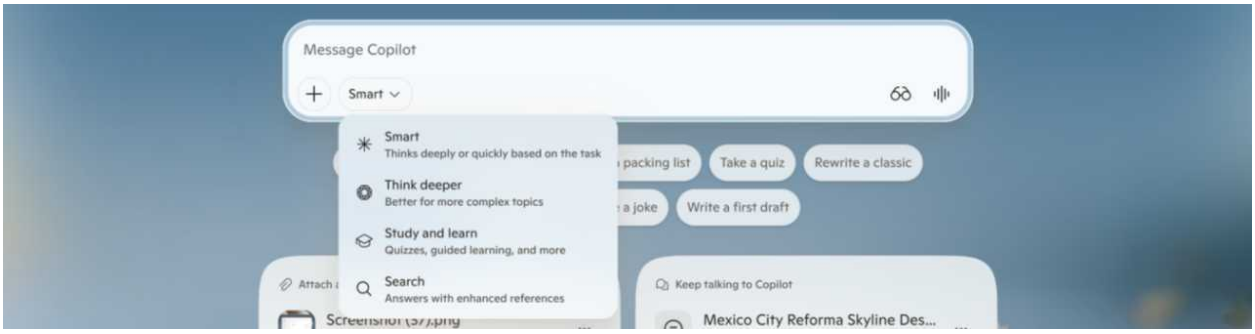
- **Hey Copilot voice activation**. You can optionally enable "Hey, Copilot" voice activation of Copilot at Preferences > Listen for 'Hey, Copilot' to start a conversation. This works similarly to "Hey Siri" on Apple devices or "Hey Gemini" on Android.
- **Let Copilot edit and rewrite text when using Copilot Vision**. *Copilot Vision* helps you learn more about the images and text you see in any app on-screen. If you enable Preferences > Vision session text editing, Copilot will also be able to edit or rewrite the text you see in any app on-screen.
- **Memory**. *Memory* is a key Copilot feature that personalizes your experience if you allow the AI assistant to remember your conversations and the information you provide about yourself. You do so on the Memory page in settings, and you can even import the memories you created with other AI assistants here.

- **Connectors**. You can connect Copilot to popular Microsoft (OneDrive, Outlook) and third-party (Google Drive, Gmail, Google Calendar) apps and services so you can *ground* the AI assistant in your data to get more relevant and accurate answers and functionality. You can see which connectors are available and enable those you use on the Connectors page.
- **Privacy**. Unless you use Copilot as a semi-anonymous answer engine, much as you would Google Search or some other web-based search engine, you need to cede some privacy to use this AI assistant fully. The Privacy page in Copilot settings provides several privacy-related features you should examine. I strongly recommend disabling "Training on conversation activity" and leaving "Training on voice conversations" disabled.
- **Web browsing**. Copilot includes a built-in, integrated version of the Microsoft Edge web browser that can be configured differently from the standalone app in Windows 11. There are sub-sections on the Web browsing page for Passwords and autofill, Web data and security, and more, and Microsoft is counting on you not taking the time to go through it all. But if you're using Copilot, you need to do this, if only to familiarize yourself with the data it's handing Microsoft and then making any changes you feel are necessary.

Chat: Have a conversation with the AI assistant

Copilot presents a chat user experience in which you use text- or voice-based *prompts* to ask the underlying cloud-based AI models just about anything, direct it to create content, or interact in other ways. In many cases, it works much like a traditional web search engine like Google Search. But there is one key difference in how you interact with Copilot or any other AI assistant: These chats are *conversational* and don't necessarily end with the first response you get. That is, you can keep chatting with Copilot to learn more, refine responses, and build off the initial prompt.

Copilot is configured to use a "Smart" mode by default so that it can automatically choose the correct AI models based on your prompt. This is the right mode for all the most common chat interactions, from straightforward questions to learning more about a topic, document, or image, generating content, and more.

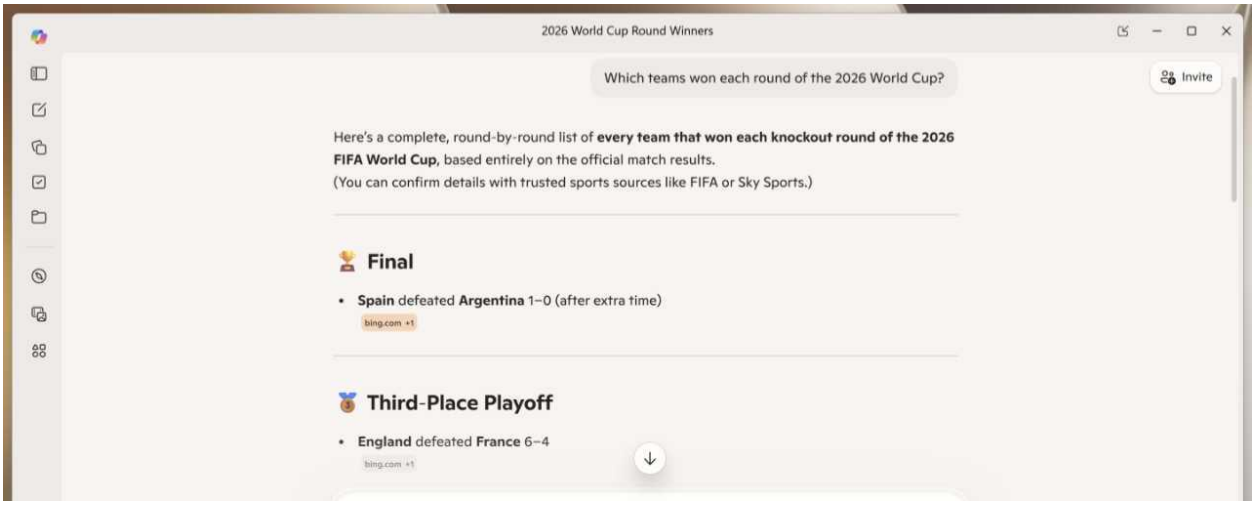


When Copilot responds to you, it provides source references for the answers it gives, and you can click those items to view each original source on the web. You can also rate the answers, share the prompt and the answer with others, copy the chat to the Clipboard, and perform other actions

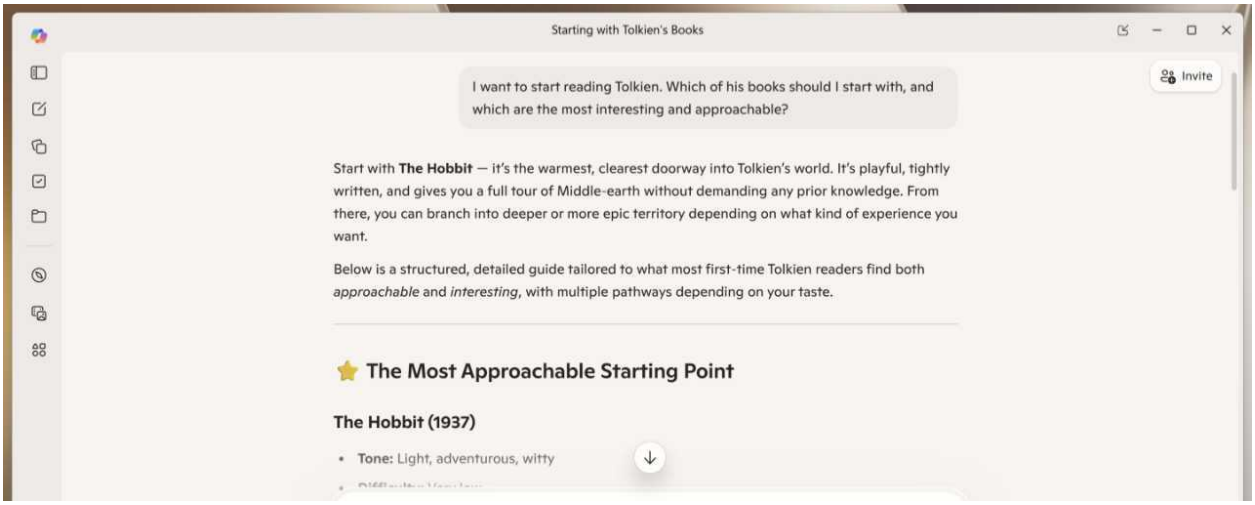
directly. You can also just keep the conversation going by messaging Copilot again. Or, if you want to start a new chat, you can do so by clicking "New chat" in the sidebar.

Some common chat interactions include:

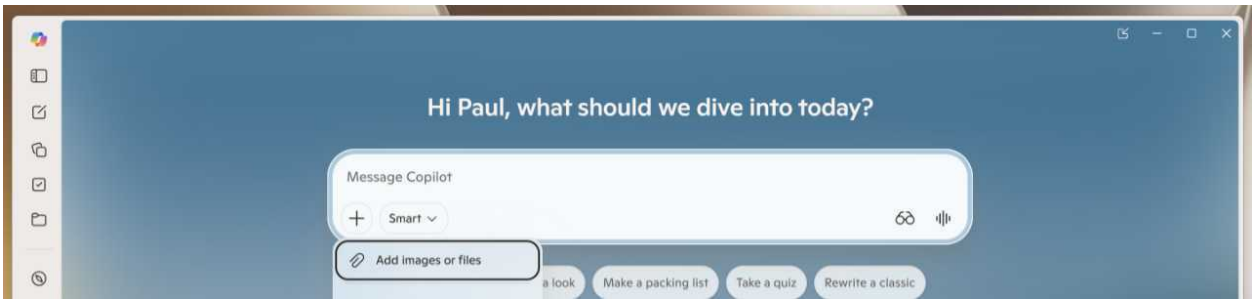
- **Ask a question**. You can ask Copilot direct questions like "What is the capital of Massachusetts?" and so on.



- **Learn more about a topic**. You can ask Copilot to provide report-like essays about any topic. For example, "I want to start reading Tolkien. Which of his books should I start with, and which are the most interesting and approachable?" After providing the answer, Copilot will often prompt *you* with follow-up suggestions so you can continue the conversation, like "If you want, I can also build you a reading roadmap, a 'Tolkien for beginners' guide, or even a thematic reading order depending on what kind of stories you enjoy most."

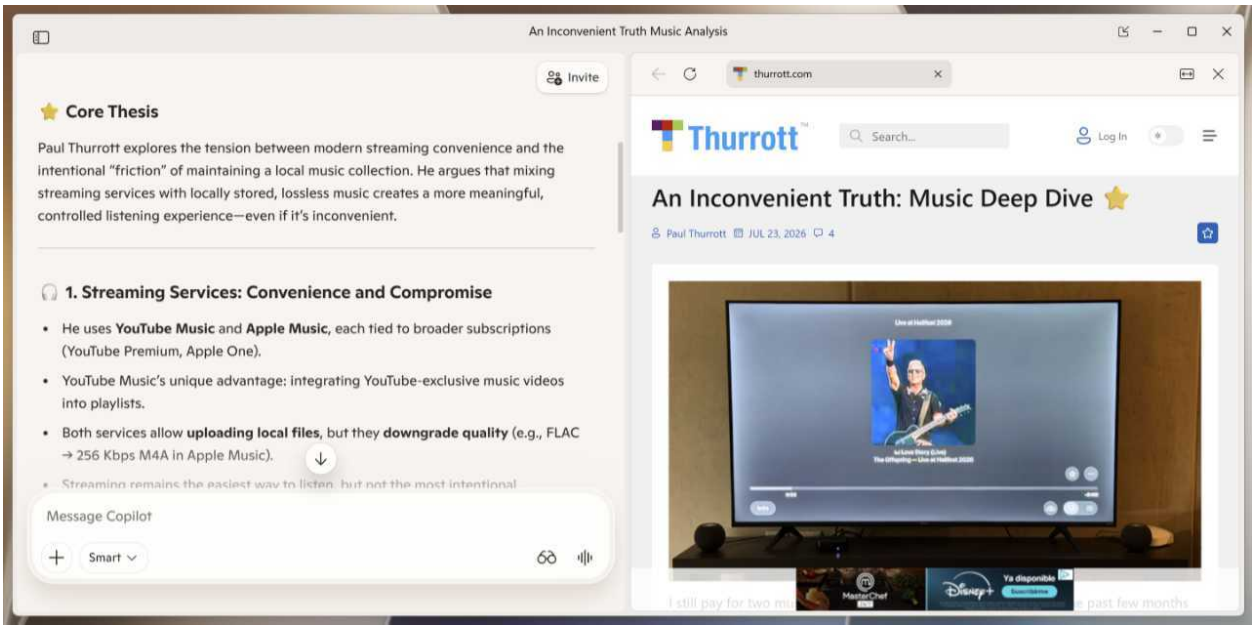


- **Summarize or analyze a document. **You can click the “Attach” (“+”) button in the Chat box to get a summary or analysis of a document in PDF, Word, Excel, Markdown, and many other formats.



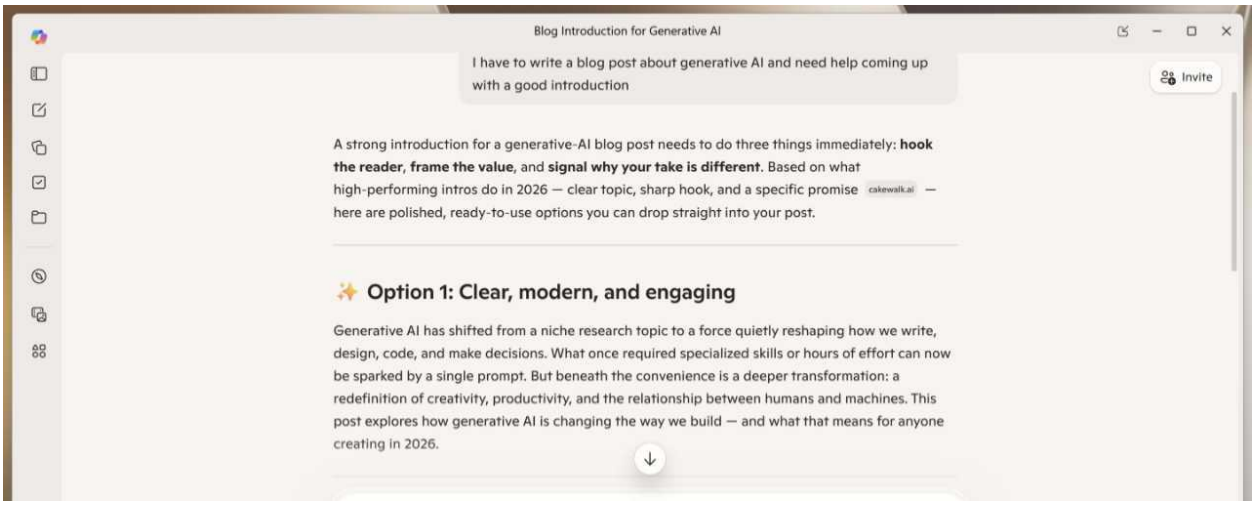
> **Tip**: The “Attach” button is also used to generate images and accomplish other tasks.

- **Summarize an article on the web**. You can paste the URL for a web-based article into the Chat box and tap Enter, and Copilot will split in half with a report-style summary on the left and an in-app version of Microsoft Edge on the right displaying the original article.



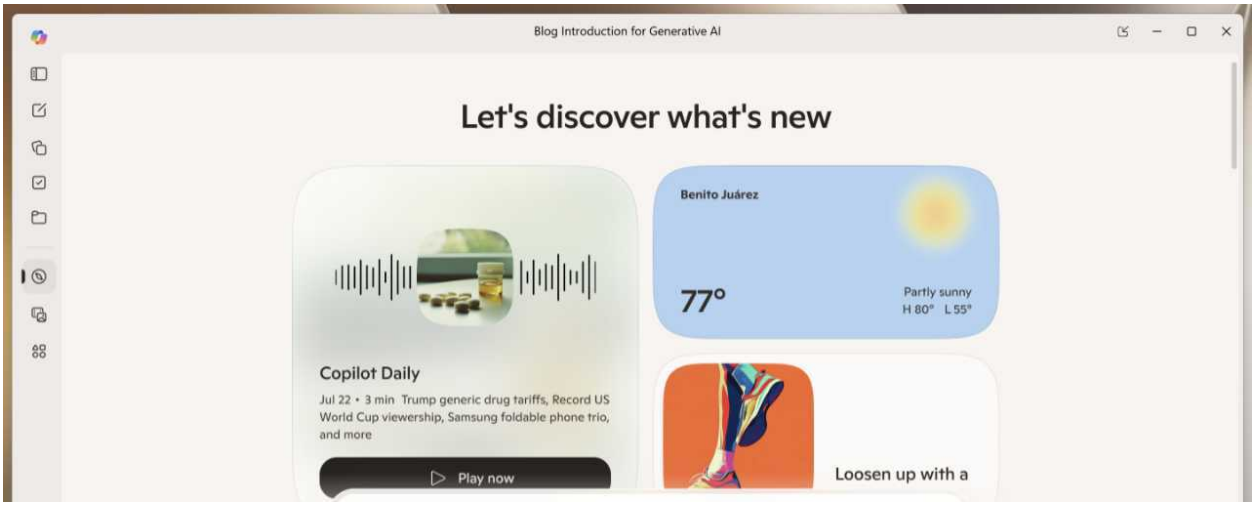
- **Writing help**. AI is incredibly useful for writing, and that’s true whether you need help starting a new document, email, or whatever else, or just want help editing something you’ve already written to be longer, shorter, more concise, or any other change you can

imagine. For example, you might tell Copilot something like, "I have to write a blog post about generative AI and need help coming up with a good introduction," and Copilot will respond with several options to choose from and then help you refine it for tone or add more content.



Discover: Your daily news feed

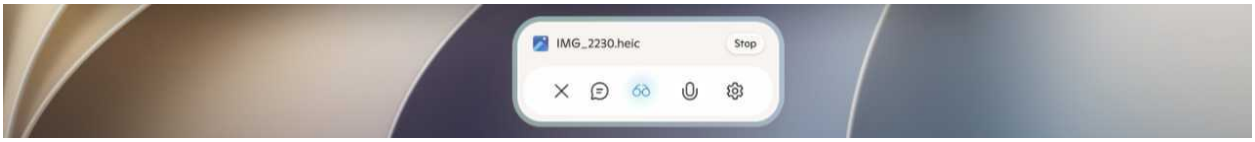
The Discover view in Copilot provides a widget-like feed of low-quality news stories similar to the Microsoft Start Feed in Widgets and the feed in the default New tab page in Microsoft Edge.



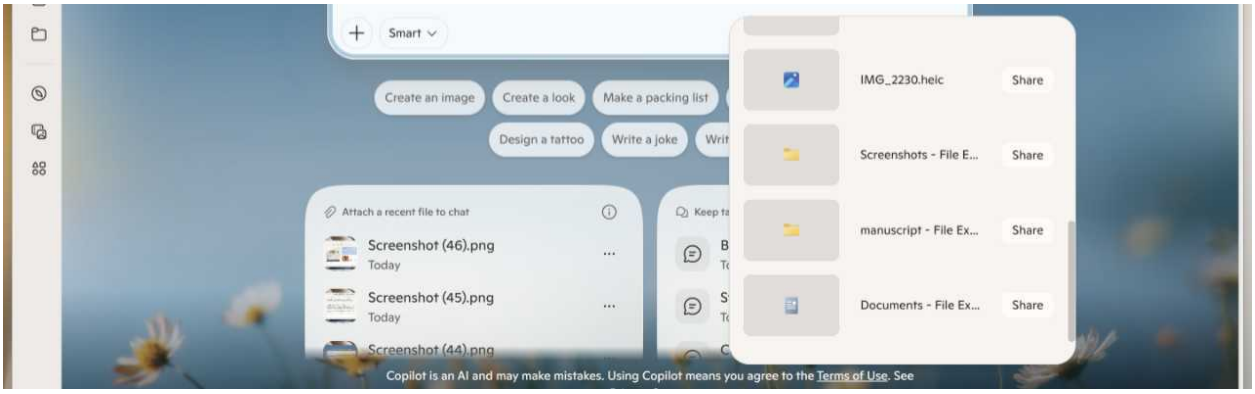
But there's a twist: It also provides a Copilot Daily feature that will read you a short summary of the day's news which might be of interest. And there is the ever-present Chat box so you can interact with the AI assistant about whichever news stories you see there.

Copilot Vision: Learn more about what you see on-screen

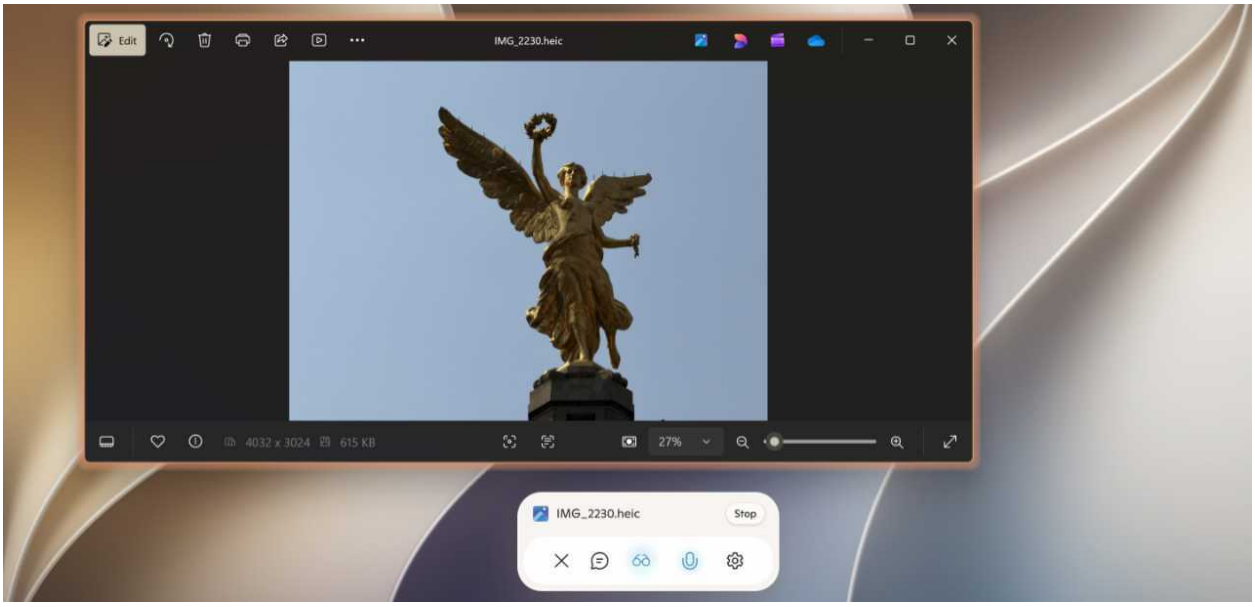
Copilot Vision is an incredible capability that lets you learn about anything you see on-screen. To do so, you share your screen or a specific app or window with Copilot, decide whether to interact with voice (the default) or text, and then converse with Copilot using a unique and small Copilot Vision interface that stays on top of other windows so you can interact as needed.



As an example of how this works, I downloaded a photo I took of the Monumento a la Independencia ("Monument to Independence") in Mexico City, which is more commonly called The Angel of Independence, and opened it with the Photos app. Then, I opened Copilot, clicked the "Share screen with Copilot" (eyeglasses) button in the Chat area, and chose "Photos" from the list of options for sharing.



Copilot highlights the borders of the Photos app as a visual reminder of which app is shared and then it displays the Copilot Vision interface.



You converse with voice by default, but you can switch to the normal Chat interface–with its normally-sized Copilot window–if desired. Continuing the photo-based example, I asked Copilot, "Can you tell me what this is?" It immediately responded by voice with, "Sure! That monument you're looking at is the Angel of Independence in Mexico City. It's a pretty iconic landmark right on Paseo de la Reforma." Which is correct.

Then, I asked a follow-up, "Can you provide me with a brief history of this monument?"

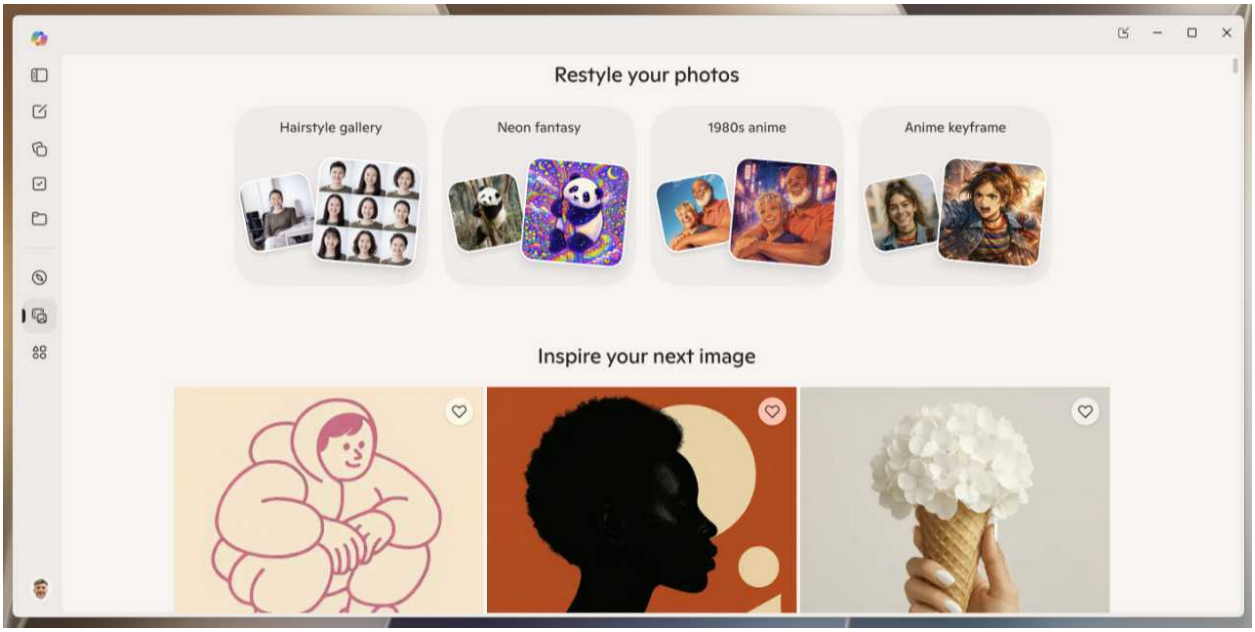
"Absolutely!" Copilot responded. "The Angel of Independence was built in 1910 to commemorate the centennial of Mexico's War of Independence from Spain. It's one of Mexico City's most famous landmarks and a symbol of freedom. So, it's got a lot of history behind it. Do you want to know anything else about it?"

And it goes from there. Copilot Vision is a great option when you see something visual and want to learn more about it. Remember this is still a Copilot chat, too, and that means you can continue conversing and do other things related to that on-screen image. You can ask "Can you show me more photos like this?", for example, or generate new images or new writing, or whatever else Copilot can do.

Imagine: Create and reimagine images

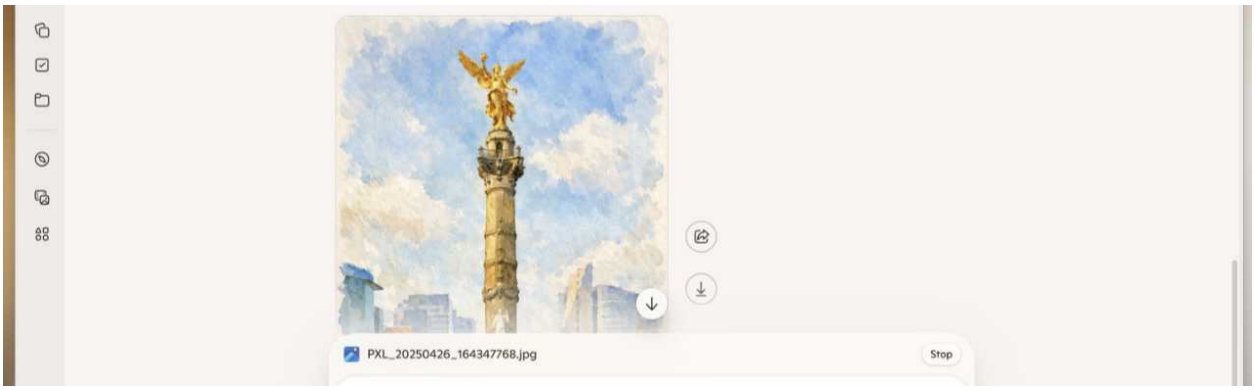
Copilot uses *generative* AI to create or edit content of any kind, and this has emerged as one of the most popular AI use cases for obvious reasons. That's especially true for images, where one can use generative AI to create new images or reimagine an existing image in different styles. Not surprisingly, Copilot lets you create or reimagine an image directly from the Chat box by attaching a file with its "Attach button" or through Copilot Vision.

You can also create a new image in the Library view, and Copilot provides a dedicated *Imagine* experience, accessible from the sidebar, that you can use to restyle existing images or create new images in an interactive way.



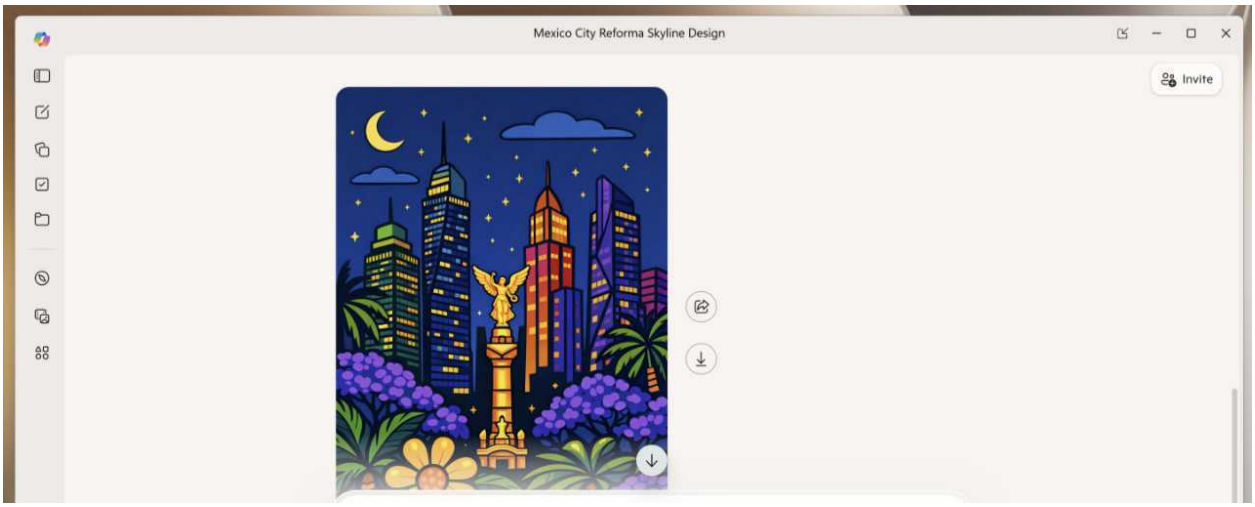
There are two main areas here:

- **Restyle your photos**. Here, you scroll through the thumbnails in a carousel until you find a style you like, and then you upload an image so that Copilot can reimagine it in that style. When you do, the normal chat experience appears with a Copilot-written prompt, and the AI gets to work making the image you requested.

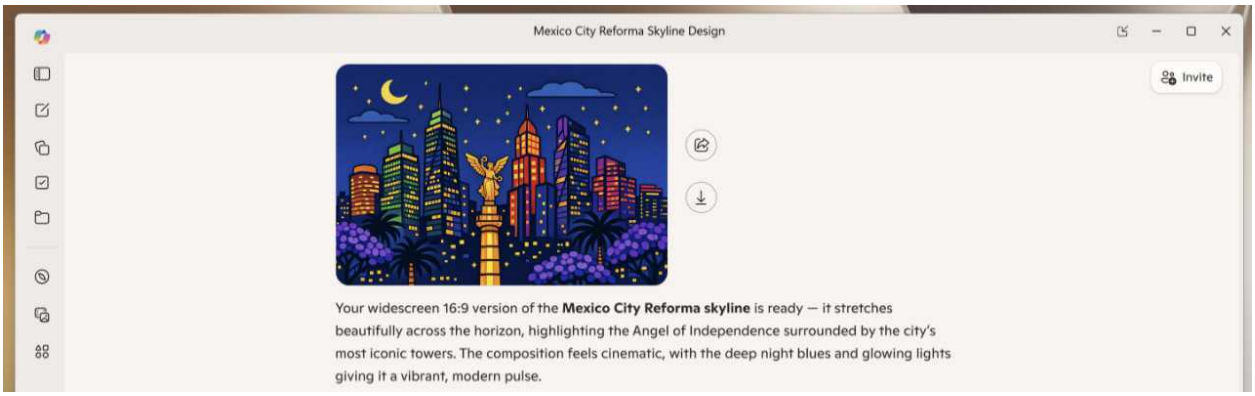


- **Inspire your next image**. The bottom area provides a bottomless grid of example images with sample prompts like “Change to Pop Art,” “Switch to Paper Cut,” “Switch to Anime Look,” and so on. You select one and then can optionally upload (attach) your own image to

create a personalized version in this style. Otherwise, you can just add to the prompt to get it started, and then respond to any follow-up questions to get the perfect image.



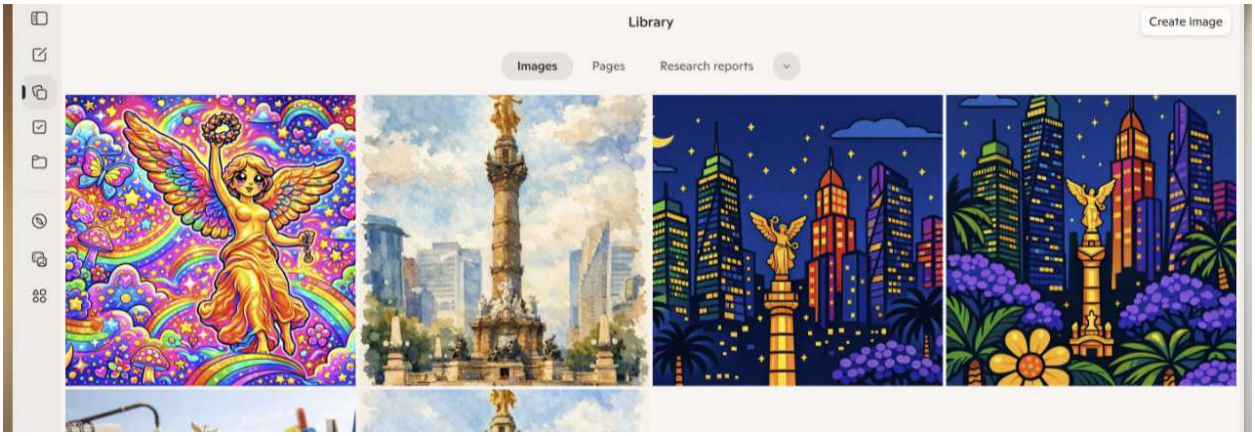
As always, these chats are conversations that can continue until you get exactly what you want. For example, I followed up the previous example with the prompt, "I love this but can you make a widescreen 16:9 version?"



Tip: All the images you create with Copilot–from within Imagine or elsewhere–can be accessed and managed in the Library view.

Library: Manage your image creations and pages

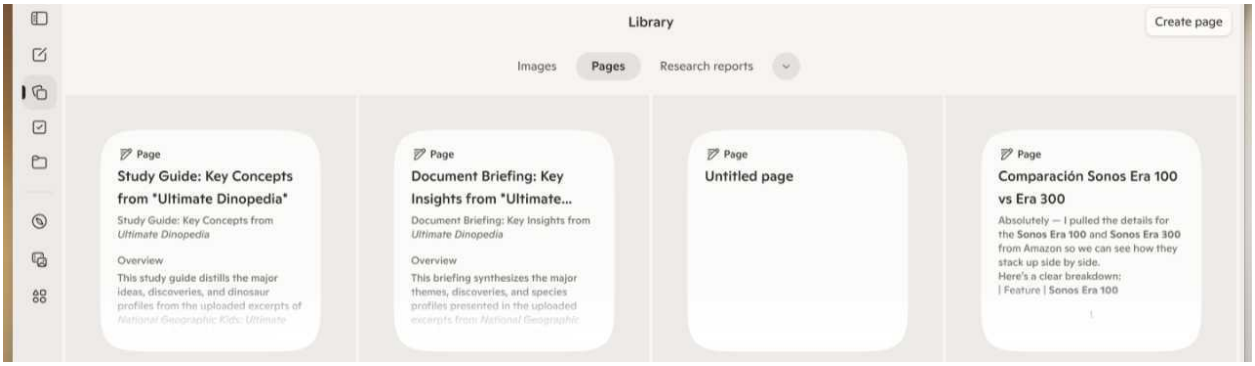
The Library view in Copilot lets you create new images and *pages* and access and manage the images and pages you previously created.



Images are well understood and described above, but a Copilot page is a focused space you can use to brainstorm ideas about a specific topic you intend to write about formally. You can upload documents related to the topic to help *ground* Copilot, and there's a Chat interface for interacting with the AI assistant about the topic plus sharing capabilities.

There are two views within Library:

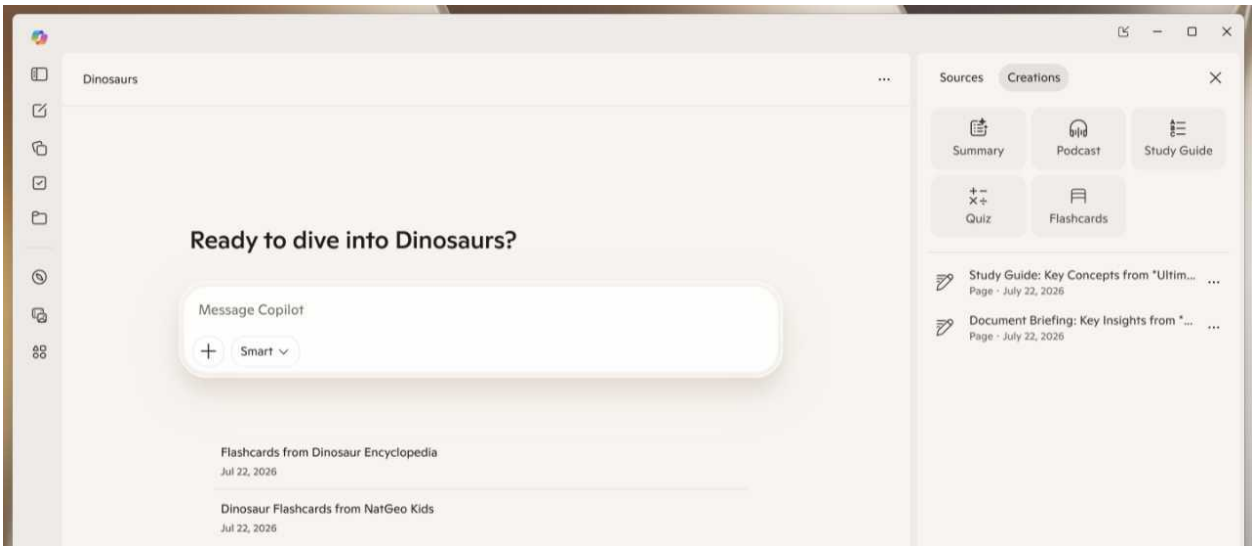
- **Images**. Here, you can find a grid of thumbnails of the images you created previously with Copilot, plus a "Create image" button to create a new image. If you mouse-over a thumbnail, you can access Share, Download, and Delete options. And you can click any thumbnail to view that image full-sized and navigate to the other images.
- **Pages**. Here, you can similarly view and manage existing pages and create a new page. When you create or open a page, you get a basic text editor for writing, Copy, Share, and Delete controls, and a Chat/Sources toggle for the pane on the right. You use Chat to interact with the AI assistant about the page, of course, and you use the Sources pane to upload documents related to the page.



The Library item in the Copilot sidebar is expandable to view each image creation. Curiously, this expanded view does not display individual pages.

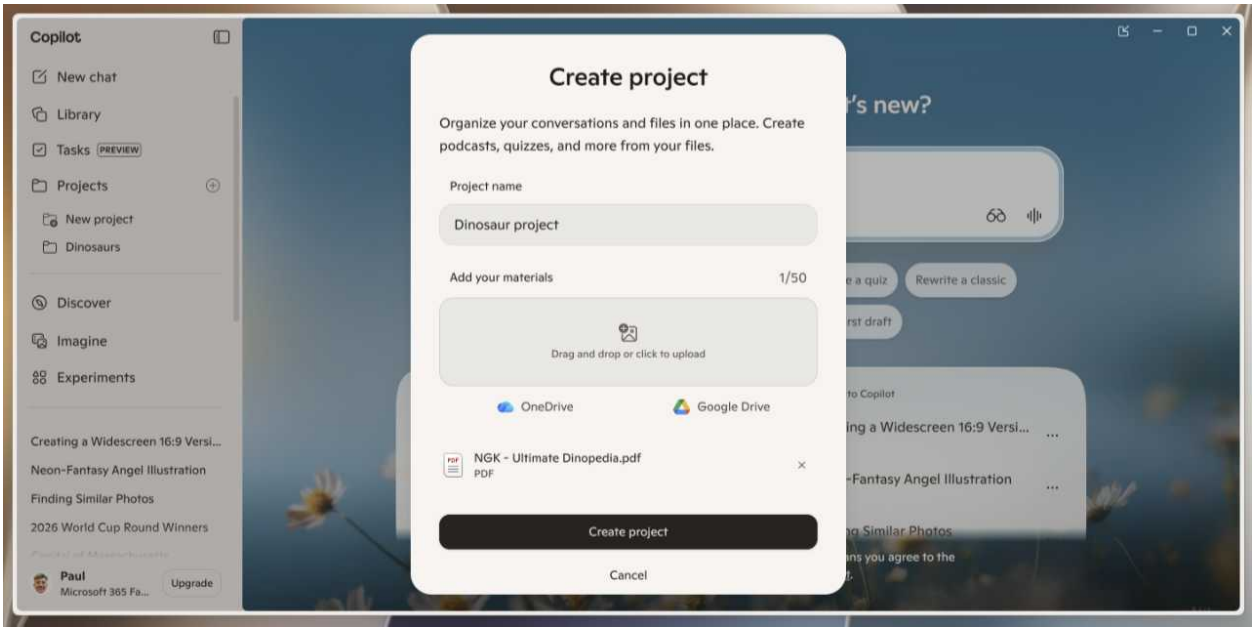
Projects: Create study aids to learn more about any topic

A *Copilot Project* is a collection of creations that can include a summary, study guide, quiz, or a set of flashcards–or any combination of those things–that you create with the AI assistant to help you learn more about a topic.

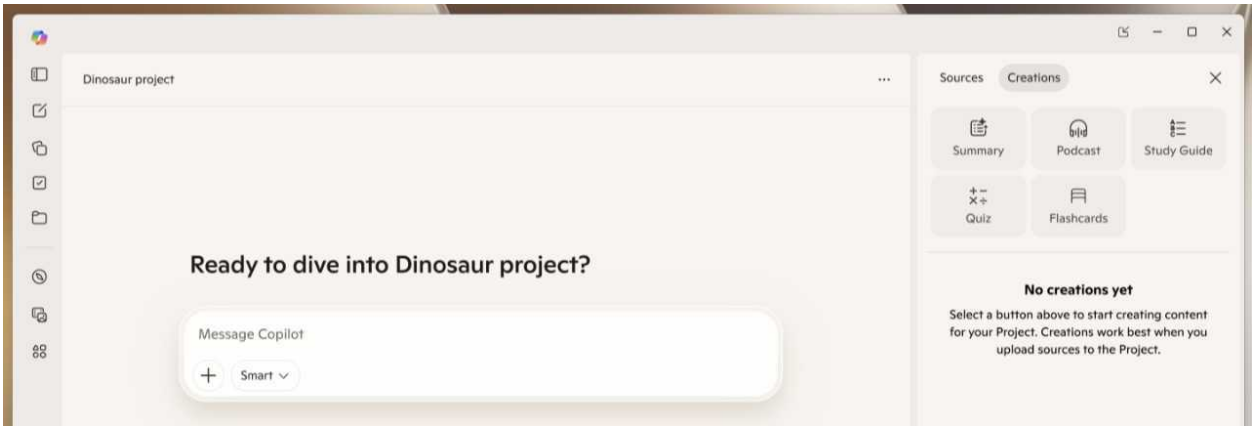


To get started, you click the "New project" ("+") button next to Projects in the Copilot sidebar.

Here, you give the project a name and optionally upload documents or other files to use as source materials for the project. Then, click "Create project."

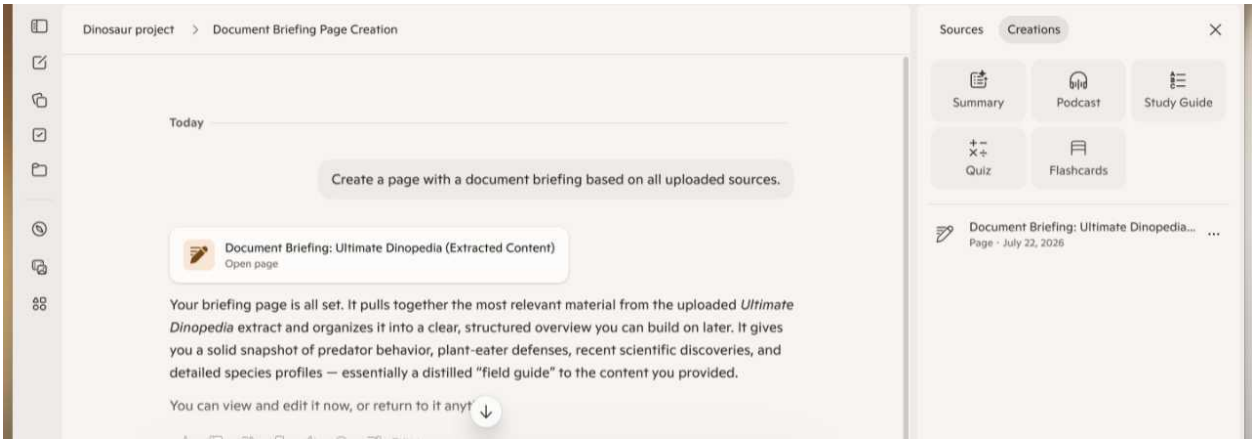


The project view provides a now-familiar Chat box with an "Attach" ("+") button and Mode selector, plus a pane on the right you can toggle between Sources and Creations views. Sources lets you upload more documents or other files that Copilot can reference when creating the project. But the Creations view is much more interesting. This is where you pick a creation to add to the project.

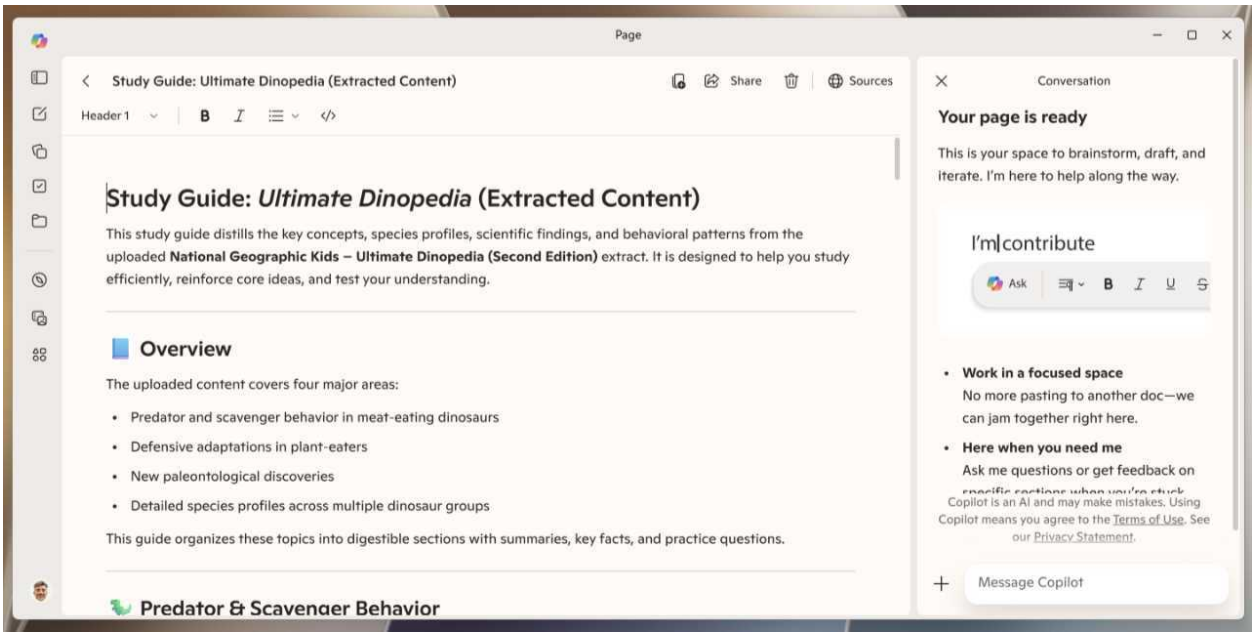


Available creation types include:

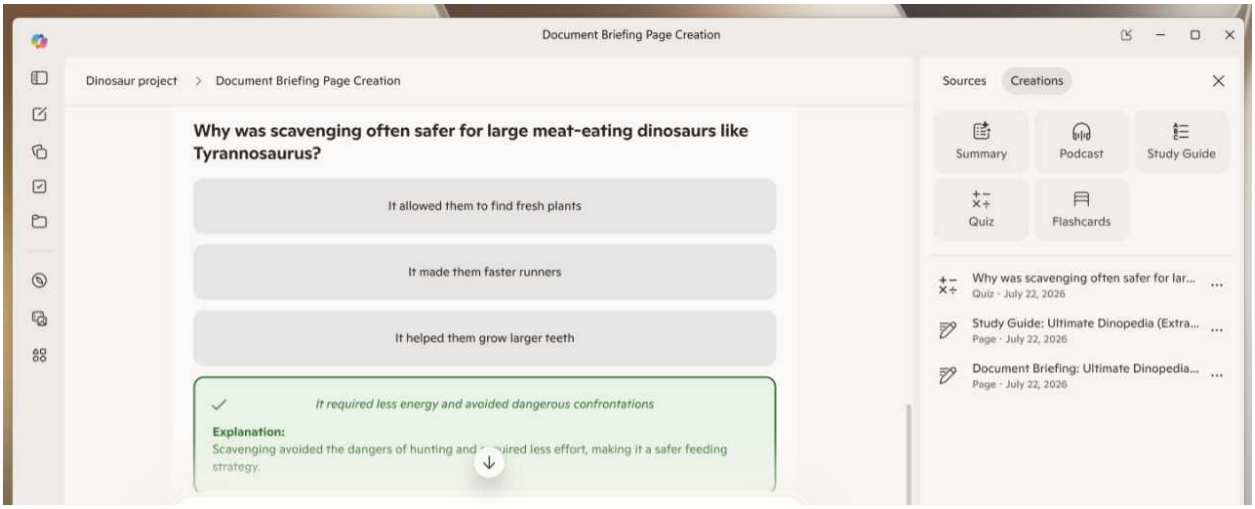
- **Summary**. This works a bit like any Copilot-based document summary capability, but the summary is saved as a Copilot page you can read and edit as needed. The end of this summary provides a list of next steps you can take to expand on it.



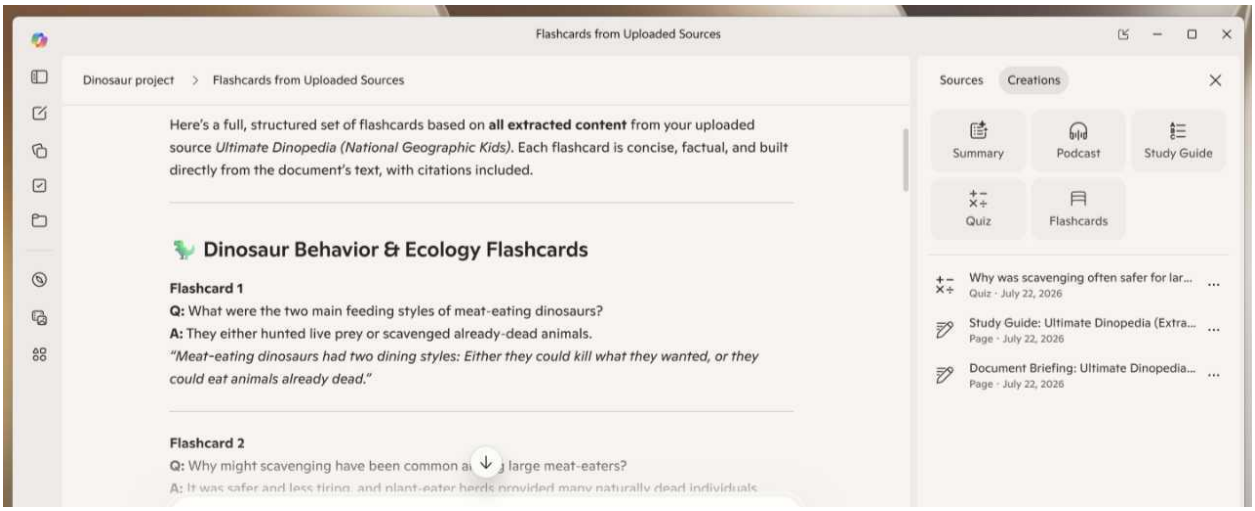
- **Study Guide**. Here, Copilot uses the uploaded sources to create a Copilot page formatted as a study guide that helps you review core concepts. It includes key takeaways and suggested steps to enhance the guide and your learning.



- **Quiz**. Copilot creates a multiple-choice quiz based on the uploaded sources that's organized into topic sections. It provides the correct answer in the chat, with each question plus a quote from the the original source, and then offers to turn the quiz into a graded test, a practice exam, and other test types and study aids.



- **Flashcards**. Copilot creates a series of questions and answers in text form in the chat that can be used as the basis for flashcards. As with quizzes, you also get a quote from the the original source with each, and Copilot offers to convert the text into Anki-compatible flashcards, topic-sorted decks, and other formats.



A few final points about Projects:

- Having quality source material is the key to success with Copilot Projects.
- While some projects may consist of a single creation, you can keep adding new creations to a project.
- Some creations are output in Copilot Pages form and some are inline in the chat, but everything is saved in the project and accessible later.
- As always, the chat in the project is an ongoing conversation. In this case, you can expand on any of the creations Copilot made, ask follow-ups and for new content, and do anything else you can do with Copilot.

In short, Projects is an incredible study aid. And while the educational use cases are obvious, this feature is useful for anyone learning any topic.

Copilot+ PC: Click to Do and Recall

Windows 11 supports numerous *AI* capabilities, but the best experiences require a *Copilot+ PC*, a new class of *AI PC* that includes a powerful and efficient *Neural Processing Unit (NPU)*. Copilot+ PCs can run sophisticated AI workloads *locally*–on-device–against Small Language Models (*SMLs*), so these features don't require an Internet connection or a paid, cloud-based AI service.

Granted, you don't need a Copilot+ PC to use many of the AI features that Windows 11 offers. Those AI features that rely on cloud-hosted *Large Language Models* (LLMs) are available to all Windows 11 users, albeit with a few limitations:

- **Connectivity**. Your PC must be online to access these AI features.
- **Subscription**. Most of the cloud-based AI features in Windows 11 have usage limits unless you pay for a Microsoft 365 Personal, Family, or Premium subscription.

With a Copilot+ PC, you get the best of both worlds: All the AI features that Windows 11 offers plus all the local AI features that are unique to AI PCs and Copilot+ PCs.

Windows 11, AI PCs, and Copilot+ PCs

Understanding which AI-based Windows 11 features work for everyone and which require AI PCs or Copilot+ PCs can be confusing. So it may be helpful to understand what's available depending on the type of PC you have.

AI features in Windows 11

Windows 11 includes a growing set of AI features integrated throughout the system and in its in-box apps. Many of these features provide so-called *generative AI* capabilities, meaning they can be used to create new content or edit existing content.

The in-box apps in Windows 11 ship with an extensive and always growing set of AI features and functionality that's available to all users. Some key examples include:

- **Copilot in Windows 11**. This conversational AI-powered assistant brings the ever-improving productivity and creation capabilities of the cloud-based Microsoft Copilot to your PC.
- **Copilot in Microsoft Edge**. Microsoft's web browser also includes an integrated version of Microsoft Copilot.
- **Notepad**. The Writing tools in Notepad use cloud-based AI.

- **Paint**. The Remove background, Image Creator, and Generative erase all rely on cloud-based AI.
- **Photos**. The Erase and Background tools both use cloud-based AI.
- **Clipchamp**. The Create video with AI wizard, Text to speech tool, Autocaptions, and other features in this web-based video editor all use cloud-based AI.
- **Snipping Tool**. The Scan text tool uses cloud-based AI for Optical character recognition (OCR).

AI features unique to AI PCs

PC makers market laptops and desktop PCs with a CPU, GPU, and NPU integrated into a single system on a chip (SoC) design as *AI PCs* to differentiate them from their NPU-less predecessors. These PCs provide all Windows 11 features, of course, but they only offer a small subset of the features provided by Copilot+ PCs. In fact, there's just a single unique feature:

- **Windows Studio Effects**. Any modern PC with an NPU of any kind–in other words, an AI PC–can use at least a subset of the available audio and video effects in Windows Studio Effects. Unfortunately, the exact audio and video effects you get can vary by PC.

AI features unique to Copilot+ PCs

If you're buying a new Windows 11 PC, especially a laptop, a Copilot+ PC is your best choice. This is a new class of *AI PCs* that meets specific hardware requirements well above the minimums Microsoft requires for Windows 11. Key among them is a powerful and efficient Neural Processing Unit (NPU) that enables powerful, on-device AI capabilities.

Because so many of these unique Copilot+ PCs features are delivered through existing in-box apps and experiences, I cover them in other parts of the book. But key in-box apps that provide additional features when used with a Copilot+ PC include:

- **Auto SR**. Automatic super resolution (Auto SR) is available only on Windows 11 on Arm-based Copilot+ PCs.
- **Live Captions**. This accessibility tool provides real-time language translation capabilities if you have a Copilot+ PC.
- **Notepad**. With a Copilot+ PC, the Writing tools in Notepad can optionally use local AI instead of cloud-based AI.
- **Paint**. The Cocreator, Generative fill (on Windows 11 on Arm only), Object select, and Sticker generator tools in Paint all require a Copilot+ PC.
- **Photos**. The Categories feature and the Image Creator, Relight, Restyle Images, and Super resolution tools in Photos all require a Copilot+ PC.
- **Settings**. A Settings agent in the Settings app lets you change many settings directly from the search results drop-down on a Copilot+ PC.

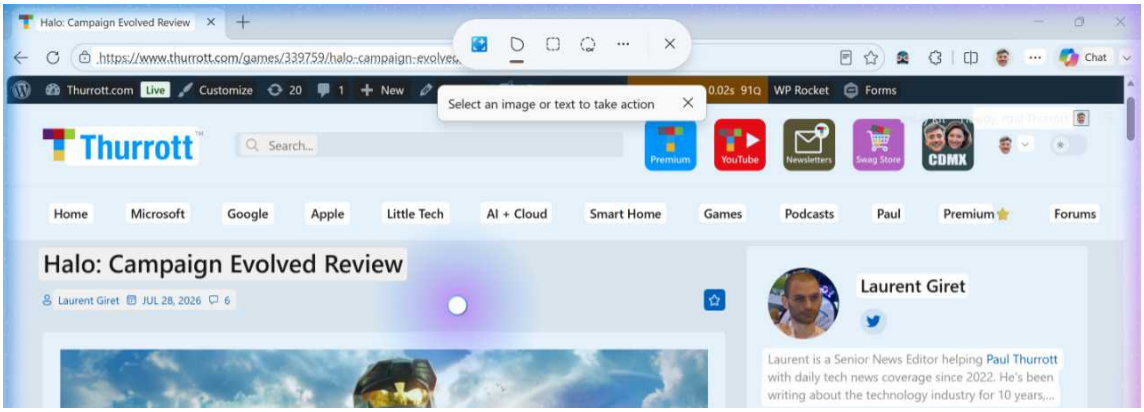
- **Shared audio**. This feature, accessible from Quick settings, lets you play the same audio output to two compatible Bluetooth LE headphones, earbuds, hearing aids, or similar devices simultaneously.
- **Snipping Tool**. The Perfect screenshot tool requires a Copilot+ PC.
- **Windows Search**. The in-box search functionality in Windows 11 is enhanced with natural language capabilities when you have a Copilot+ PC.
- **Windows Studio Effects**. Those with a Copilot+ PC gain access to the full suite of audio and video effects in Windows Studio Effects.

Copilot+ PCs also offer a few powerful and unique in-box apps that are not available in Windows 11 otherwise. These apps are the focus of the rest of this chapter.

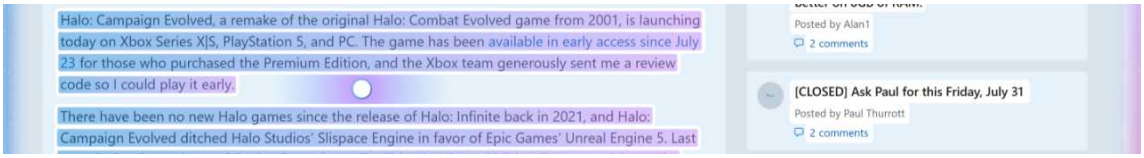
Click to Do

Click to Do is arguably the most useful and powerful Windows 11 capability that's unique to Copilot+ PCs. This tool uses local AI to identify text and images you see on-screen so that you can take *actions* with that content that includes editing the content, creating new content, or learning more about the content.

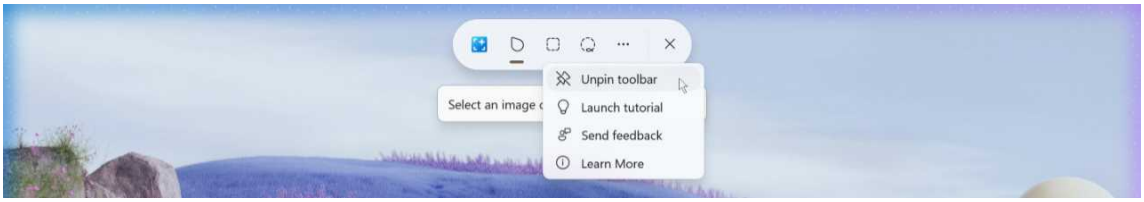
When Click to Do is active, a toolbar appears in the top-center of your screen and your mouse cursor transforms into a white circle surrounded by a purple and blue aura. You can then use this cursor to mouse over and select the content you wish to take action on.



That selection can be as simple as clicking a specific block of text or an image. Or you can select text as you do in Notepad and other apps, by clicking the mouse button at the start of a selection and then dragging to select more.



You can also use the Click to Do toolbar to change the selection method from the mouse cursor to a rectangular or freeform selection, each of which supports drag-based sizing. You can also "unpin" the toolbar, which just hides it for this session only.



When you select the text or image you want, a pop-up menu of available actions appears. This varies by content type and is described later in this chapter.

You dismiss Click to Do by tapping the Esc key or by clicking the "Close Click to Do" ("x") button in the toolbar.

Defaults

Click to Do is enabled by default in Windows 11 on Copilot+ PCs.

You can open Click to Do via:

- **Start**. You can use Start and Windows Search to find and launch Click to Do.
- **Taskbar**. A shortcut to Click to Do is typically pinned to the Taskbar by default.
- **Keyboard shortcut**. This is the easiest way to launch Click to Do: Type Windows key + Q.

> **Tip**: You can also launch Click to Do by holding down the Windows key and clicking the primary mouse button.

Customize

Click to Do can't be customized in any meaningful way. But you can disable it if you'd like. To do so, open the Settings app and navigate to Privacy & security > Click to Do.

Here, you can toggle the "Click to Do" option "On" or "Off" as needed.

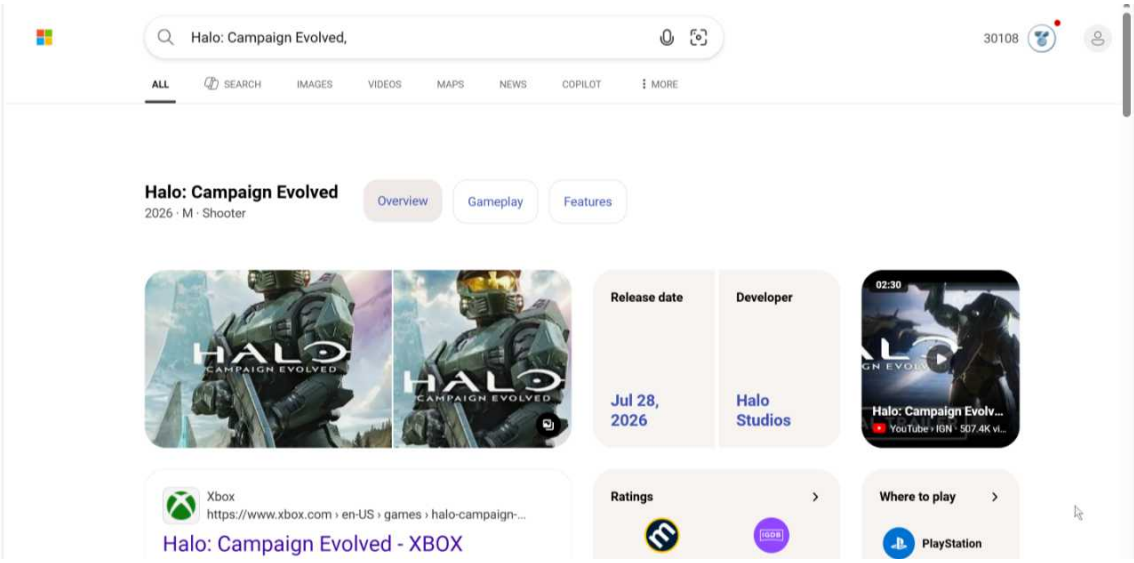
> **Tip**: You can't uninstall Click to Do.

Do more with text you see on-screen

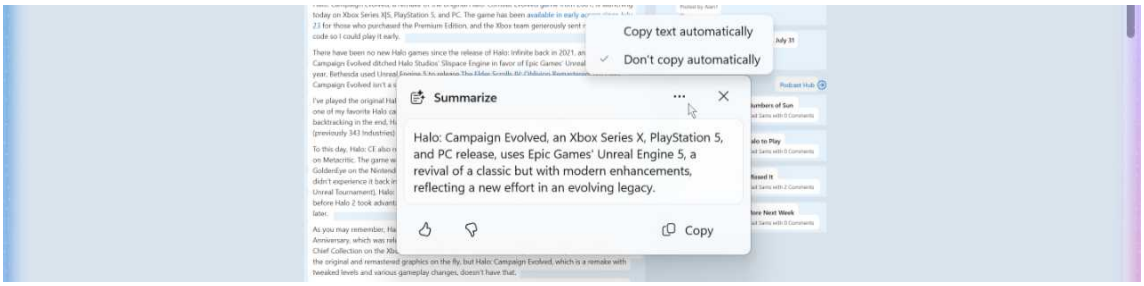
To take action on text you see on-screen, launch Click to Do, mouse over the specific text, and click the mouse button. The Click to Do pop-up menu provides the following options:

- **Copy**. This action copies the selected text to the Clipboard so you can paste and use it in another app.
- **Open with**. This action provides a list of compatible apps you can use to open the selected text. That is, it copies the text to the Clipboard, opens the app, and pastes the text into that app.

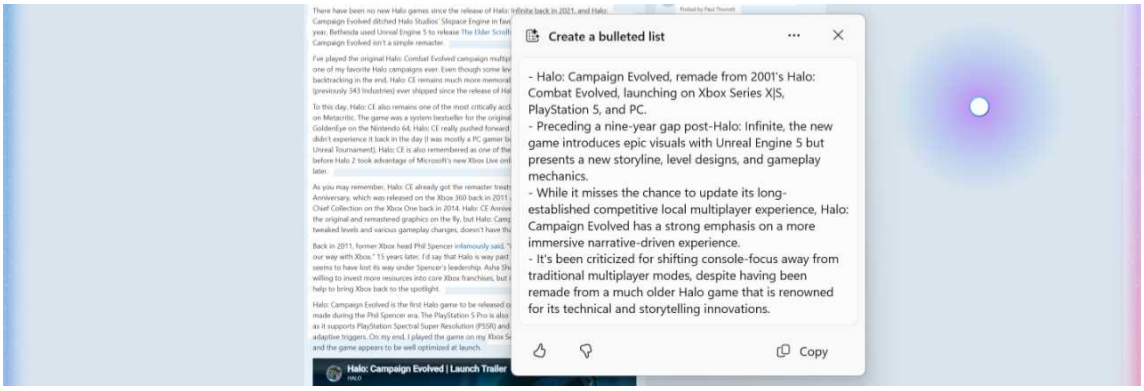
- **Search the web**. This action opens Bing in Microsoft Edge–yes, even if it's not your default web browser–and performs a search.



- **Summarize**. This action opens a small "Summarize" window that displays an AI-generated summary of the selected text. You can click the "Copy" button in this window to copy the summary to the Clipboard. If you use this feature a lot, you can save a step and automatically copy any Click to Do-based text summary by clicking the "Auto Copy Settings" and then choosing "Copy text automatically" in the menu that appears.



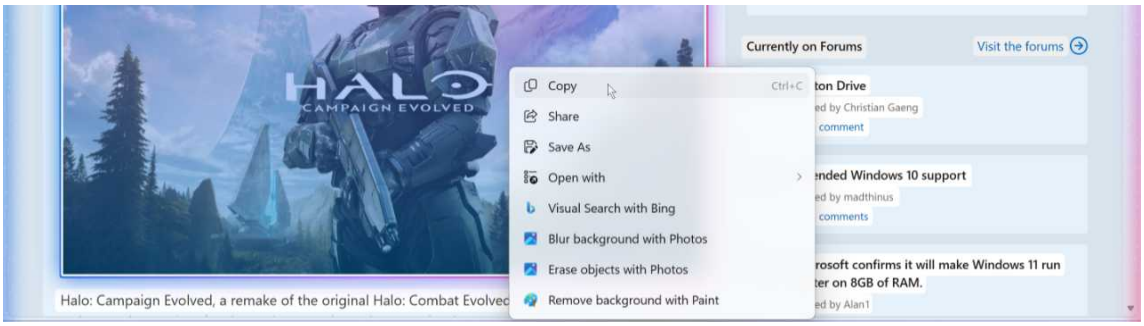
- **Create a bulleted list**. This action works like Summarize except that the summary it creates is in bulleted list form. It supports the same "Copy" and "Auto Copy" features as Summarize.



- **Rewrite**. This action provides a submenu with "Casual," "Formal," and "Refine" options. Choosing any of them will open a small "Rewrite" window that displays an AI-generated rewrite of the selected text in the selected style. It supports the same "Copy" and "Auto Copy" features as Summarize.

Do more with an image you see on-screen

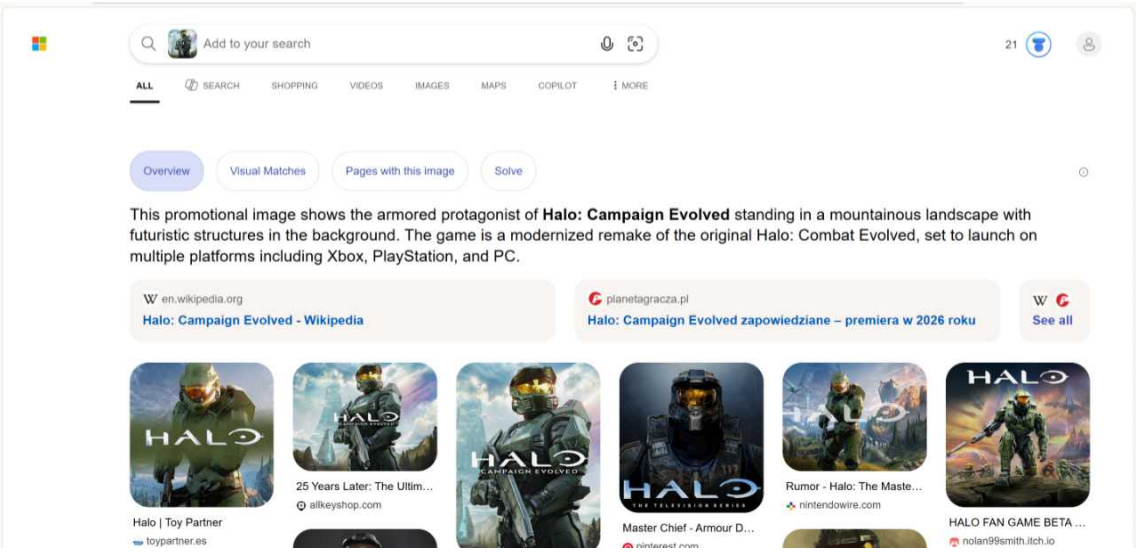
Click to Do offers a selection of actions you can take on images as well.



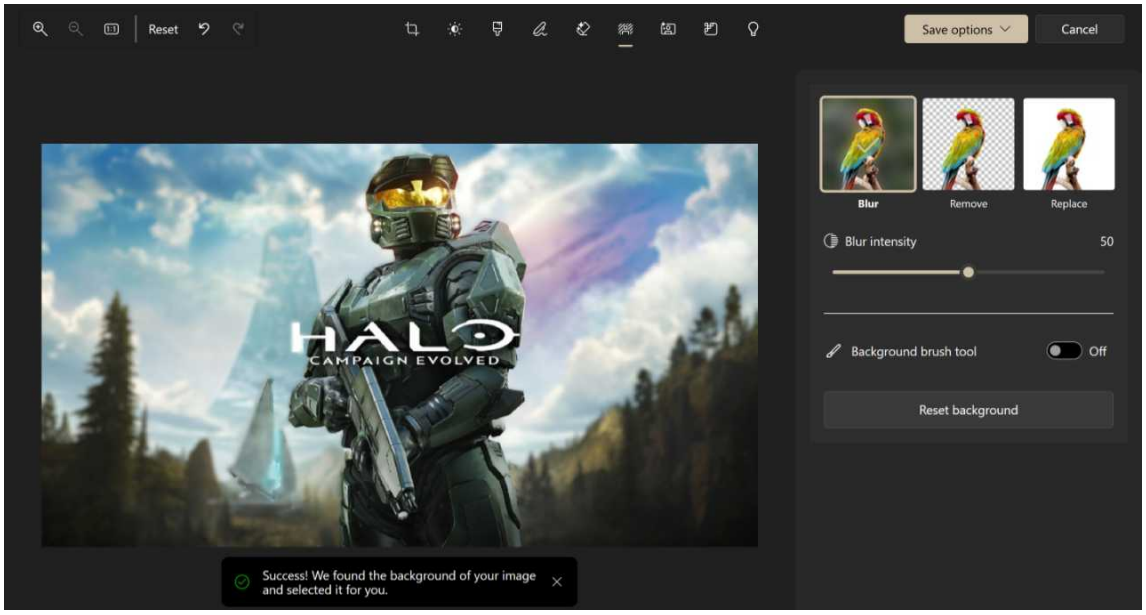
These include:

- **Copy**. This action copies the image to the Clipboard so you can paste and use it in another app.

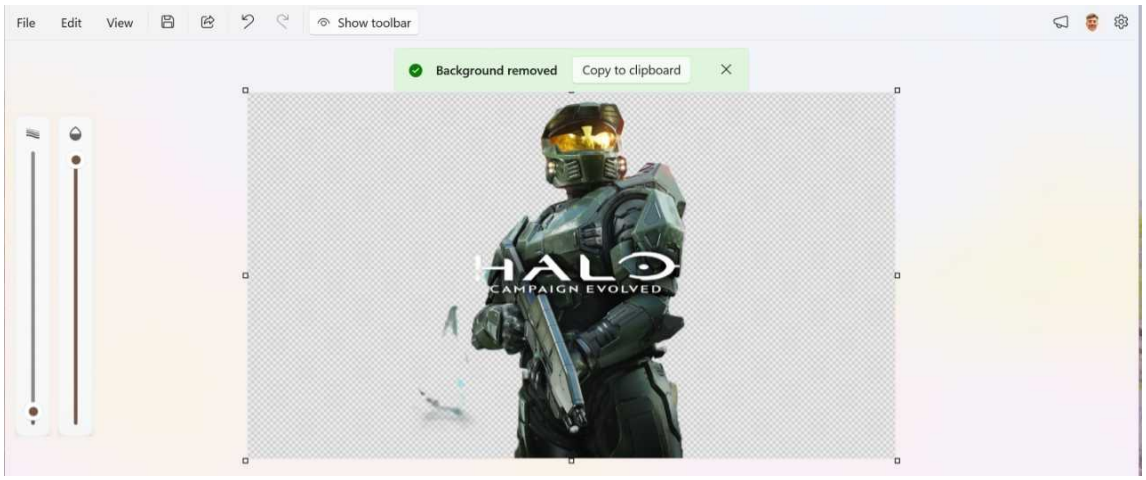
- **Share**. This action opens a standard Share sheet so you can
- **Save as**. This action opens a system "Save as" dialog box so you can save the image as a file anywhere in your PC's file system.
- **Open with**. This action provides a list of compatible apps you can use to open the selected image.
- **Visual Search with Bing**. This action opens Bing in Microsoft Edge–yes, even if it's not your default web browser–and performs what's called a reverse image search so you can find out more about the subject of the image.



- **Blur background with Photos**. This action opens the image in the Background page of the Photos image editing experience so you can blur, remove, or replace its background.



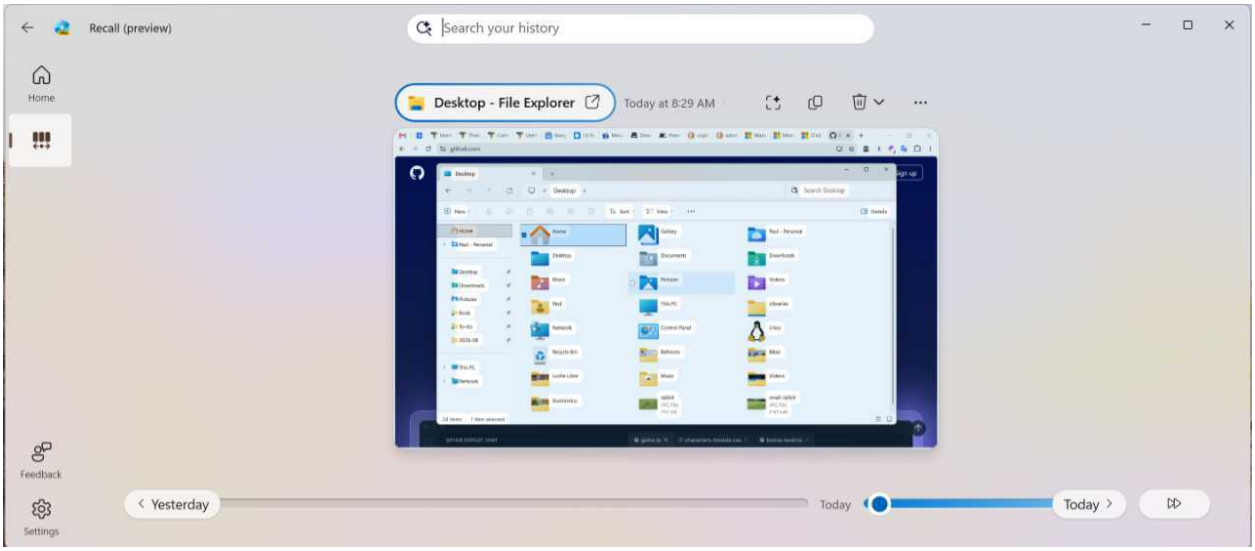
- **Erase objects with Photos**. This action opens the image in the Erase page of the Photos image editing experience so you can use generative erase to remove elements in it.
- **Remove background with Paint**. This action opens the image in Paint and applies the "Remove background" tool to, yes, remove its background.



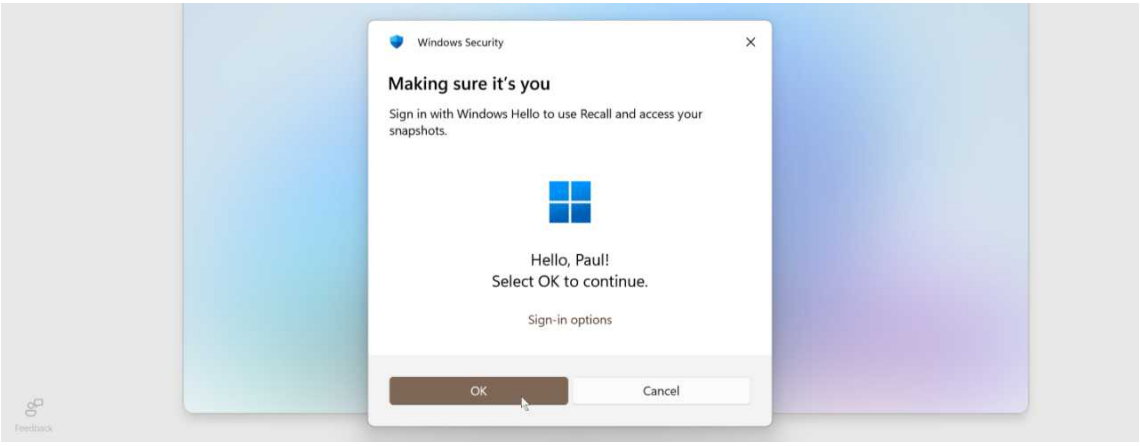
Recall

Recall is a Windows 11 feature that's unique to Copilot+ PCs that takes *snapshots*–screenshots–of your activities every few seconds as you use your computer and then lets you later browse or search for something you saw in the past. This may sound unsophisticated, but AI is particularly

good at image-to-text and image recognition capabilities, and Recall uses both to help locate an item you remember seeing on-screen in the past.

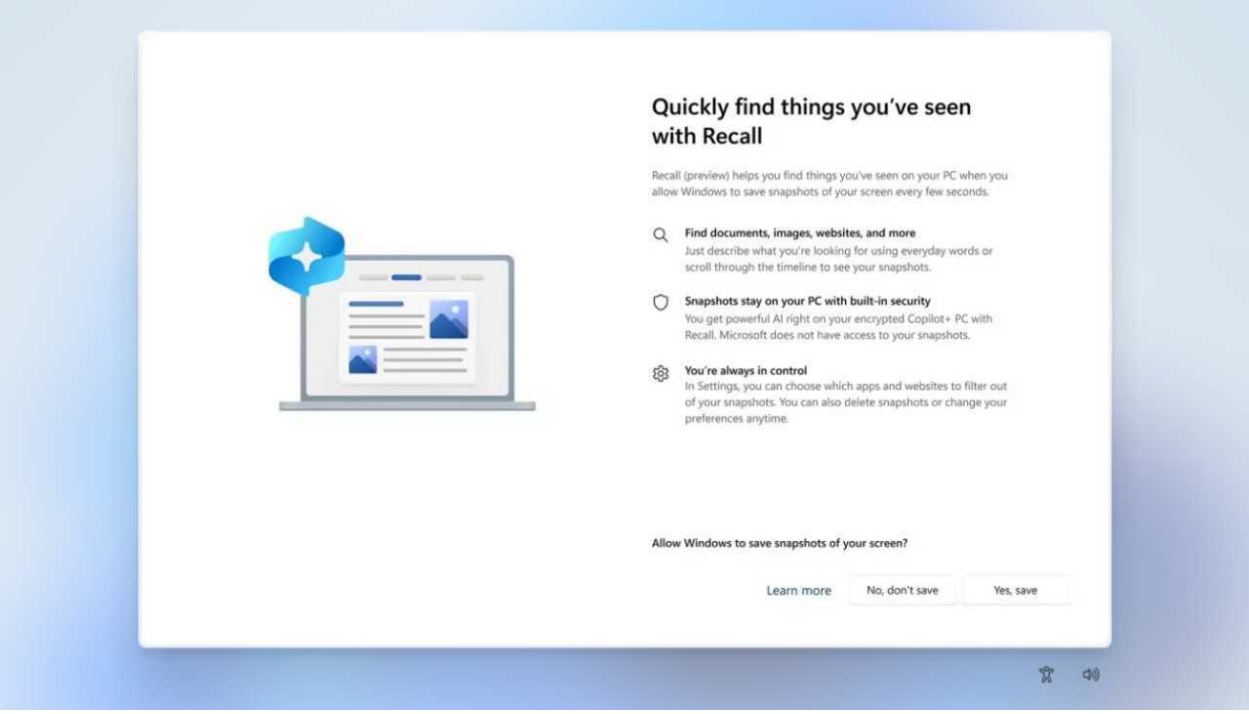


> **Tip**: Because of the potentially sensitive nature of the data stored in its snapshots, you will deal with regular Windows Hello-based Windows Security prompts when you use Recall interactively. I don't call these out everywhere they can happen, but this behavior, while good-intentioned, can get a bit tedious.



Defaults

Recall is promoted to you during the Windows Setup Out-of-Box Experience (OOBE), but this feature is disabled by default.

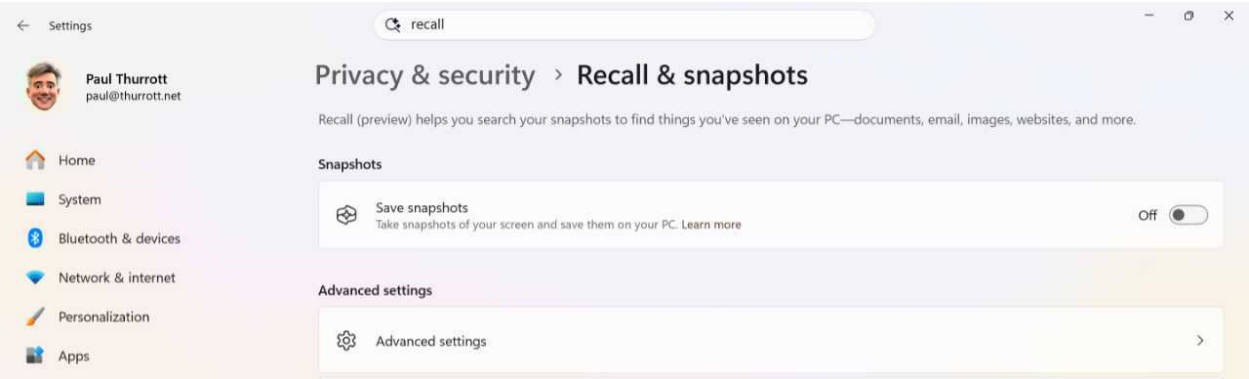


Customize

You can enable, configure, and even uninstall Recall if you'd like.

Enable Recall

You have to enable Recall before you can customize this app. To do so, open the Settings app and navigate to Privacy & security > Recall & snapshots.



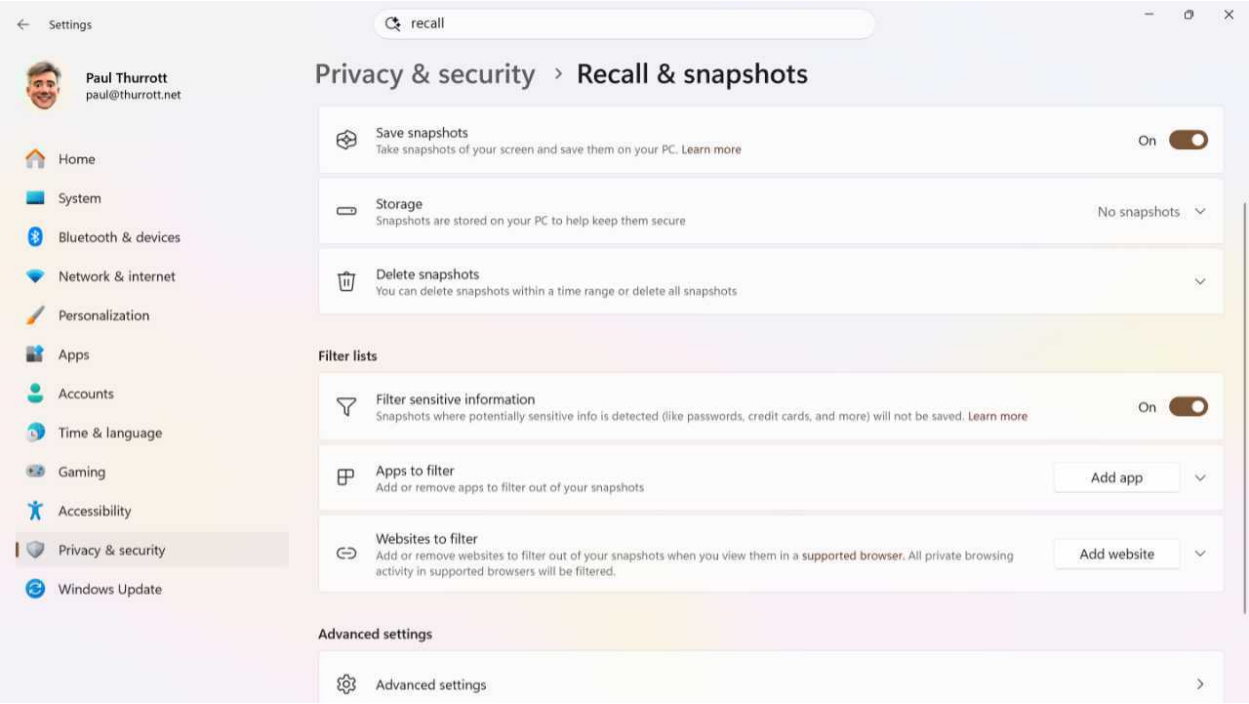
Configure "Save snapshots" to "On" to enable Recall. When you do, the following changes occur:

- A "Recall" icon appears in the system tray so you can easily access Recall and the snapshots it saves.

- The Recall & snapshots settings page displays several new options so that you can customize Recall further, as discussed in the next section.

Configure Recall

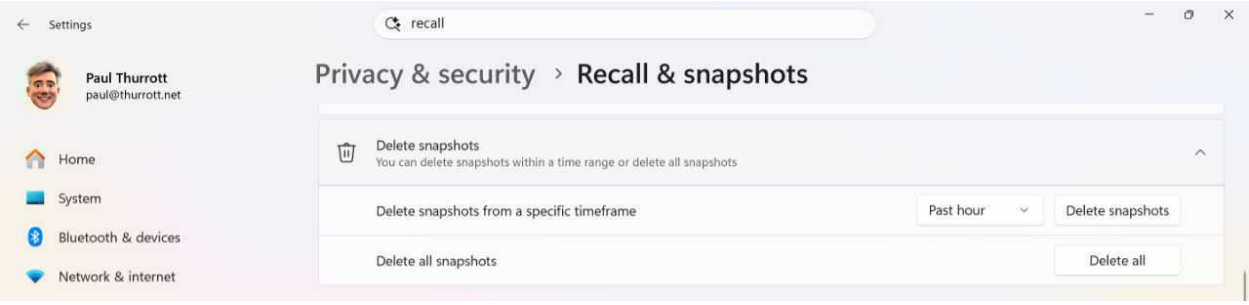
When Recall is enabled, there are several options you can customize in the Settings app by navigating to Privacy & security > Recall & snapshots.



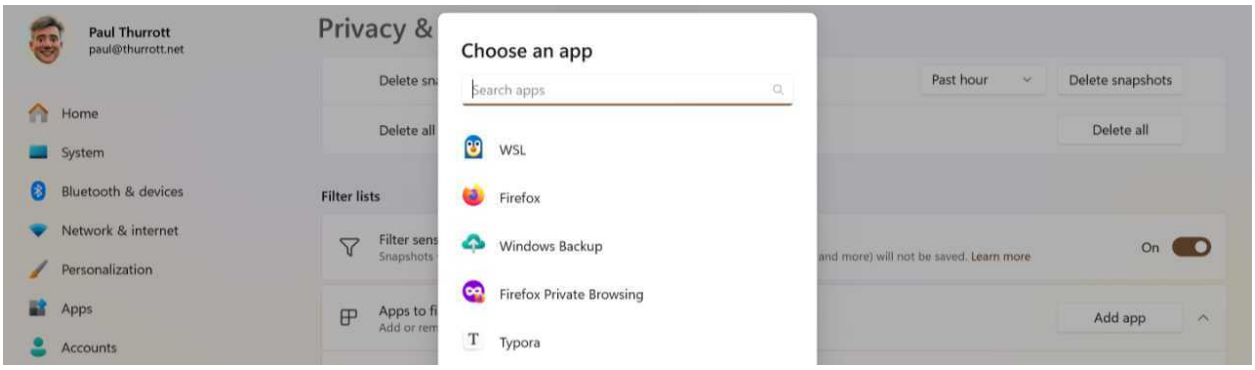
They are:

- **Storage**. By default, Recall reserves 25 GB, 75 GB, or 150 GB of space on your system disk to store snapshots, depending on the size of that disk. It also retains those snapshots for 90 days by default. You can expand this option to configure either of these options differently if desired.

- **Delete snapshots**. You can expand this option to delete snapshots from a specific timeframe ranging from the past hour to the past 30 days or just delete all snapshots.

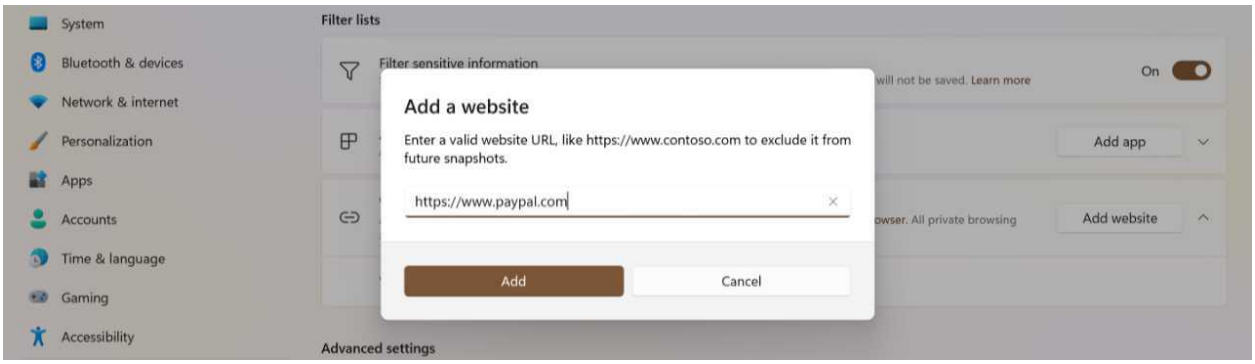


- **Filter sensitive information**. Enabled by default, this option determines whether Recall prevents a snapshot from being saved when it detects a password, credit card number, or other personal information displayed on-screen.
- **Apps to filter**. Here, you can manually add one or more apps to the list of apps that will not be captured by a snapshot.



Learn more: Filter app or website.

- **Websites to filter**. This works similarly to above, but for websites.

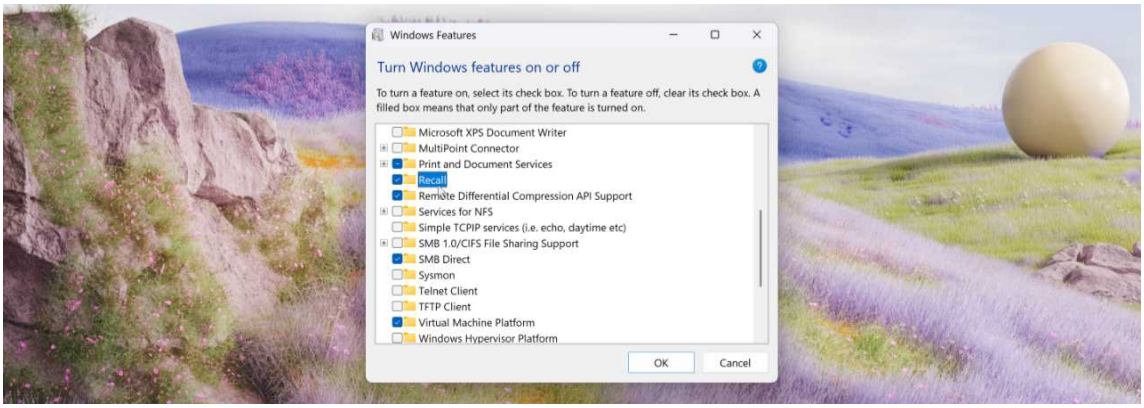


Learn more: Filter app or website.

- **Advanced settings**. When you click this option, Settings opens an Advanced settings page with two options: "Reset Recall," which can be used to remove all Recall customizations, and "Customization," which is enabled by default and provides a Recall home page for you that's customized with your saved snapshots.

Uninstall Recall

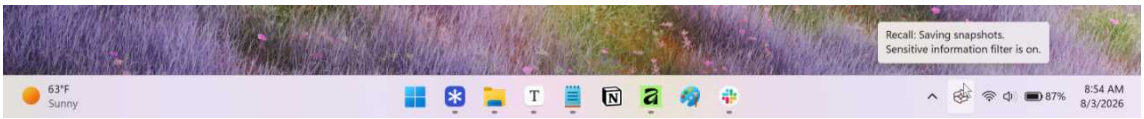
There's no need to do so, but you can uninstall Recall with the Windows Features control panel. To get started, open Start, search for *features*, and select "Turn Windows features on or off" from the top of the search results. The Windows Features control panel appears.



Locate "Recall" in the list of features and click it to unselect it. Then, click "OK" and reboot your PC if prompted to do so.

Interact with Recall as you work

Because it runs in the background, Recall is always accessible via its system tray icon, even when the app isn't running. This icon visually identifies whether Recall is saving snapshots–there's a line through it if not–and you can mouse over the icon to see both its status and whether the sensitive information filter is on.



When you click this icon, a "Recall" flyout appears.

Available options include:

- **Saving snapshots/No snapshots are being saved**. This small text-based entry at the top explains whether Recall is saving snapshots.

- **Most recent snapshot**. A thumbnail of the most recent snapshot appears at the top. You can click this thumbnail to open Recall and view this snapshot in the app.

- **Filter app or website**. Whichever app or website (in a web browser) you are currently viewing will display here so you can click its "Filter" button to prevent Recall from saving snapshots of it on the fly.
- **Open Recall**. Click this button to open the Recall app and browse available snapshots.
- **Pause until tomorrow**. Click this button to pause snapshots until tomorrow.

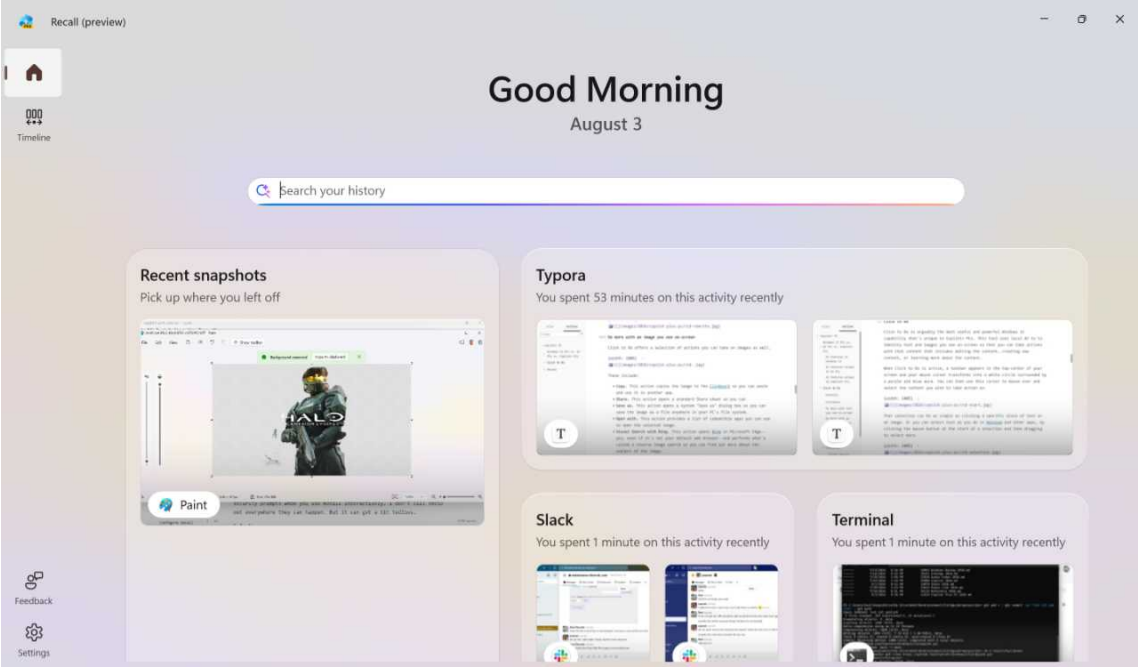
> **Tip**: You can also pause (or restart) Recall snapshots with Quick settings. The "Recall" quick settings button you'll find there acts as a toggle for this feature.

- **More Recall settings**. Click this link to view the Privacy & security > Recall & snapshots page in the Settings app.

Browse and search your Recall snapshots

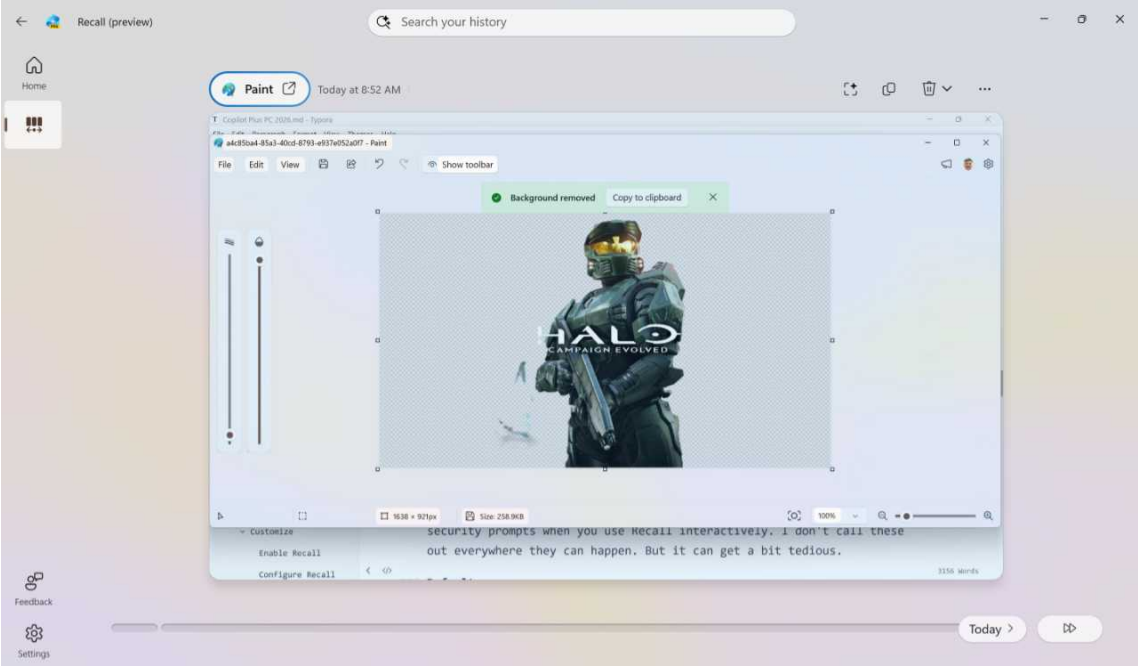
If you want to locate something you saw on-screen in the past, you can open the Recall app to browse and search your snapshots. The Recall app can be launched in several different ways:

- **Start**. You can use Start and Windows Search to find and launch the Recall app.
- **Taskbar**. You can pin a Recall shortcut to the Taskbar and launch it from there.
- **Tray icon**. You can open the Recall app by clicking the "Recall" tray icon and then clicking "Open Recall" in the flyout that appears.
- **Keyboard shortcut**. You can quickly open the Recall app by typing Windows key + J.

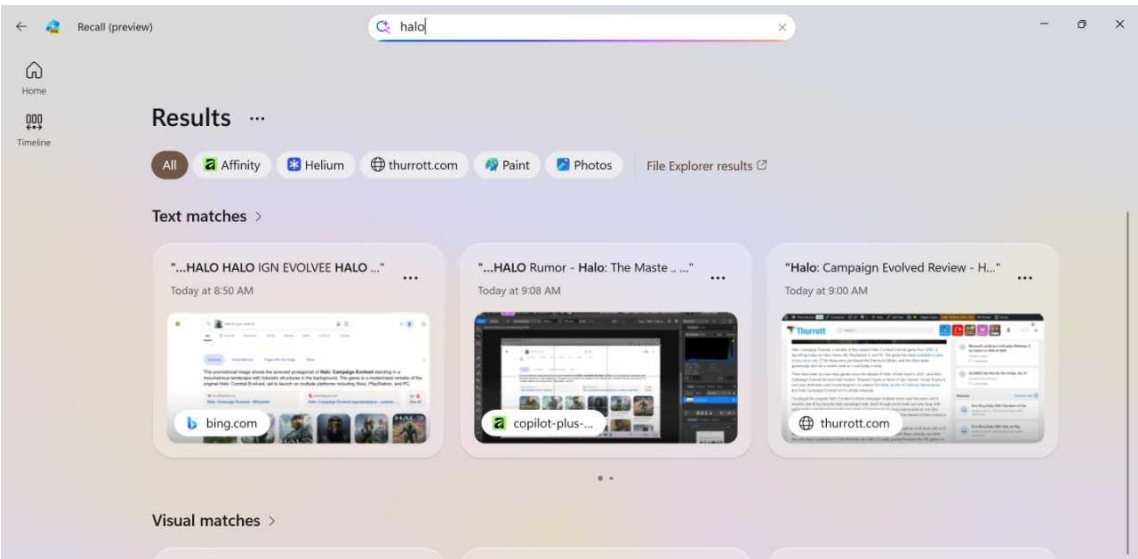


The Recall app has two main views:

- **Home**. The Home page displays a grid of thumbnails for your most recent snapshots and the apps you used most recently.
- **Timeline**. If you want to browse chronologically through all the snapshots Recall has saved, you can do so using a *timeline* interface with a scrubber on the bottom.



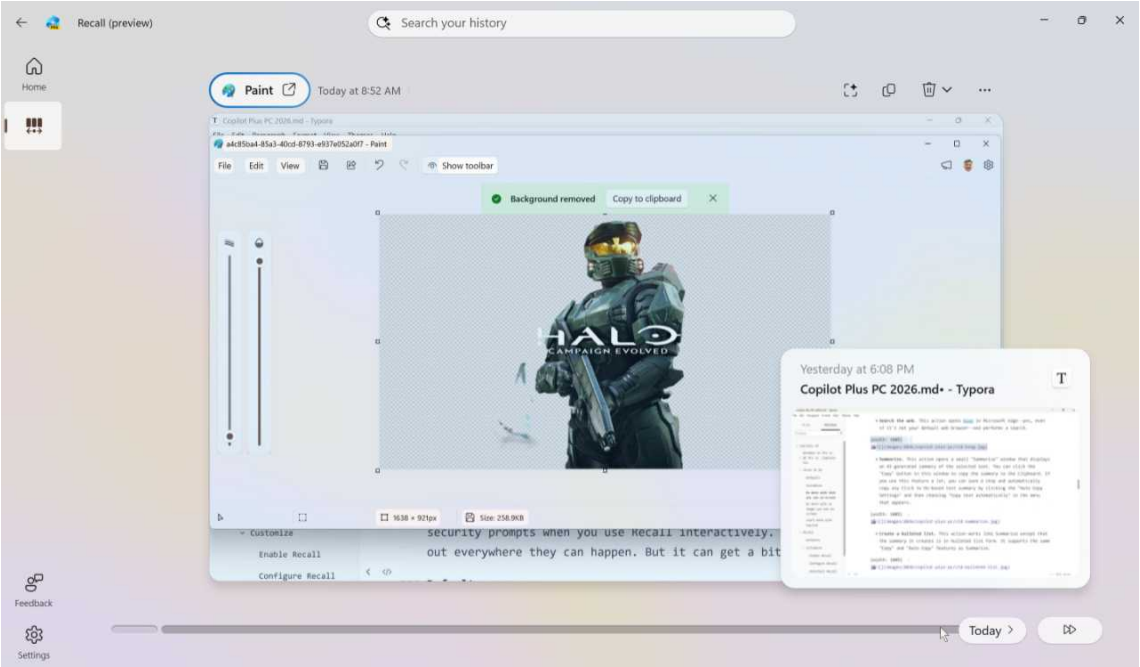
Both views have a prominent search box at the top, and this is probably the best way to find anything with Recall unless you remember the exact date and time of the item you wish to recall. When you search for something with Recall, the results appear as snapshot thumbnails in two sections, Text matches and Visual matches.



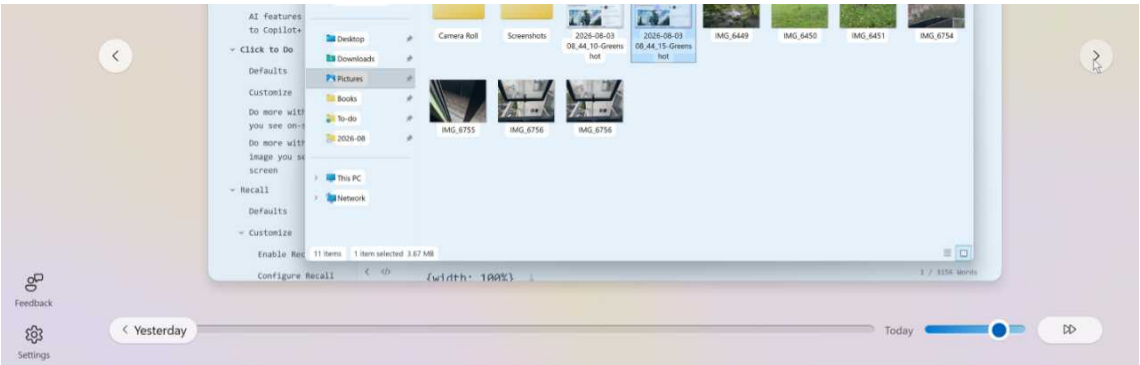
Note that Recall search understands natural language. For example, if you were shopping for a particular clothing item on several e-commerce sites several days ago, you might use a search query like *A green sweater with stripes* or similar.

When you view a snapshot in Recall, Click to Do appears over the captured screen and automat-

ically highlights each text and image element so that you can interact with them. Likewise, the mouse cursor displays as a white circle with a purple and blue aura, as it does when you use Click to Do otherwise, so you can select individual items in the snapshot.



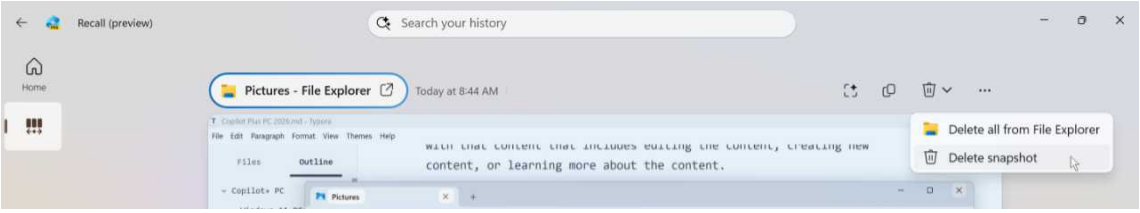
From here, you can navigate backward and forward through the timeline using the scrubber at the bottom or the “Previous snapshot” (“<”) and “Next snapshot” (“>”) buttons that appear on either side of the current snapshot when you mouse into the center of the app window.



In addition to the actions-based capabilities of Click to Do, each snapshot you view in Recall offers the following actions:

- **Jump back to *app name*.** Click this button to open the app depicted in the snapshot.
- **Hide/Show Click to Do.** Click this button to hide (or show) Click to Do and its custom mouse cursor and actions-based options.

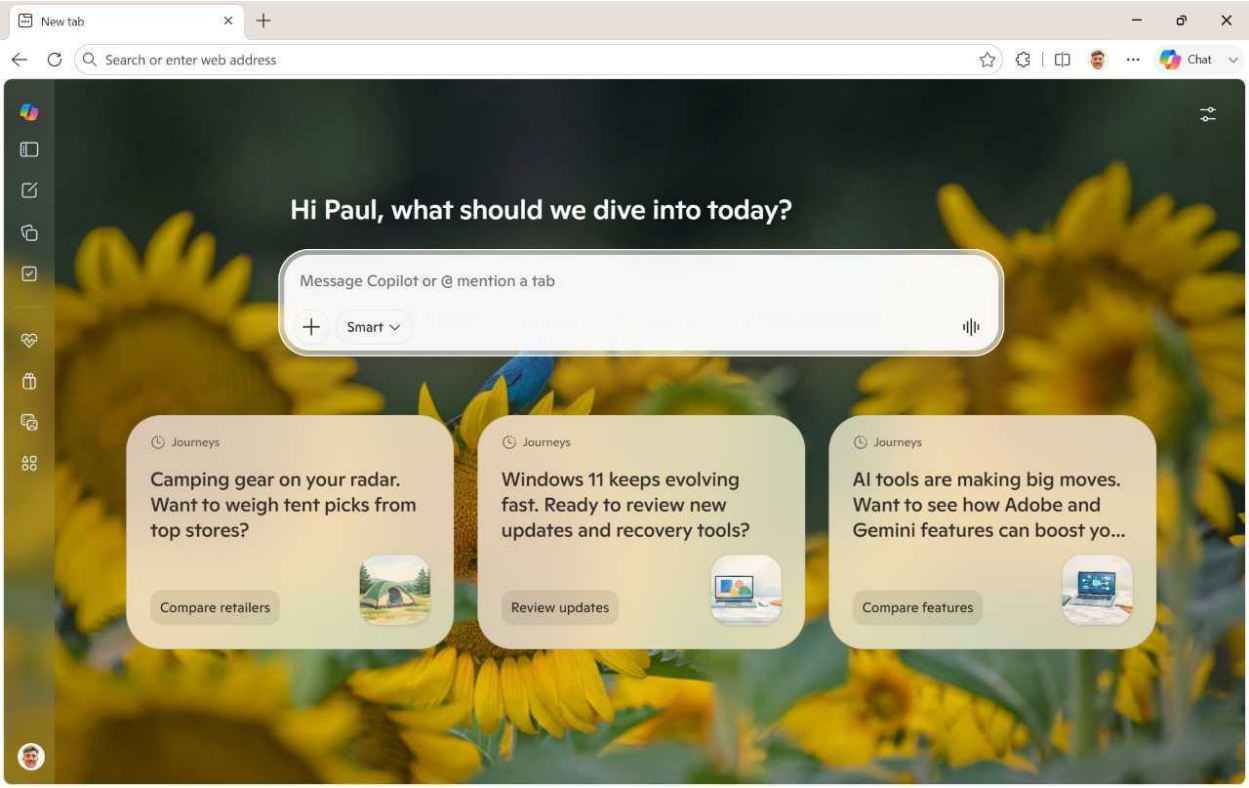
- **Copy snapshot**. Click this button to copy the snapshot as an image to the Clipboard so that it can be pasted in a compatible app like Paint.
- **Delete snapshot/Delete all from *app name***. This split button lets you delete the current snapshot or all snapshots associated with the app you're viewing in the snapshot.



- **Edit with Snipping Tool**. This self-explanatory button lets you edit a copy of the snapshot in the Windows 11 screenshot utility, Snipping Tool.

Microsoft Edge

Microsoft Edge is the default web browser and PDF reader in Windows 11, and the modern and capable successor to the Internet Explorer browser of yesteryear. It's built on the same *Chromium* web platform that Google uses for Chrome, but it integrates more deeply with Windows and Microsoft online services–most notably Copilot–than other browsers.



Addressing the elephant in the room

Unfortunately, Microsoft also uses Edge as a vector for some of the worst behaviors in Windows 11, significantly undermining its value. For this reason, it's important to configure Microsoft Edge correctly, whether you expect to use it regularly or not.

The pros and cons of Microsoft Edge

Microsoft Edge is the most important in-box app included with Windows 11 because web browsers are, by far, the most often-used apps on our PCs. But they're also the gateway to two

massive and lucrative markets–subscription services and online advertising–that are strategic to Microsoft. For this reason, Microsoft *enshittified* Edge, as it did with Windows 11, so that it ignores customer needs and choices and forces Microsoft's bad behaviors on us all.

Some of those behaviors include:

- **Microsoft Edge tracks you online**. Microsoft Edge tracks your online activities so Microsoft can harvest your personal data, target you with advertising, and sell that information to other data brokers and online advertisers that will expand this abuse.
- **Microsoft Edge ignores your default browser choice**. If you configure another web browser as the default, Microsoft Edge will still appear when you perform certain actions in Windows 11, ignoring your choice. These instances include clicking a widget or news feed article in Widgets, clicking a web link in Search highlights, clicking a web link in the Get Help in-box app, using Copilot in Windows 11, and more.
- **Microsoft Edge ignores your browser customizations**. If you customize certain Microsoft Edge features, it will harass you to change them back to defaults that benefit Microsoft. This happens when you change the default search engine away from Bing, disable certain features in the default New Tab page (which displays content from Microsoft Start and other Microsoft online services), change the New Tab page to a third-party option, and more. In some cases, Edge will even change the configuration back to the Microsoft default without informing you.
- **Microsoft Edge harasses you to enable optional features that will expose you to even more Microsoft tracking and advertising**. Even if you make no configuration changes to Microsoft Edge, the browser will still harass you. It will occasionally prompt you to make configuration changes that it claims are for your benefit but are designed only to ensure that you are exposed to more online tracking, data harvesting, and Microsoft advertising. These suggestions use language like "Make Microsoft Edge better for you and others" to misrepresent the true intent of the configuration changes it wishes you to enable.

My recommendation is to choose a safer and more private web browser, like Brave or Mozilla Firefox. And not Google Chrome, which is just as toxic and dangerous as Microsoft Edge. But no matter which browser you choose, you need to make specific configuration changes to Microsoft Edge. And that's true even if you never intend to use Edge.

So let's get started there.

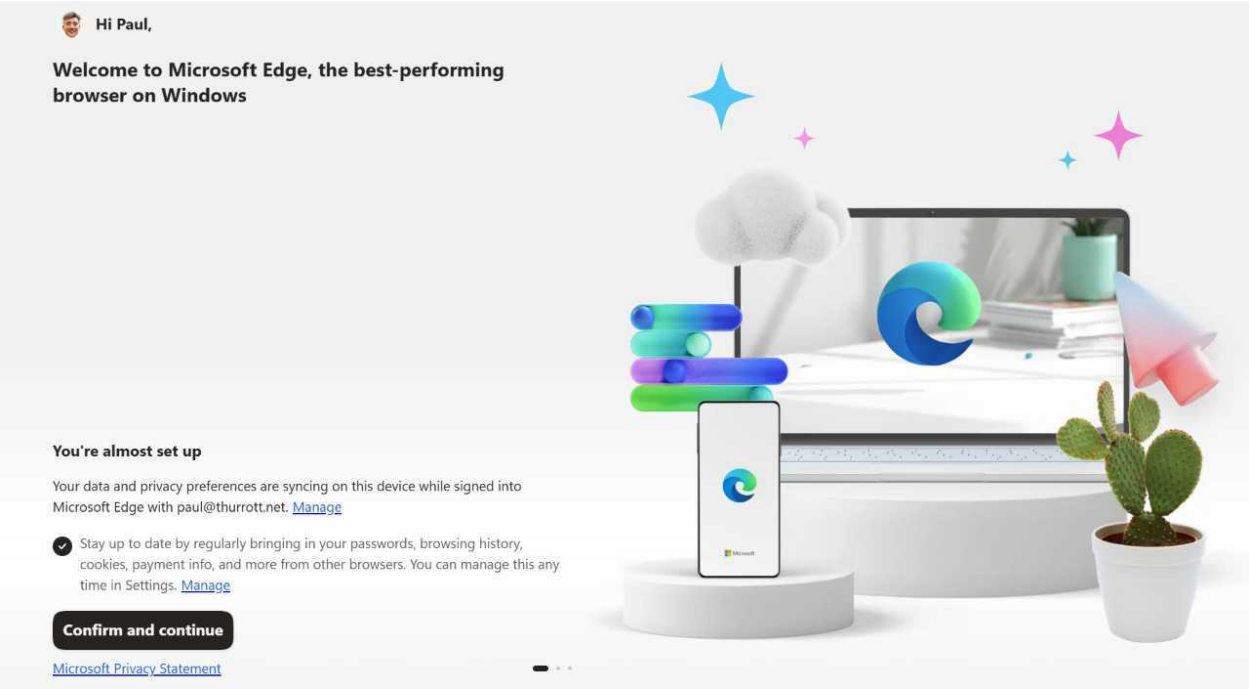
Set up Microsoft Edge correctly … whether you use it or not

The first time you run Microsoft Edge, you step through a short wizard in which each step tries to convince you to enable more tracking or configure the browser in ways that benefit Microsoft and

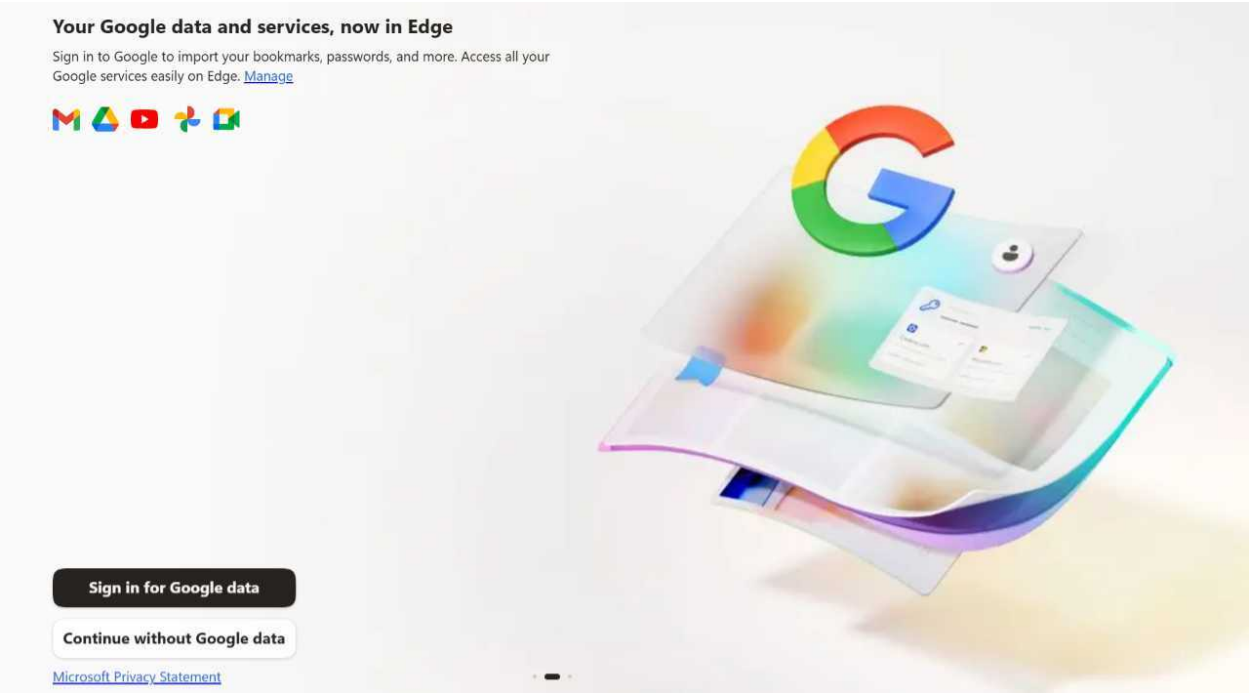
harm you. If you already set up Edge, I explain here how you can properly reconfigure it as well.

This is how you configure Microsoft Edge correctly.

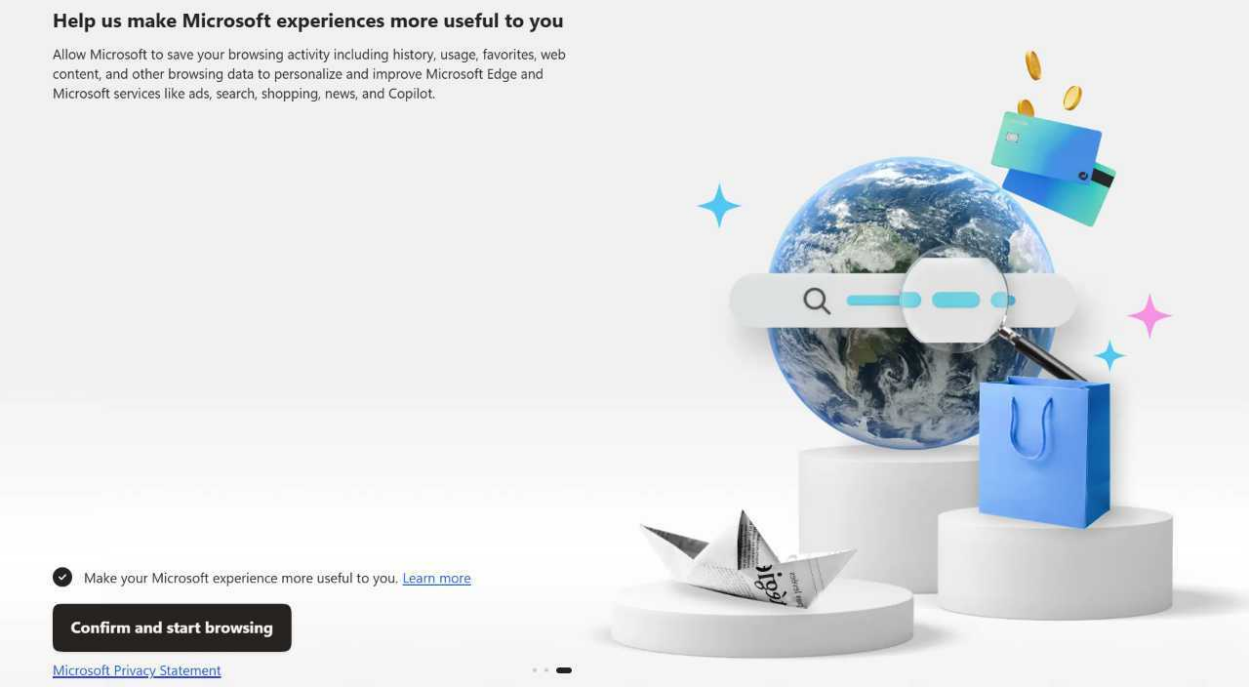
Welcome to Microsoft Edge, the best performing browser on Windows. In this first step, you are asked to sign in to a Microsoft account (MSA) if you signed in to Windows 11 using a local account. Otherwise, Edge assumes you want to sign in to Edge using your MSA so you can use your synced favorites, history, passwords, and other data. You can skip over the MSA requirement or manage which data you sync through that MSA to this install of Edge. If you are going to use Edge, you almost certainly want this sync capability enabled. But either way, you can manage what syncs at any time in Edge settings > Profiles > Sync.



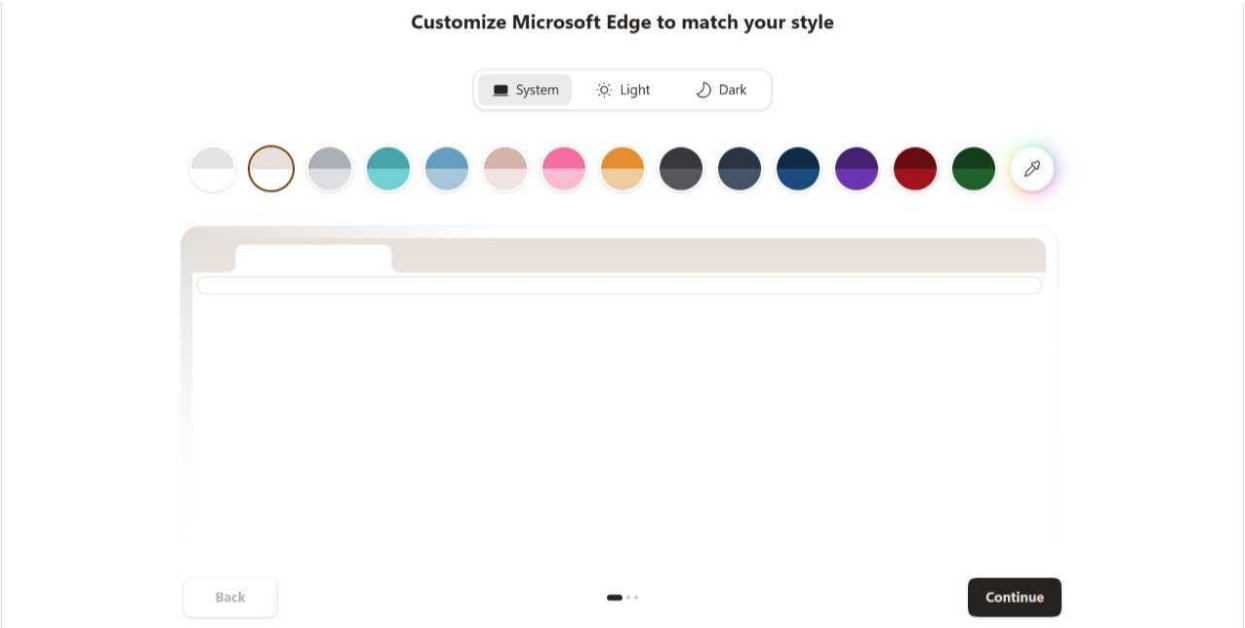
Your Google data and services, now in Edge. Here, Edge prompts you to sign in to your Google/Gmail account so that it can silently import all (or, via the "Manage" link, some) of the data you typically sync with the Chrome web browser. It will sync this data every time you launch Edge, and leaving this enabled only makes sense if you intend to switch from Chrome to Edge like a crazy person. But I recommend disabling this feature, as it's more about data collection and targeted ads than about making your life easier. You can disable this feature at any time in Edge settings > Profiles > Import browser data > Import browsing data at each browser launch.



Help us make Microsoft experiences more useful to you. This nefarious screen is purposefully worded in a way that makes the configuration it enables by default seem beneficial to you, but the sole aim is to advance Microsoft's strategies by exposing you to more online tracking, data harvesting, and Microsoft advertising. So uncheck "Make your Microsoft experience more useful to you." And if it's too late, you can configure this at any time by navigating to Edge settings > Privacy, search, and services > Privacy: There, you can disable the option "Allow Microsoft to save your browsing activity including history, usage, favorites, web content, and other browsing data to personalize and improve Microsoft Edge and Microsoft services like ads, search, shopping, news, and Copilot." Yes, that's the name.



Customize Microsoft Edge to match your style. Before you can start browsing, Microsoft Edge opens two tabs, one to promote new features and one to help you continue customizing Edge over three separate pages. In the first, you can optionally select a color scheme, while the next two are for configuring the feed layout of the New tab page and tabs orientation, and then pinning "favorite" (read: sponsored) websites not to Edge, but to the Windows 11 Taskbar. You can configure the color scheme, the tabs orientation, and related settings in Edge settings > Appearance. And if you use the default Edge New tab page, which I do not recommend, you can customize that page directly.



Features to customize if you are going to use Microsoft Edge

If you are going to use Microsoft Edge, you should also make the following configuration changes immediately:

- **Configure the Home view**. By default, Microsoft Edge opens the New tab page by default, which means that it will not restore all previously opened tabs when you relaunch the browser or reboot your PC. I recommend changing that. Navigate to Edge settings > Start, home, and new tab page and change "On startup" to "Open tabs from the previous session."
- **Customize the New tab page**. Microsoft is evolving the default New tab page in Microsoft Edge this year, so you could see the traditional New tab page or the new Copilot New tab page. Unless you're a dedicated Copilot fan, you don't want either. I recommend using an extension like Bonjourr or Momentum.
- **Minimize the tracking and personal data harvesting**. Microsoft Edge violates your privacy by default, so you should minimize that behavior by installing the appropriate browser extensions I recommend Privacy Badger, uBlock Origin, and Adblock Plus.

What to do if you are not going to use Microsoft Edge

If you are *not* going to use Microsoft Edge, you should make the following configuration changes immediately:

- **Install a better web browser and configure it as the default in Windows 11**. You do that in the Windows 11 Settings app by navigating to Apps > Default apps and then finding your

preferred browser in the list. Click "Set default"–this will associate two file types (.htm and .html) and two link types (HTTP and HTTPS) with your new browser, and then be sure to configure this browser to open PDF files as well.

- **Configure Windows 11 to minimize the impact of Microsoft Edge**. By default, Microsoft Edge starts up silently in the background, consuming resources even if you don't use the browser. To prevent that, open the Settings app, navigate to Apps > Startup, locate Microsoft Edge in the list and configure it to "Off."
- **Prevent Microsoft Edge from ignoring your default web browser choice**. There is no built-in control in Windows 11 to fully prevent Microsoft Edge from popping up from time to time. But you can use a free and open source third-party utility called MSEdgeRedirect to shackle Microsoft Edge. When you install this utility, just choose "Active mode" and ignore the other options.
- **Optionally uninstall Microsoft Edge**. If you live in the EU, Microsoft was forced by antitrust regulators to let customers fully uninstall Microsoft Edge in Windows 11. But the rest of the world has to rely on workarounds, which I find dicey, or a third-party utility to accomplish this. I recommend Win11Debloat: When you run this utility, choose "Custom Setup" and then find and select Microsoft Edge in the list of apps in "App Removal." Skip over the "System Tweaks" page and then apply the changes. Win11Debloat will warn that it must use a more stringent removal method to get rid of Edge. Let it do so.

Defaults

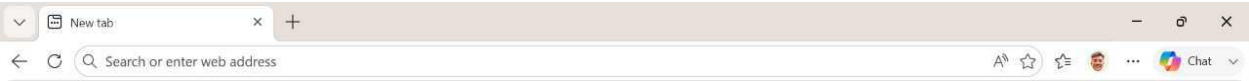
When you first sign in to Windows 11, its integration with Microsoft Edge is immediately obvious. Some key defaults include:

- There is a shortcut to Microsoft Edge on the Desktop, and Microsoft Edge is pinned to the Taskbar in addition to being available in the Pinned and All sections in Start.
- Microsoft Edge is configured as the default web browser, so it is the app that opens for all the most common web file types and URL types associated with web browser.
- Less obviously, Microsoft Edge is more than the default web browser. It's also secretly wired to open links you click in the Settings app, Windows Search, Widgets, and other interfaces in Windows 11, and it will retain that integration even if you configure another web browser as the default.
- Microsoft Edge is configured as the default PDF reader.
- If you sign in to Windows 11 with a Microsoft account (MSA), that account is used to sign in to Microsoft Edge so that you can sync settings and passthrough that authentication as needed when you access Microsoft websites and third-party websites that offer MSA integration.
- Microsoft Edge includes an integrated version of Microsoft Copilot, the software giant's AI assistant and if you don't enable the new Copilot New tab page, it will berate you to do so.
- The three tabs you used most recently in Microsoft Edge are included in the Alt + Tab multitasking interface as if they are each standalone apps.

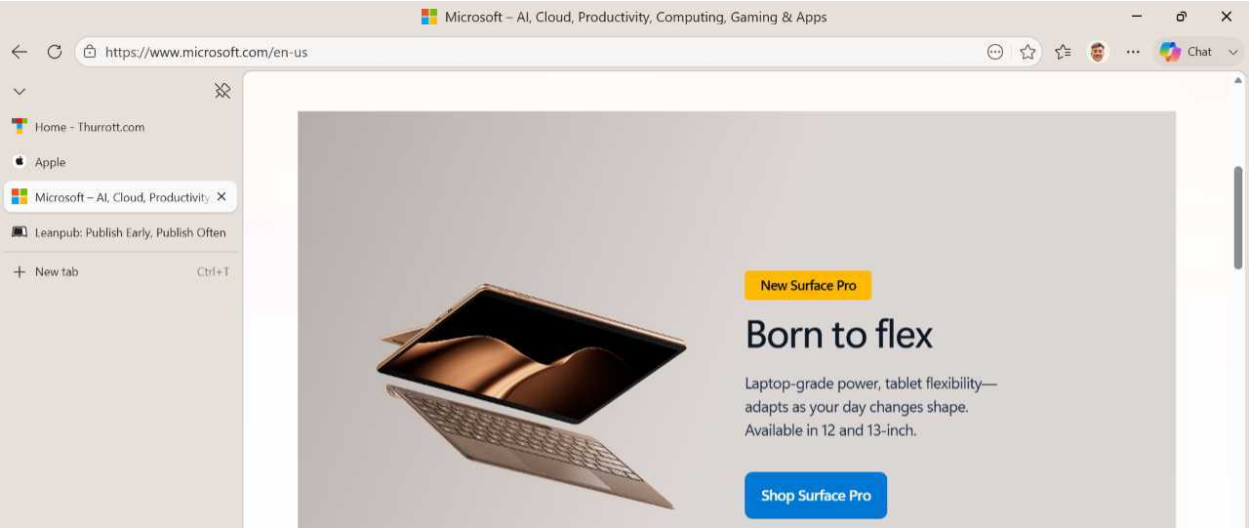
Microsoft Edge basics

As a modern, full-featured web browser, Microsoft Edge offers all the standard functionality you expect from using Google Chrome and other alternatives. Key among these features are:

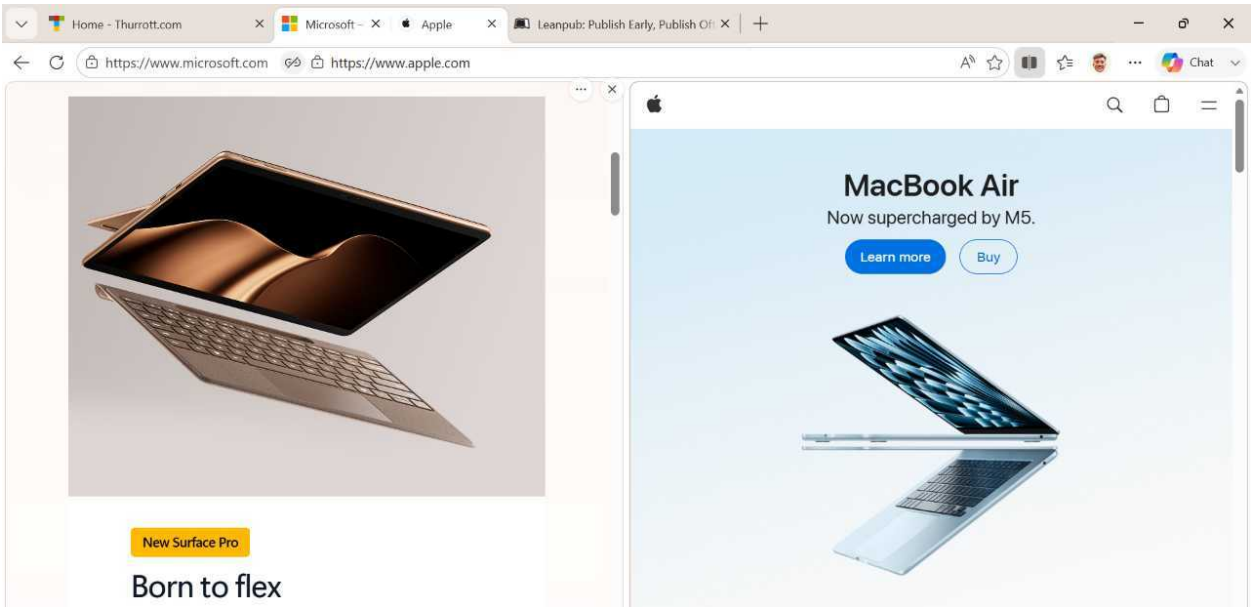
- **Toolbar and address bar**. Microsoft Edge provides a somewhat minimal toolbar by default, with a large address bar in the middle , "Back" and "Refresh" buttons to its left and several other buttons to its right. Other items can appear here contextually–like a "Forward" button once you navigate away from the initial page displayed in a tab–and this part of the browser is highly configurable. You can customize which buttons appear in the Edge toolbar by navigating to Edge settings > Appearance > Toolbar.



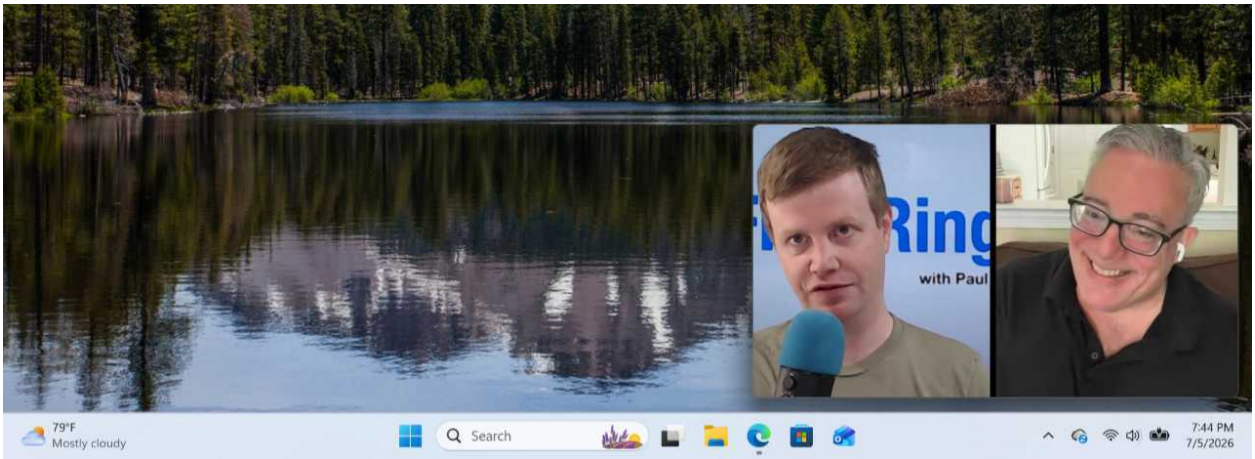
- **Tabs**. The tabs functionality in Microsoft Edge is familiar. You can pin tabs, drag and drop tabs to reposition them, group tabs, and display tabs vertically if you prefer that to the default landscape orientation. You can configure that and related settings–like the ability to hide the app's title bar when using vertical tabs–by navigating to Edge settings > Appearance > Tabs.



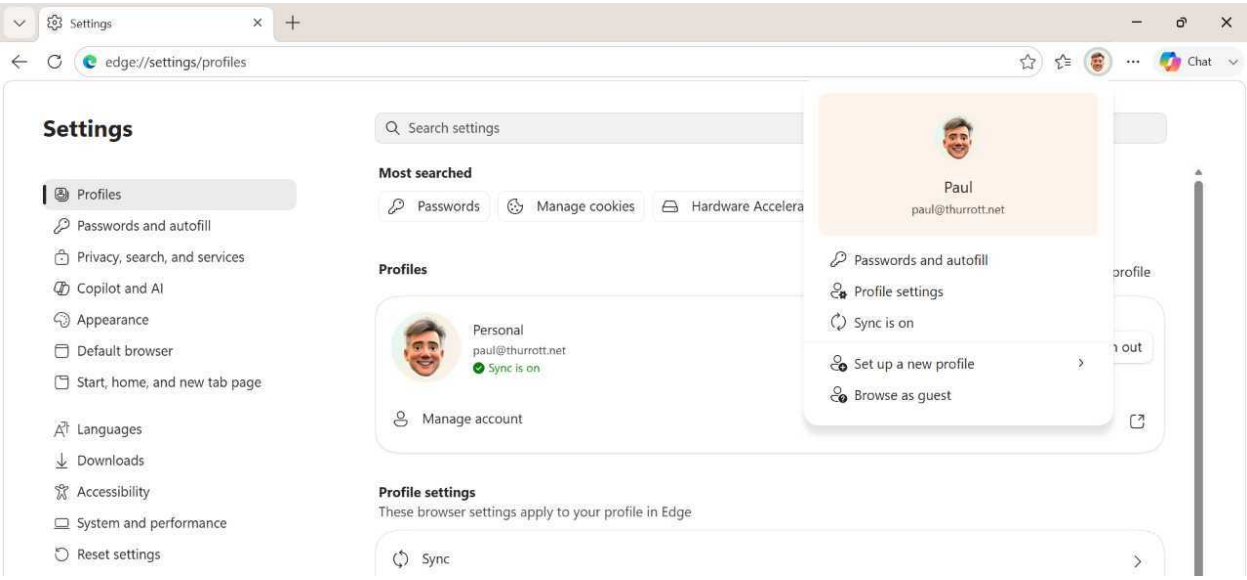
- **Split screen**. This recent addition lets you display two webpages side-by-side in the same tab so you can multitasking without having to navigate between tabs.



- **Favorites and History**. While most other browsers have a Bookmarks feature, Microsoft Edge uses the term Favorites instead. Other than the name, Favorites works as expected, as does the browser's History view that displays your browsing history.
- **Downloads**. When you try to download a file using Microsoft Edge, the browser will prompt you to open or save the file by default. But you can configure this to just download files, similar to Chrome and other browsers. You do so in Edge settings > Downloads.
- **Search engine**. Microsoft Edge is configured to use Microsoft Bing as the default search engine. No one wants that, so navigate to Edge settings > Privacy, search, and services > Search and connected experiences > Address bar and search > Search engines to change this to Google Search or your preferred search engine.
- **Extensions**. Like other web browsers, Edge lets you add optional features to the browser using *extensions*. You can find and download new extensions from the Edge Add-ons website and the Chrome Web Store.
- Themes. Thanks to its Chromium underpinnings, Edge supports color themes that can nicely customize the look and feel of the browser. You configure the theme at Edge settings > Appearance, where you will find a unique AI Theme Generator feature too. And as with extensions, you can download new themes from the Edge Adds-on website or from the Chrome Web Store.
- **Media features**. Microsoft Edge works as expected with popular media-playing websites, but it also offers some unique features. You can open videos from YouTube and other compatible services in a Picture in Picture mode that displays outside the browser, mute a tab that is playing audio, and, perhaps most crucially, block media autoplay entirely. To do that, navigate to Edge settings > Privacy, search, and services > Site permissions > All permissions > Media autoplay.

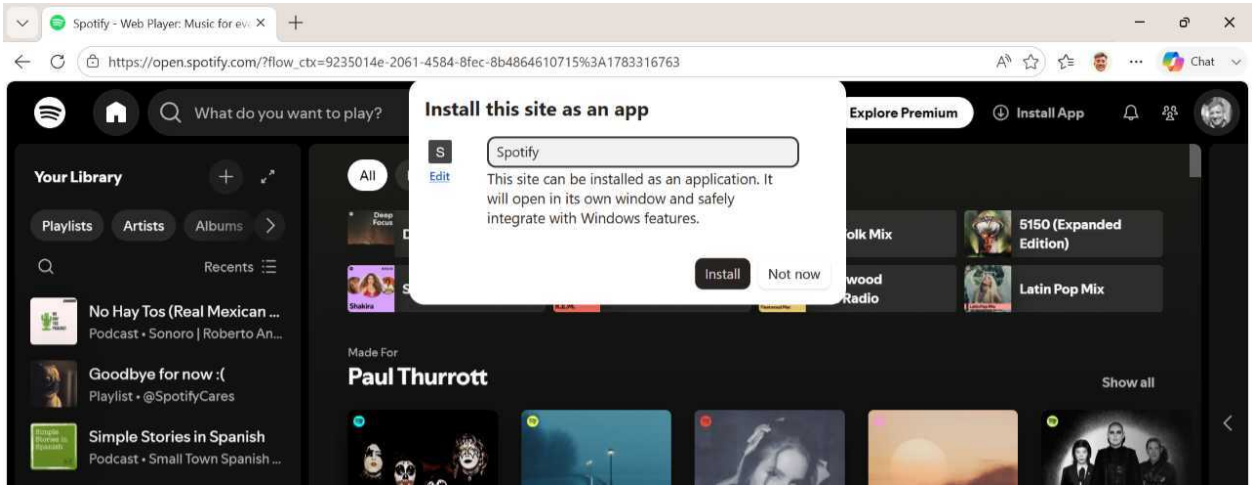


- **Profiles**. When you sign in to Windows 11 with a Microsoft account (MSA), Microsoft Edge will use that MSA as your default profile. But you can configure other profiles, so you can sign-in with different email addresses and keep their browser experiences separate. And this can include different personal and work profiles, the latter of which will use a work-centric Edge for Business configuration that can be centrally managed by your organization. You can configure profiles in Edge settings > Profiles and switch between available profiles using the "Profiles" button to the right of the Edge address bar.

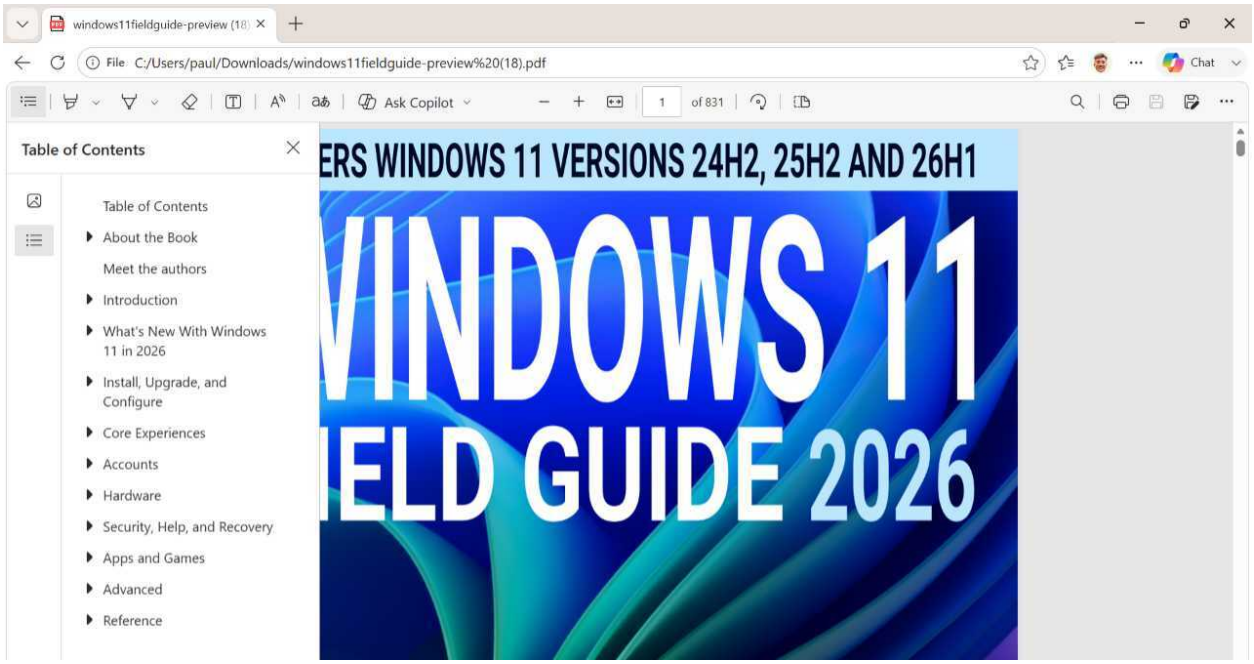


- **Workspaces**. Microsoft Edge lets you create named *workspaces* in their own windows with unique color schemes, tabs, and favorites when you wish to create a project or collaborate with others on a shared project. You can work alone, invite collaborators,
- **Web apps integration**. If you visit a website that can be installed as an app in Windows 11, you can do that by selecting the "Settings and more" ("...") menu in Edge and then More tools

> Apps > Install this page as an app. In fact, this works with any page, though webpages that aren't apps can't be used offline, of course.



- **PDF reader**. Like other modern web browsers, Microsoft Edge offers PDF reading and editing capabilities. This experience is powered by Adobe Acrobat and provides markup capabilities, a Read aloud feature, Copilot-based translations, summaries, and explanations, and document search, among other things.

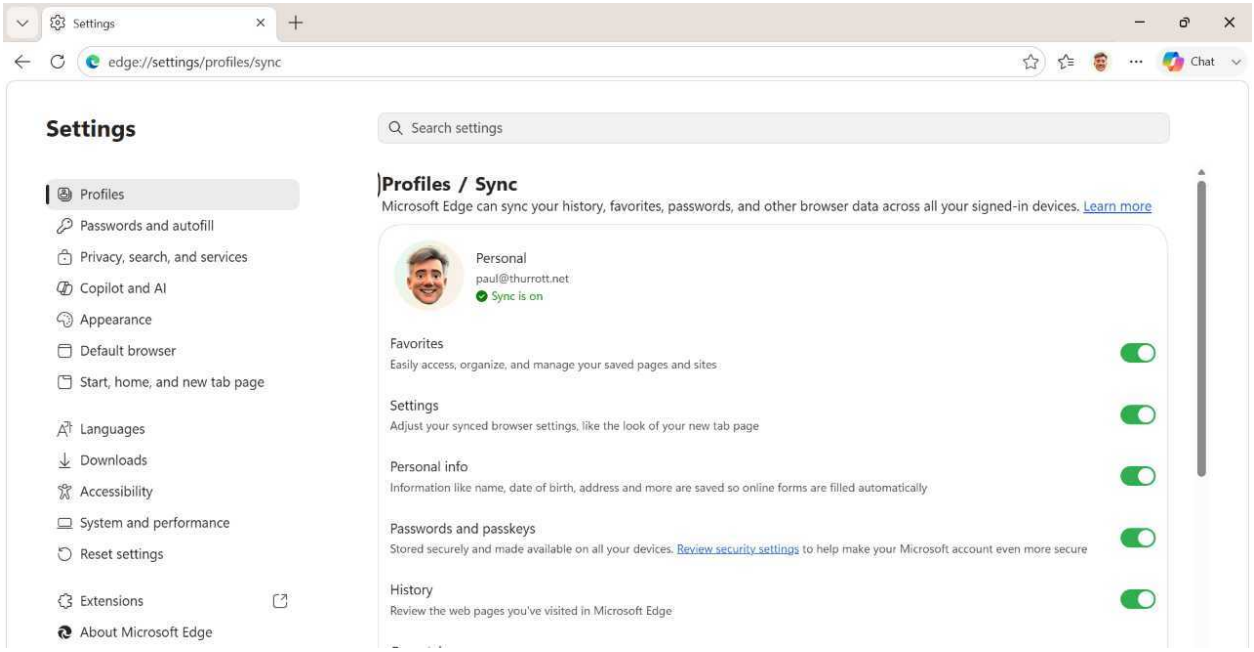


Unique and notable Microsoft Edge features

In addition to all the features you expect in any web browser, Microsoft Edge also offers various unique differentiators.

Microsoft account settings sync

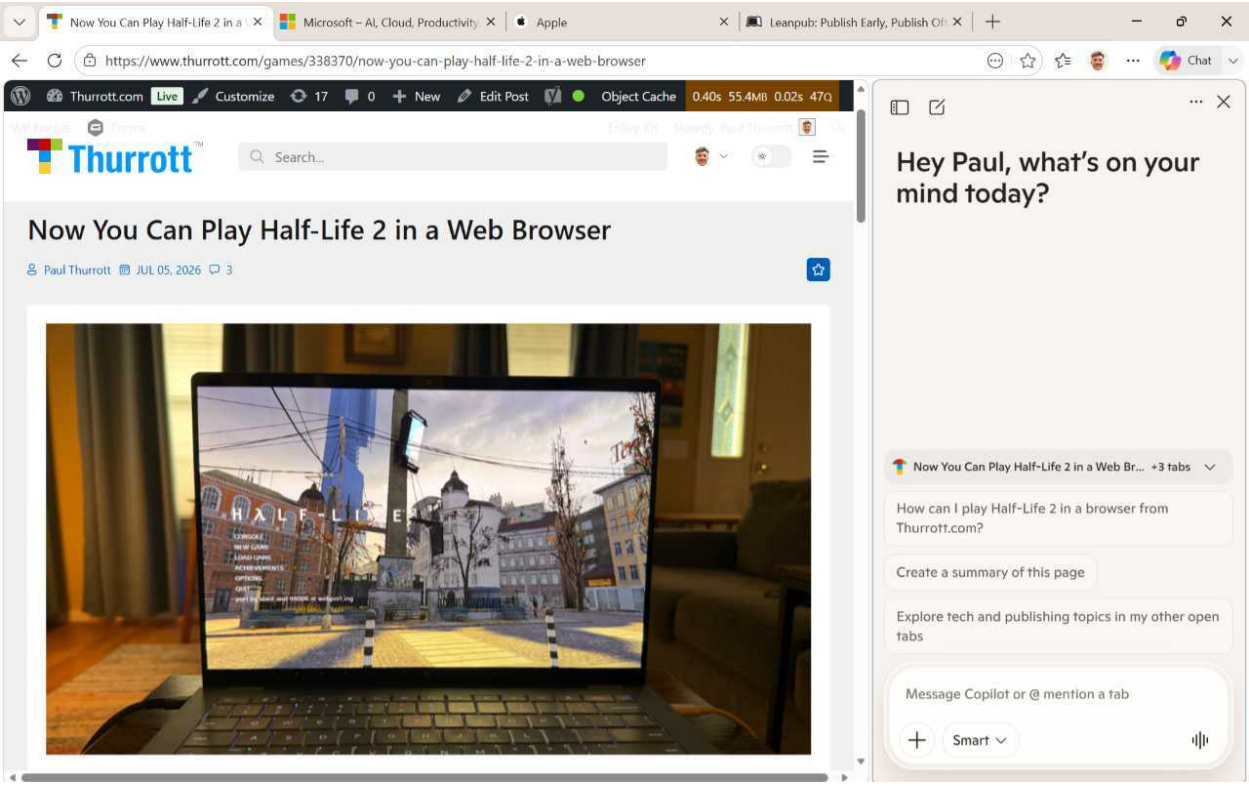
By default, Microsoft Edge syncs many browser settings, including your saved passwords and passkeys, browsing history, open tabs, extensions, and more through your Microsoft account. Each time you sign-in to Edge with that account, whether it's on Windows 11, Linux, a Mac, or a mobile platform like Android, iPhone, or iPad, those settings will sync and give you a cohesive multi-device configuration. If that's what you want, there's nothing to do per se. But you can configure this behavior and reset your sync data if needed in Edge settings > Profiles > Sync.



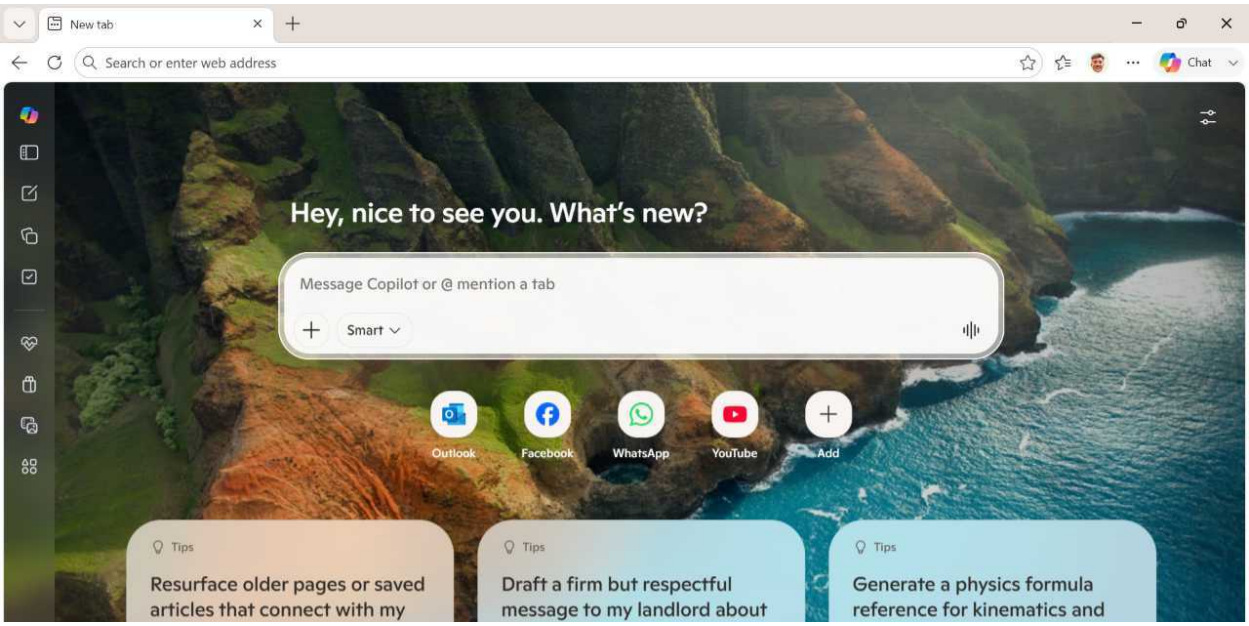
Copilot integration

Microsoft Edge provides an integrated version of Copilot, Microsoft's AI assistant. It pops up from time to time as needed, but there are two primary access points if you want to interact with Copilot directly:

- **Copilot sidebar**. This is available by default by clicking the rather prominent and rainbow-colored "Chat" button in the far right of the Edge toolbar.



- **Copilot New tab page**. If you configured Copilot to be your New tab page in Edge, you can display a full-featured Copilot experience just by opening a new tab.



Because the Copilot button and sidebar are enabled by default, I will focus on that experience here. But both look and work much like Copilot in Windows 11 and other standalone AI assistants like Anthropic Claude and OpenAI ChatGPT.

So why use an integrated AI assistant? Standalone AI assistant apps work fine, but there are some advantages to having an integrated AI assistant in your web browser.

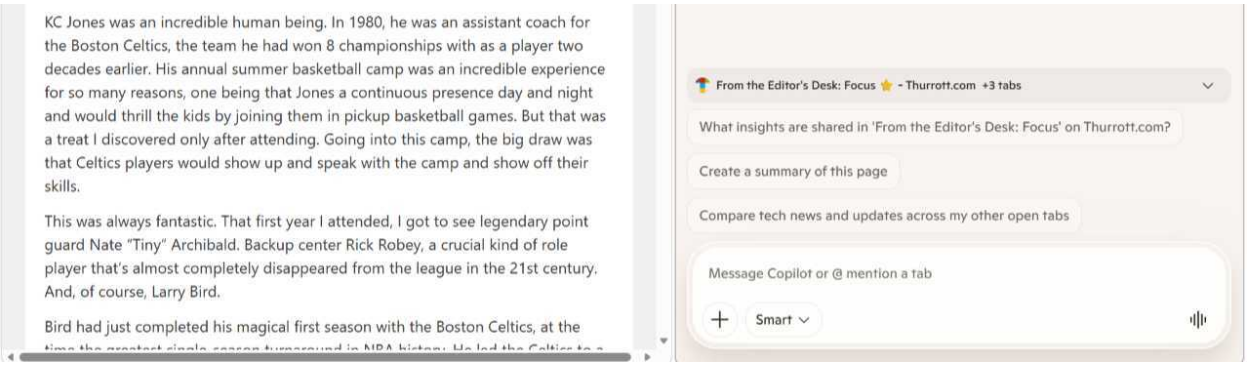
First, Copilot opens in a pane next to the content you're viewing online, making it easier to interact with the AI while you browse the web.

And though Copilot is free with usage limits, those who have and are the owner of a Microsoft 365 consumer subscription get higher usage limits than those on the free plan. If you sign in to Windows 11 and Edge with the same Microsoft account that's associated with Microsoft 365, this is a nice bonus.

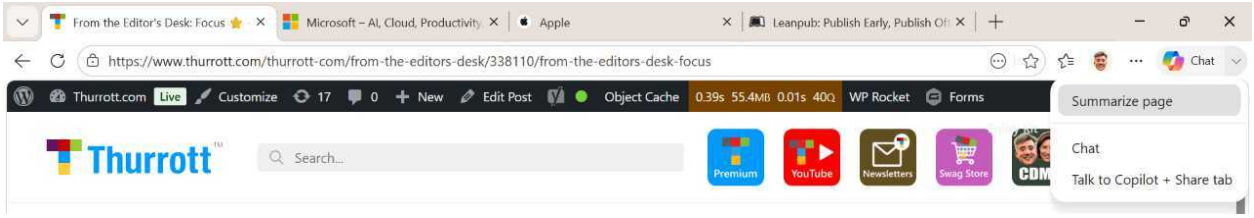
Finally, because you're syncing through your Microsoft account, your conversation history and other activities in Copilot will sync between the Edge-based Copilot and other Copilot apps you may use in Windows 11, a Mac, a mobile device, or on the web. It's all one Copilot, so to speak.

Toggle the Copilot pane

Copilot appears in a pane on the right side of the Edge window. It's almost identical to the full Copilot app in Windows 11. It's constrained to that space within the browser, but you can resize the pane as needed, too.



To toggle this pane on or off, click the "Chat" button in the Edge toolbar. You can also click the right side of this button, called "Copilot menu," to access the Summarize page or Talk to Copilot and Share tab directly.

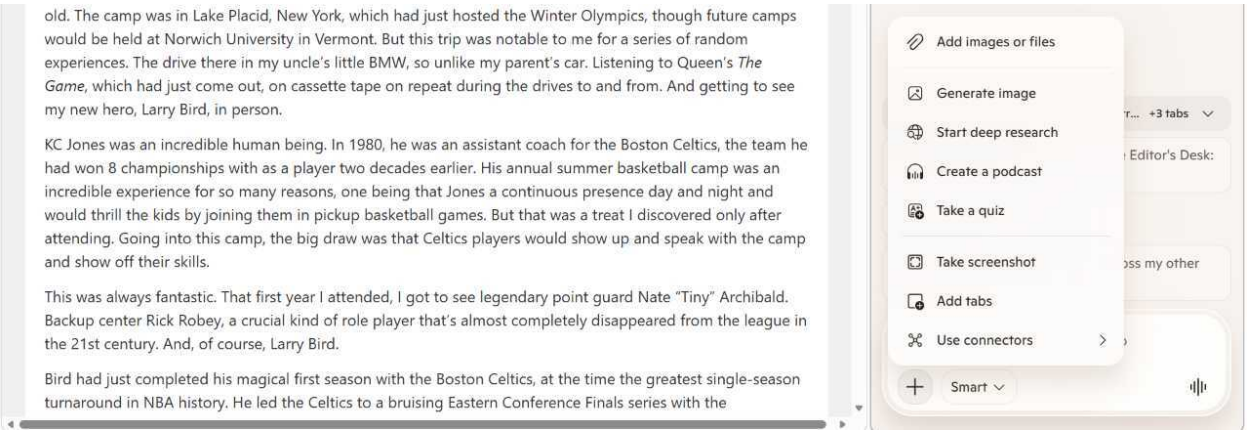


> **Keyboard shortcut**: You can toggle the Copilot pane on/off more quickly by typing Ctrl + Shift + . (period).

Common Copilot capabilities

Copilot is a deeply capable experience with new features coming online all the time, and trying to stay completely up-to-date with that is difficult. But some of the key Copilot capabilities you should know about include:

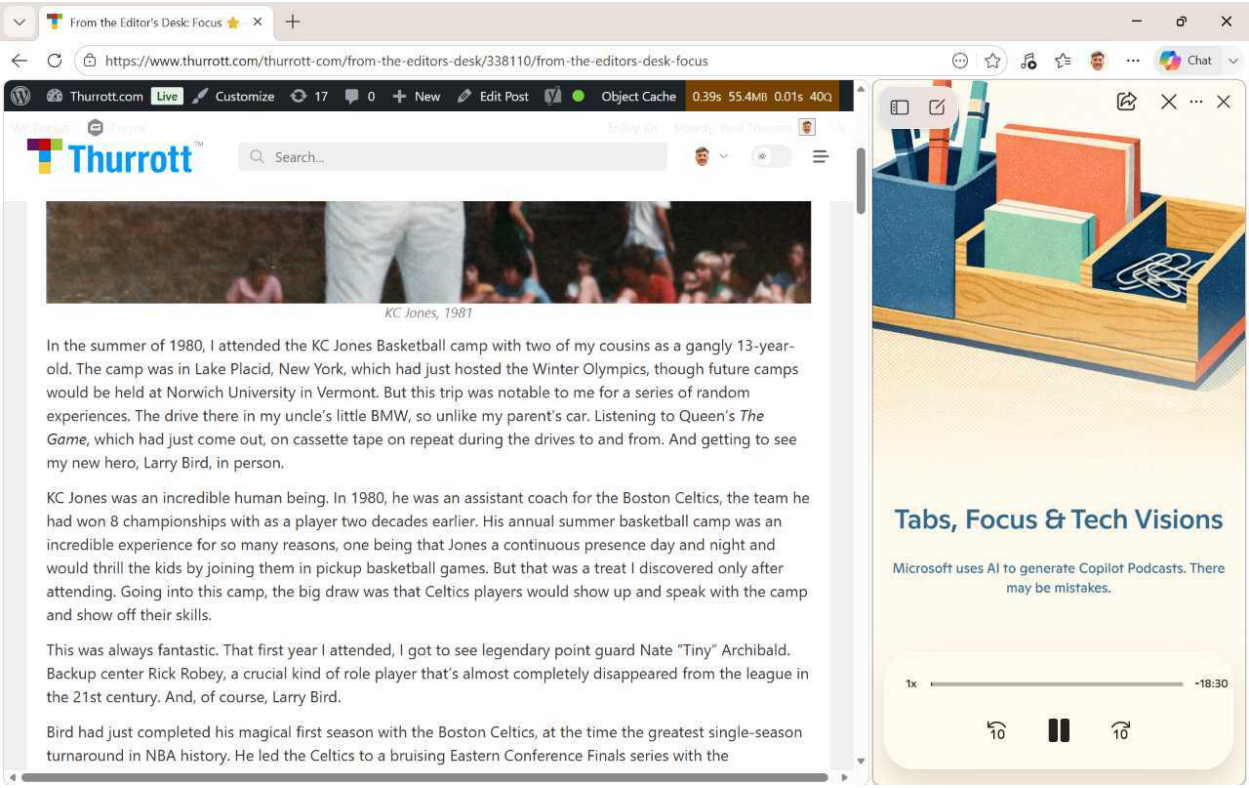
Chat. Unless you're viewing an article or PDF file, Copilot in Edge will display with a standard Chat interface. You can use one of the provided hints as a starting point, type a prompt in the chat box, and do all standard AI assistant interacts. Less obvious, perhaps, the "Attach" ("+") button to the left of the chatbox provides a way to add images or files, generate an image, start deep research, use connectors, and more. You can also click the "Talk to Copilot" button to interact with the AI using your voice.



Access previous Copilot conversations. Click the "Open sidebar" button in the top left of the Copilot sidebar to display your conversation history with Copilot (yes, a sidebar within a sidebar) and other options.

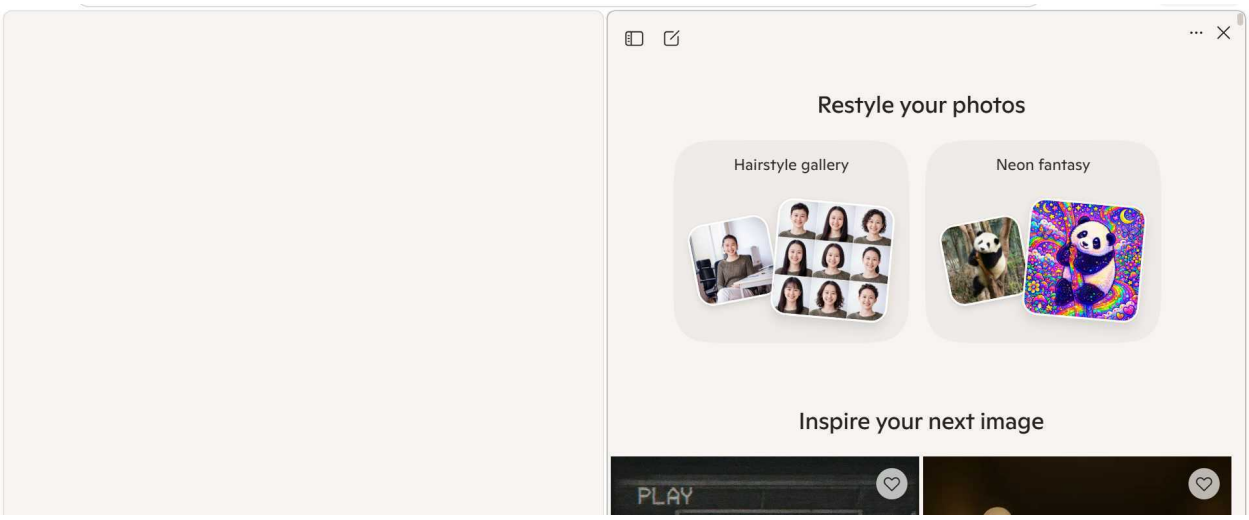
Learn more about an article on the web or a PDF. When you open an article on the web, the hints above the chat box will change to indicate things you might want to do with this article, like get a summary, generate a podcast, and so on. And it will assume when you chat that you want to converse about the article you're viewing.

Create a podcast from a webpage. This option examines an article or PDF file you're viewing in Edge and creates an audio summary–a "podcast"–so you can listen to that instead of reading it all (or using the Reader Mode feature Read aloud to listen to the whole thing verbatim). These summaries can take time to complete, but Edge will notify you when it's ready, and the podcast will be available in your conversation history in any instance of Copilot later.



Access Copilot Tasks, Health, and more. You can access unique Copilot experiences like Tasks, Health, Shopping, and Pages from the Copilot sidebar.

Create or restyle a photo or image. You can use Copilot in Microsoft Edge to create new images or restyle an existing photo or image. There are a couple of ways to do that, but the "Imagine" option in the Copilot sidebar provides a nice frontend to these capabilities.

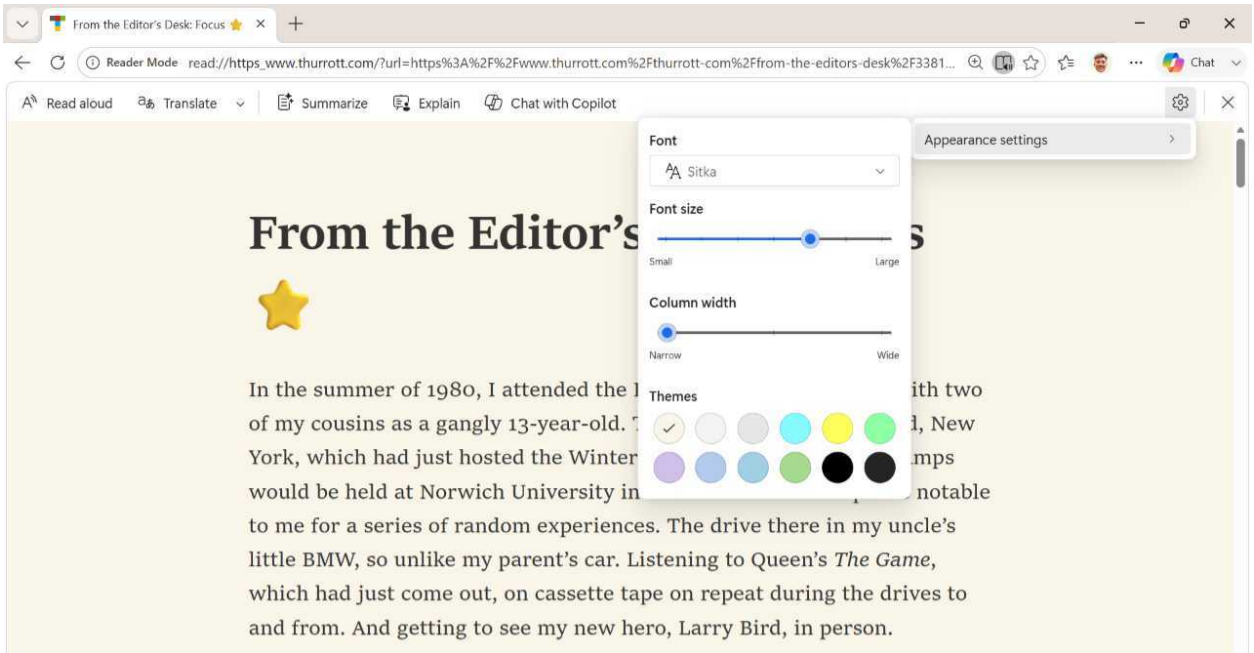


Reading Mode

Microsoft Edge provides all the standard reading features for the web that you expect, but it also goes well beyond that by offering a *Reader Mode* experience for web articles that includes a *Read aloud* feature that works with both web articles and PDF files. It's one of the best features in Microsoft Edge.

To use Reader Mode, navigate to a web article you wish to read and click the "Enter Reader Mode" icon that appears in the right of the Address bar.

> **Keyboard shortcut**: You can enter Read Mode more quickly by tapping the F9 key.



In Reader Mode, Microsoft Edge displays the text and graphics of the article in a themed, minimalist layout without any advertisements or other distractions. A toolbar at the top provides access to the following features:

Read aloud. As its name suggests, *Read aloud* reads a web article aloud to you. It's like listening to an audiobook, and not at all robotic. In fact, some of the voices Microsoft provides with Read aloud sound quite natural. To get started, click the "Read aloud" button in Reader Mode: The Read aloud controls will appear in the toolbar and Microsoft Edge will begin reading the article aloud to you, highlighting the current word in yellow as it goes. You can use the navigation buttons to pause/play and jump forward/back one paragraph. And you can use the "Voice options" button to control the playback speed and choose a voice.

Translate. This button lets you translate the article into any of the dozens of languages this feature supports.

Summarize, **Explain**, **and Chat with Copilot**. These three buttons use Microsoft Copilot to help you learn more about the article you're reading. Clicking any of them will open the Copilot sidebar and prompt the AI assistant accordingly.

Settings and more. This button resembles a gear and lets you customize the font, font size, column width, and theme colors used by Reader Mode.

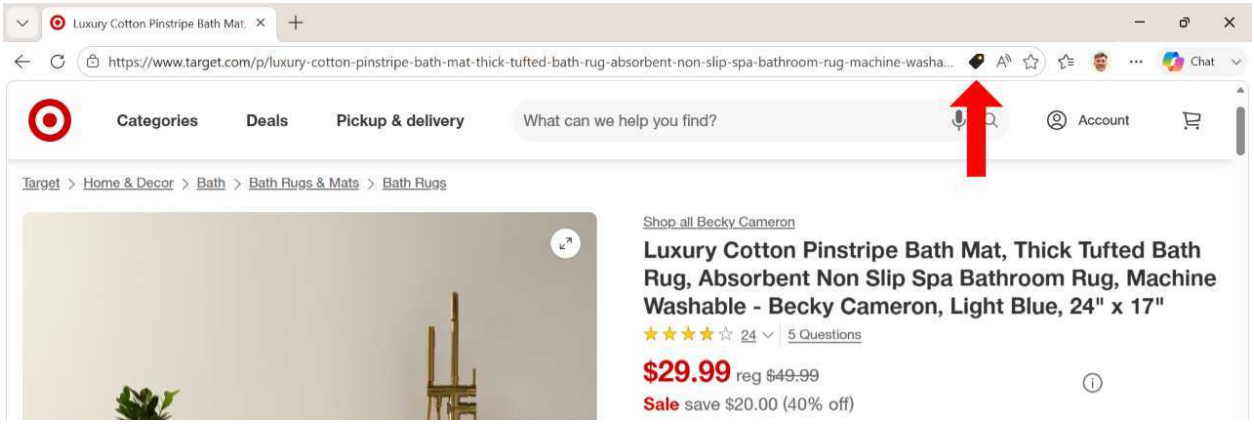
> **Tip**: Unfortunately, you can't configure Reader Mode to appear automatically.

Price tracking and other shopping features

Though you can add popular shopping extensions as you can with any browser, Microsoft Edge provides built-in shopping features like price tracking, price history, price comparison, and cashback.

> **Tip**: By default, Microsoft collects your shopping-related browser data and uses it to deliver personalized ads. You don't want that, so turn this feature off by navigating to Edge settings > Privacy, search, and services > Privacy and disabling the option "Allow Microsoft to save your browsing activity."

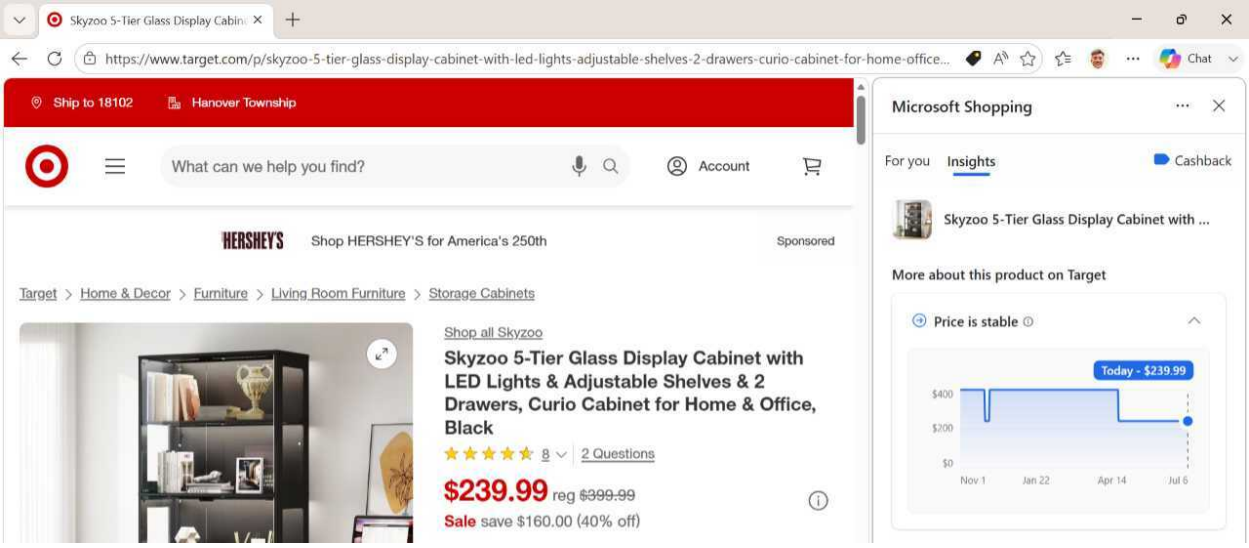
This functionality appears when you visit a compatible retailer with Microsoft Edge, when you will see a "Shopping in Microsoft Edge" (pricetag) icon in the right side of the address bar.



> **Tip**: The "Shopping in Microsoft Edge" icon will often display a red badge as an overlay that indicates how many coupons are available. And it will often display promotional animations to the left of the icon with text like "This site has coupons!" and simlar.

You can tap the icon to open the Shopping sidebar, which provides a few tabs. Among those you might see are:

- **For you**. Here, you can track products and see price drops.
- **Insights**. This tab displays information about the retailer and, if you're viewing one, the product you see in the main browser pane. You can begin tracking the price of an individual product here and, when available, view pricing data over time.

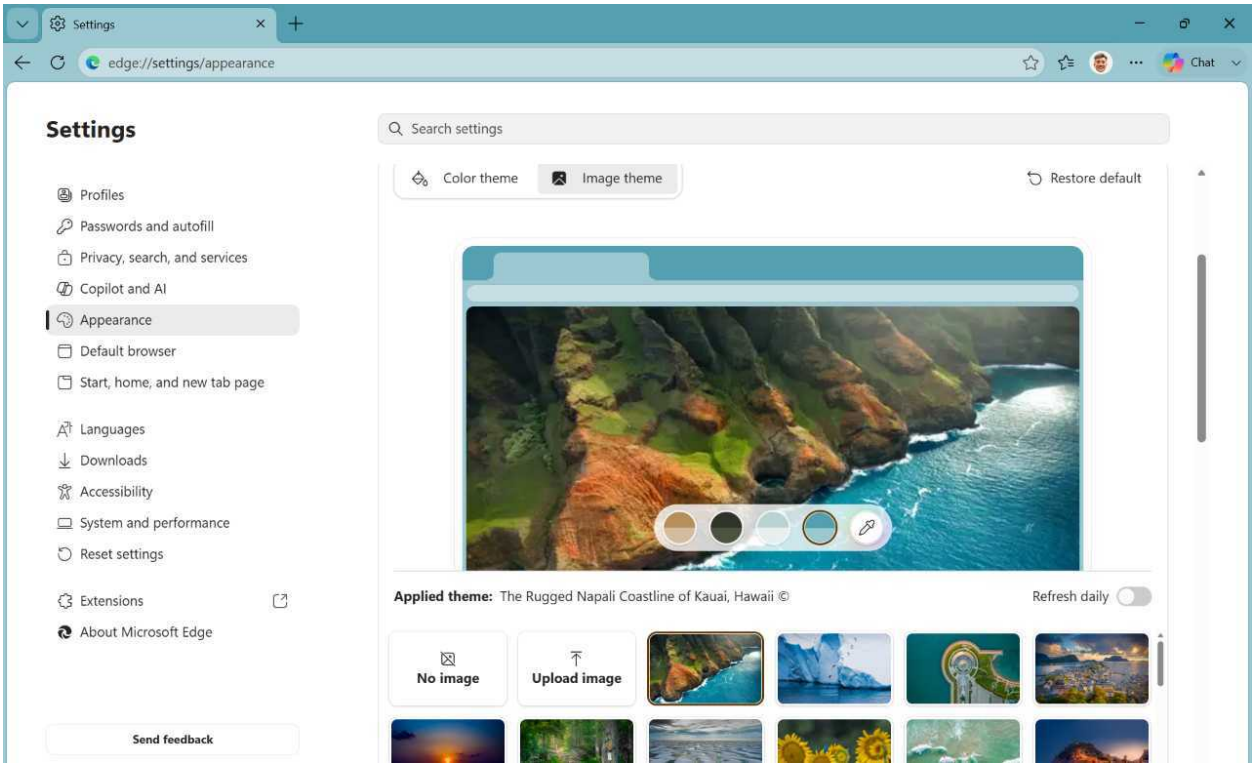


- **Cashback**. Microsoft offers a cashback feature through its Microsoft Rewards program, so this tab provides cashback-related information. If the product you're viewing doesn't apply, it will display links to top cashback offers.

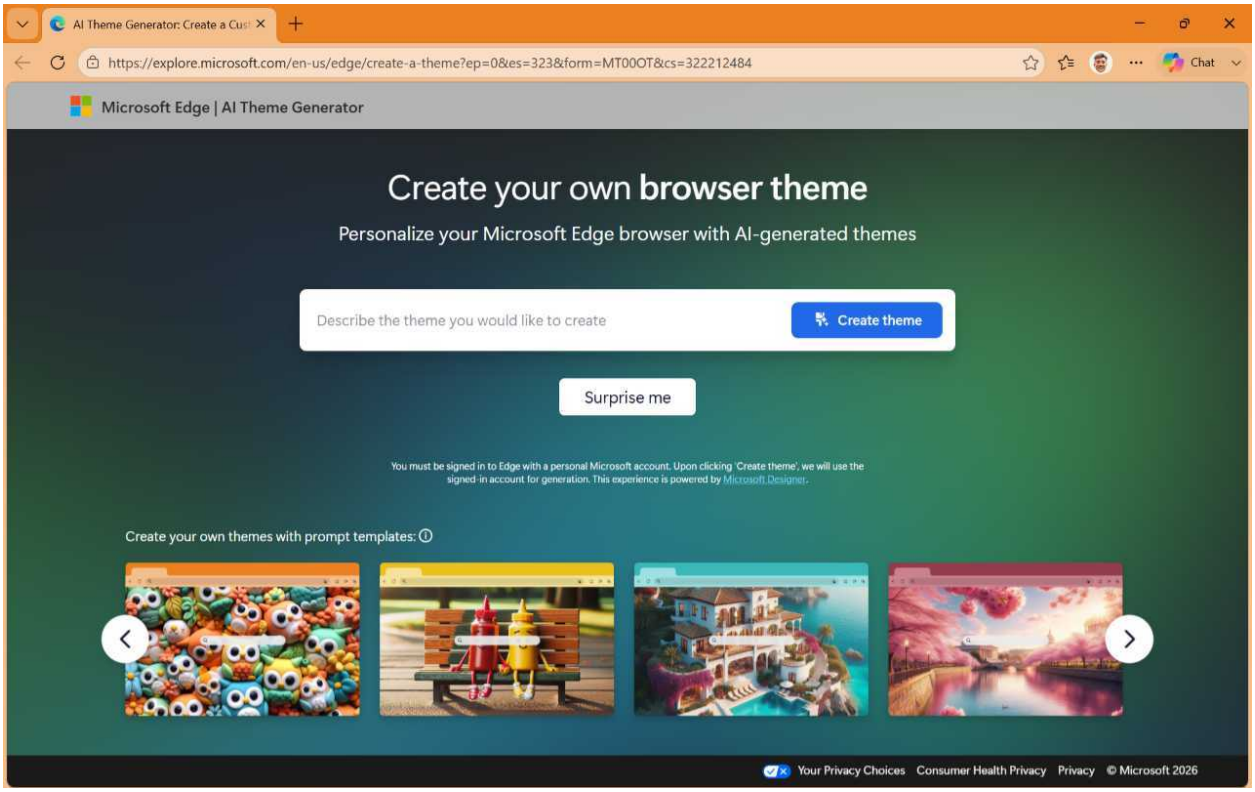
Better theme customization

In addition to the color theme choices and downloadable themes common in other web browsers, Microsoft Edge also offers two unique theme-related features, both found in Edge settings > Appearance. They are:

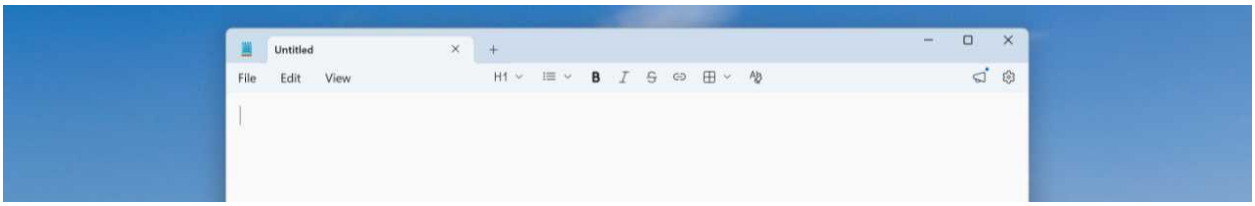
Image theme. Next to "Theme" is a set of two choices, Color theme and Image theme. If you select the latter, you can configure a theme with a background image–your own or a choice of many built-in–and associated colors. If you choose to use the built-in images, it will refresh daily by default so you always have a new theme each day.



AI Theme Generator. This unique option opens in a new tab and lets you create your own theme using AI. You can prompt it with an idea you have for a theme, click “Surprise me” to get a random theme, or choose from the project templates at the bottom, which you can take as-is or modify as needed.


AI Theme Generator: Create a Cus
https://explore.microsoft.com/en-us/edge/create-a-theme?ep=0&es=323&form=MT00OT&cs=322212484
Chat
Microsoft Edge | AI Theme Generator
Create your own browser theme
Personalize your Microsoft Edge browser with AI-generated themes
Describe the theme you would like to create
Create theme
Surprise me
You must be signed in to Edge with a personal Microsoft account. Upon clicking 'Create theme', we will use the signed-in account for generation. This experience is powered by Microsoft Designer.
Create your own themes with prompt templates:
Your Privacy Choices
Consumer Health Privacy
Privacy
© Microsoft 2026

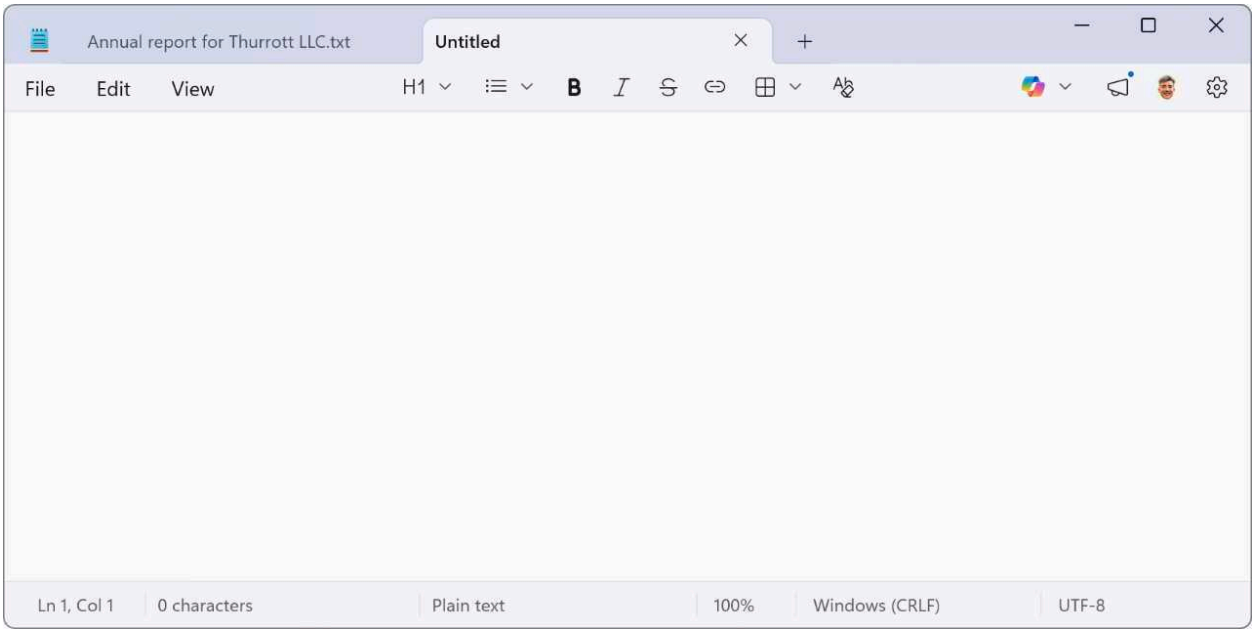
Notepad



Microsoft has overhauled its Notepad text editor dramatically in Windows 11, adding numerous new features related to document management, formatting, and even AI-based writing help. But those pining for the simpler Notepad of the good old days can disable most of the new features, too, thanks to the app's granular customization capabilities.

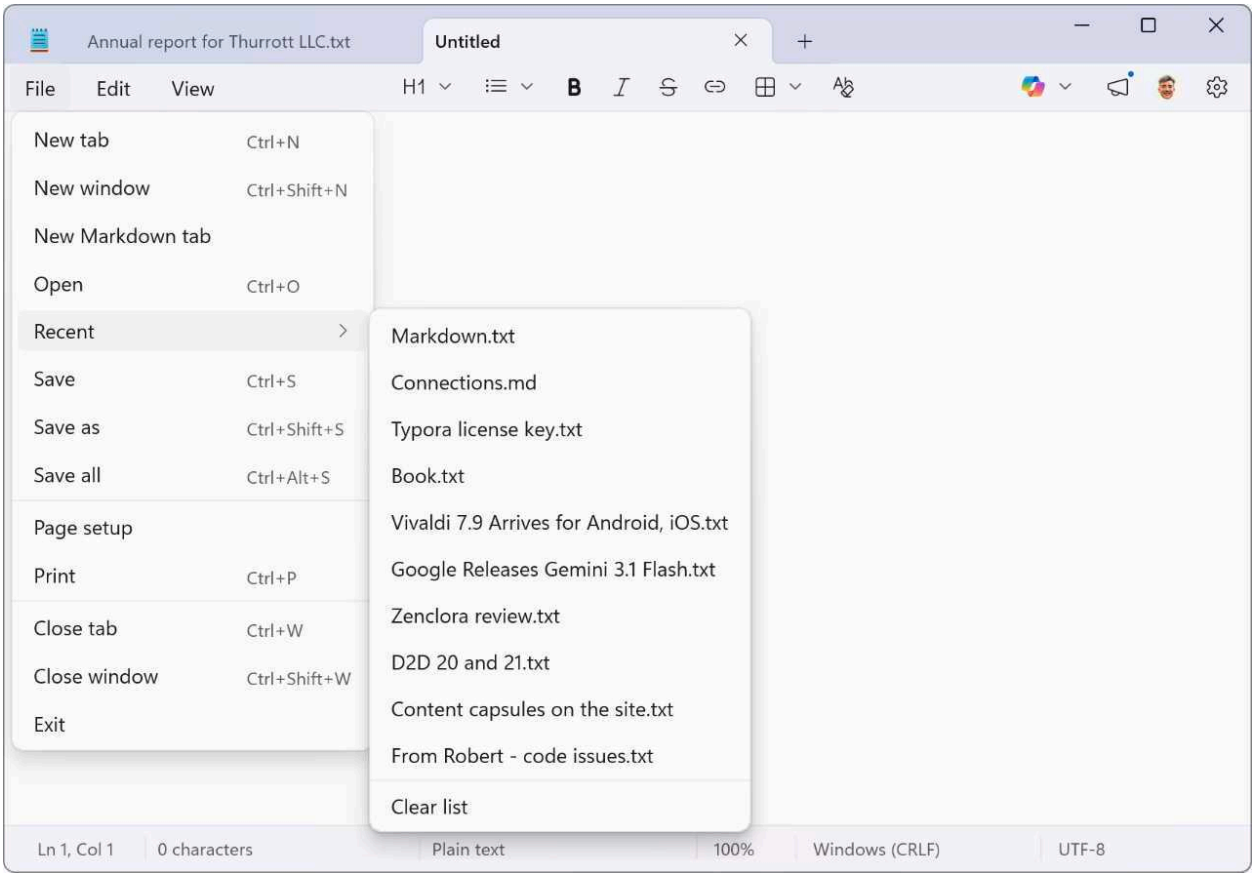
Defaults

Notepad provides a tabbed-based user interface, similar to that of a web browser. This lets you to view multiple documents–in this case, plain text files–each in its own tab by default, rather than opening each in a new app window as was the case before.



Notepad also offers some basic session state management capabilities. If you close Notepad with one or more documents and then re-open the app, those documents will appear once again and in

the same saved or unsaved state by default. And thanks to a Recent files item that appears in the File menu by default, you can quickly find the most recent several text files you've worked with.



For those who need help writing, Notepad now offers extensive AI-based writing tools by default, with options for rewriting existing text, summarizing text, making text longer or shorter, changing the tone, and changing the format. There are also spell checking and autocorrect features enabled by default.

> **Learn more:** Use Writing tools to help you write.

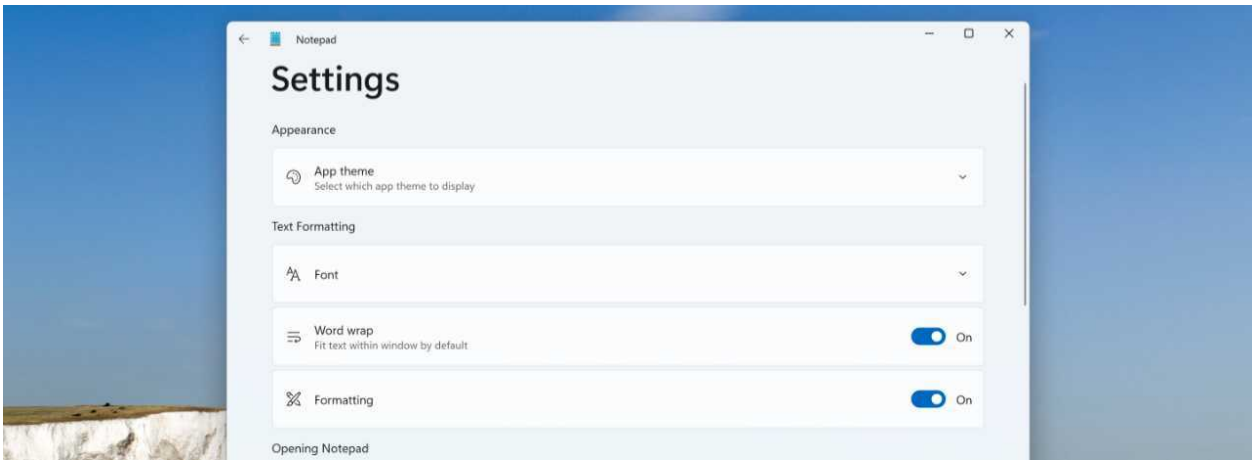
Starting in Windows 11 version 25H2, Notepad also supports the *Markdown* markup language, which lets you add light formatting–bold, italics, headings, and more–to plain text documents. This feature is enabled by default, sao you will see formatting toolbar buttons in the top center of the app.

But wait, there's more: Markdown (Wikipedia)

Learn more: Format a document with Markdown.

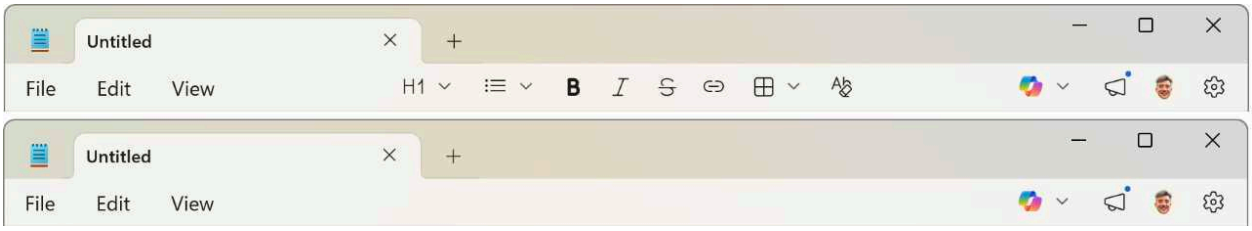
Customize

Depending on your needs and preferences, you may want to change some of the default settings used by Notepad. These are accessible via the app settings page, which you can see by clicking the "Settings" (gear) button at the right of Notepad's toolbar.



Key behaviors you can configure here include:

- **The app theme**. By default, Notepad will default to the app theme–Light or Dark–you configure globally in Windows 11. But you can use the App theme expander to manually choose the Light or Dark theme instead if you prefer.
- **The font displayed in the Notepad text editor**. Notepad supports plain text only, so none of these options impact the documents you create. But you can configure the font used to edit text to your liking using the options found in the Font expander.
- **Whether to (optionally) use Markdown for formatting**. While Notepad will always default to saving files with a .txt extension, you can optionally use Markdown formatting commands in the text and create what most would call Markdown documents (which are still plain text, of course). If you toggle the Formatting option to off, Notepad will no longer display its formatting toolbar buttons.



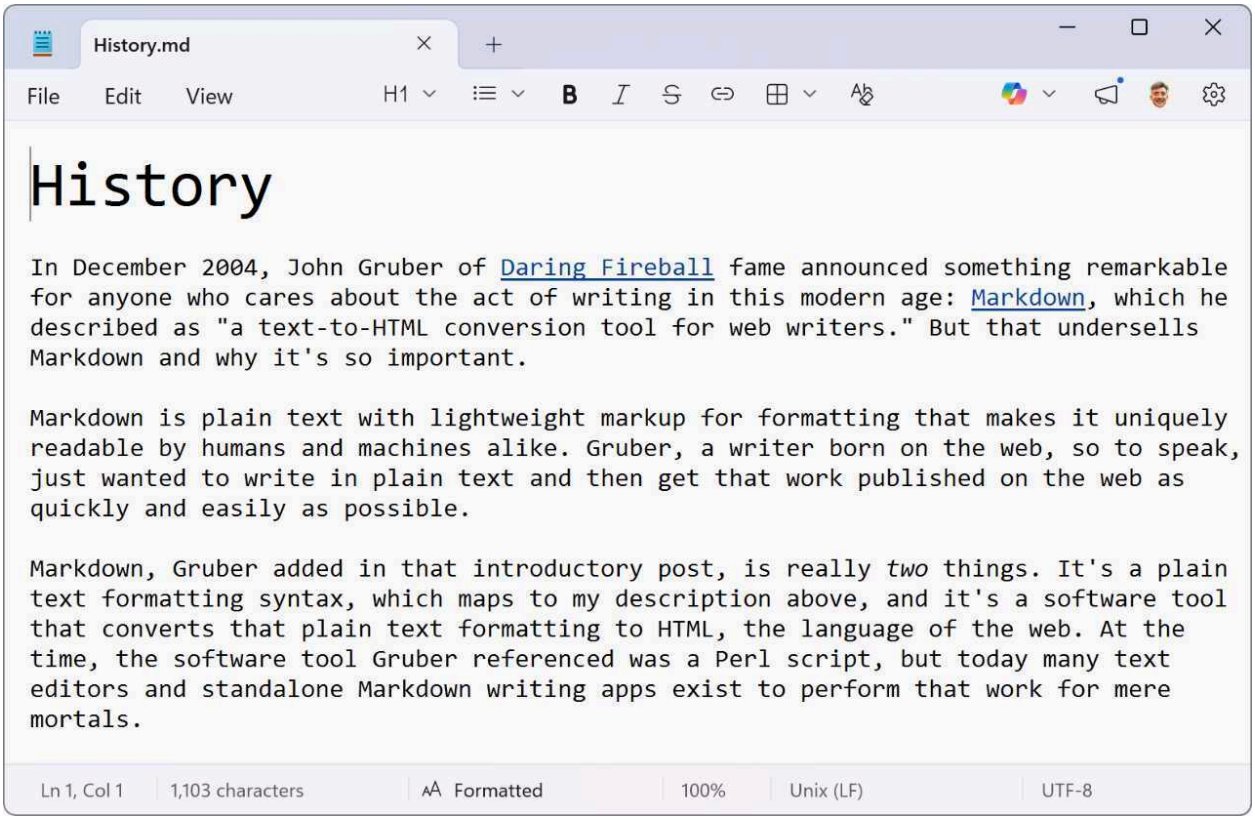
- **Whether to open new documents in a new tab or a new window**. Notepad opens new documents in a new tab in the same app window by default, but you can configure the Opening files option to "Open in a new window" if you prefer Notepad to work as it used to, with every document in its own app window.
- **What happens when Notepad starts**. By default, Notepad will remember which documents you had open when you closed the app and it will then reopen them when you start Notepad again. This means that you won't be prompted to save an unsaved document unless you attempt to close it manually. If you configure the "When Notepad starts option" to "Start new session and discard unsaved changes," Notepad will behave as it did previously: If you try to close Notepad while one or more documents are unsaved, it will prompt you to save those documents, and when you restart Notepad, it will appear with a single new document.
- **Whether to reopen documents you were previously working on**. Notepad keeps a list of your most recently opened documents in a "Recent files" submenu under the "File" menu. But you can toggle the "Recent Files" option to "Off" if you don't need that feature.
- **Whether to use AI-based writing help**. By default, Notepad displays a "Writing tools" button in its toolbar that provides a menu of useful AI-based writing tools. And similar choices appear when you right-click the text editor in Notepad. If you would prefer to not have access to this functionality, configure "Writing tools" to "Off."

The only major new feature in Notepad that you *can't* disable using the app's settings interface is its tabs support.

> **Learn more**: Restore Notepad to its classic look and feel.

Format a document with Markdown

Markdown is a lightweight markup syntax for adding formatting to plain text documents that's now supported in Markdown. It's similar to HTML or XML, if you're familiar with those markup languages, but it's easier to write and read. Indeed, one of the goals of Markdown is that it be both human- and machine-readable. But Notepad takes a step towards a word processor-like WYSIWYG display by applying the underlying visual styles to formatted text.



> **More info**: I wrote this book, as with all my books from the previous decade or more, using Markdown.

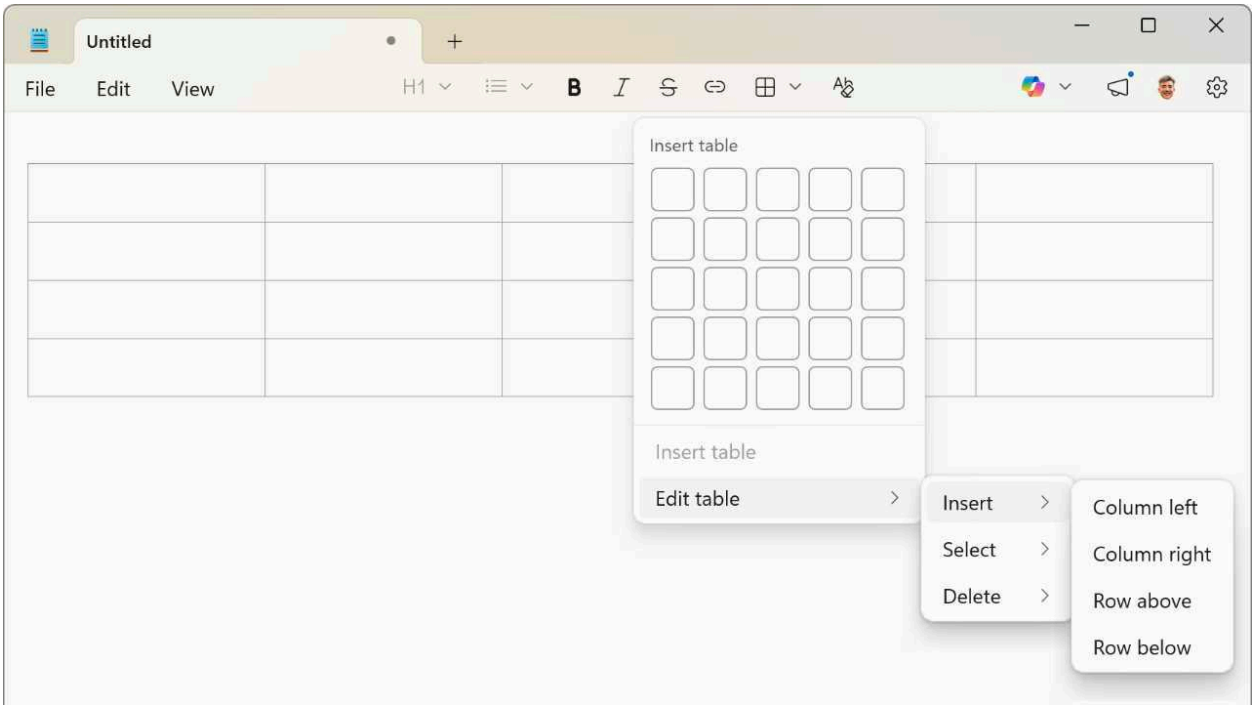
In Markdown, formatting is typically expressed by using elements like # for a Heading 1 and ** for bold. But because most people don't know this syntax, Notepad provides a set of formatting toolbar buttons, similar to those found in Microsoft Word and other word processors. If you know Markdown, most of the elements you're used to using for formatting do not work in Notepad, though the app can correctly display existing Markdown documents. Instead, you must use Microsoft Word-type keyboard shortcuts or the toolbar buttons, as described below, to format text.

Available formatting commands include:

- **Headings**. Notepad supports several heading styles, including Title, Subtitle, Heading, Subheading, Section, Subsection, and Body. But none of these are standard Markdown, and the latter isn't even a heading style. In short, Title corresponds to Heading 1 in Markdown, Subtitle is really Heading 2, and so on. And the Body "heading" style is what's called Paragraph in Markdown. It's just normal, unstyled text.
- **Lists**. Notepad supports bulleted and numbered lists, as you would expect, and you can

increase or decrease the indentation on either as needed. You can also start a bulleted list by typing a dash (-) character, and you can start a numbered list by typing a number followed by a period (like 1.) and then a space. (That, at least, is standard Markdown and works normally in Notepad.)

- **Bold**. You can bold a text selection by typing Ctrl + B.
- **Italics**. You can italicize a text selection by typing Ctrl + I.
- **Strikethrough**. You can strikethrough a text selection by typing Ctrl + Shift + X.
- **Link**. You can create a hyperlink to a web URL by selecting some text and typing Ctrl + K.
- **Table**. Notepad helps you make simple text-based tables using a graphical grid similar to that in Microsoft Word. Once you have a table in place in a document, you can then insert columns and rows where needed, select the entire table or a column or row, and delete the entire table or a column or row using an Edit table entry in the Table drop-down.

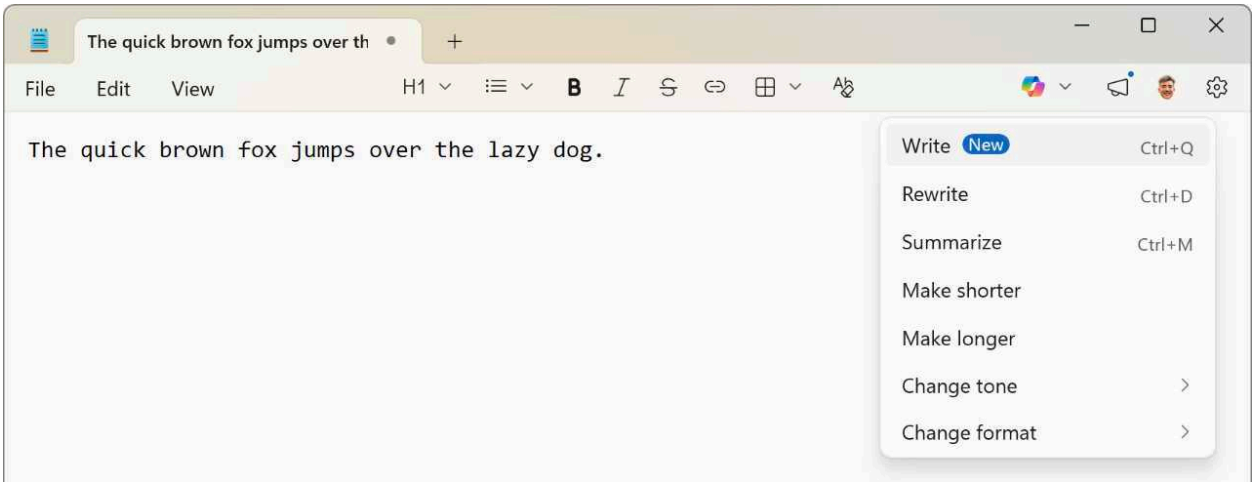


- **Clear formatting**. This rather dangerous button will remove all the Markdown-based formatting from any selected text, and it will do so without confirming first. You can also type Ctrl + Space if you prefer keyboard shortcuts.

Use Writing tools to help you write

Though AI is still controversial for some, AI-based writing tools like those now offered in Notepad are quite useful. You access these options via the “Writing tools” button in the Notepad toolbar.

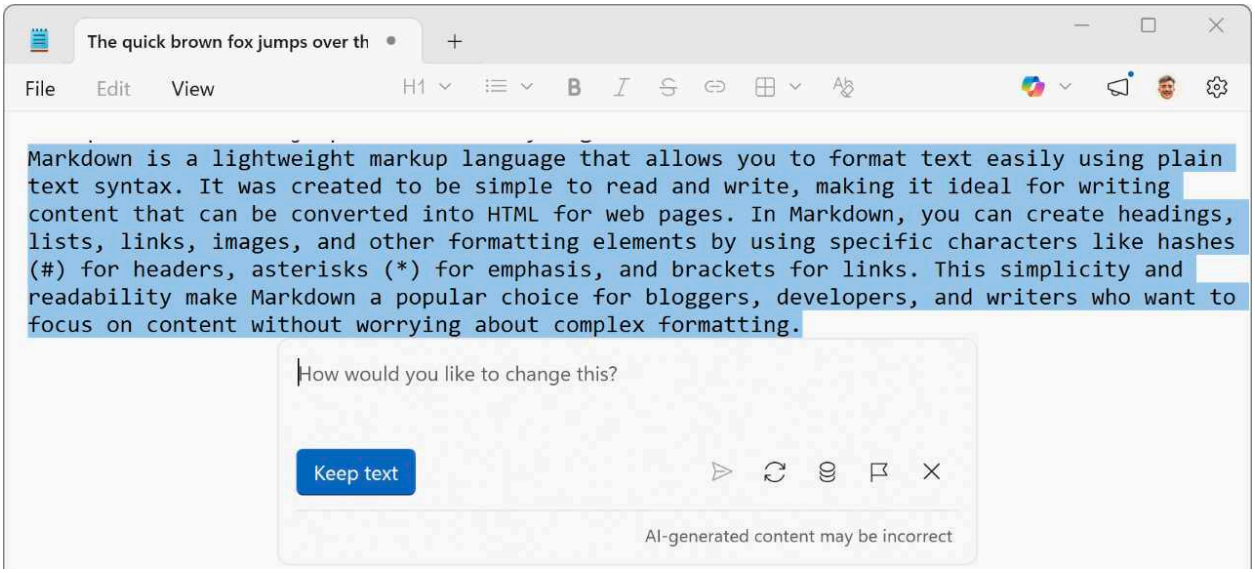
You can use these options with the entire document in Notepad or by selecting some text and working with that section instead.



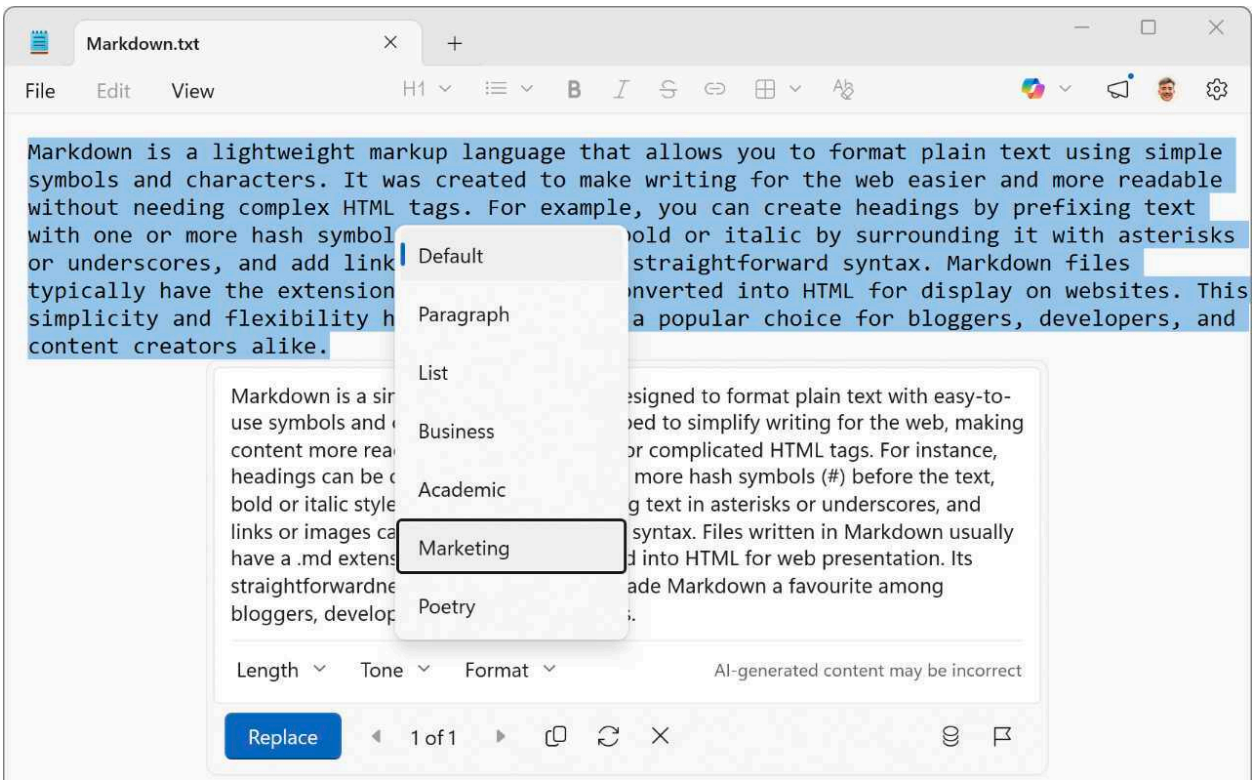
> **Tip**: The AI-based writing tools you see in the "Writing tools" menu in Notepad aren't free: They require you to sign into the app with your Microsoft account (MSA) and for you to have an active Microsoft 365 subscription, in which case you have a monthly allotment of AI credits–yes, really–that can be used for this type of activity. Or, if you have a Copilot+ PC, you can switch to a local AI model that is less powerful but has unlimited generation capabilities that don't require you to spend (or even have) AI credits.

Available AI-based writing tools in Notepad include:

- **Write**. This option creates text for based on a prompt that you write, like *I need to write a blog post that explains how Markdown works*. Once that text is generated, you can then keep the text, write a prompt to change the generated text in some way, or try again (in which case the AI will generate new text to meet the needs of your original prompt).



- **Rewrite**. This appears after you've used AI to generate text so you can rewrite that text with length (shorter, longer), tone (formal, casual, and more), and format (business, marketing, academic, and so on) options.



- **Summarize**. As you would expect, this option summarizes a document or selected text so you can copy it to the Clipboard or insert the summary into the document.

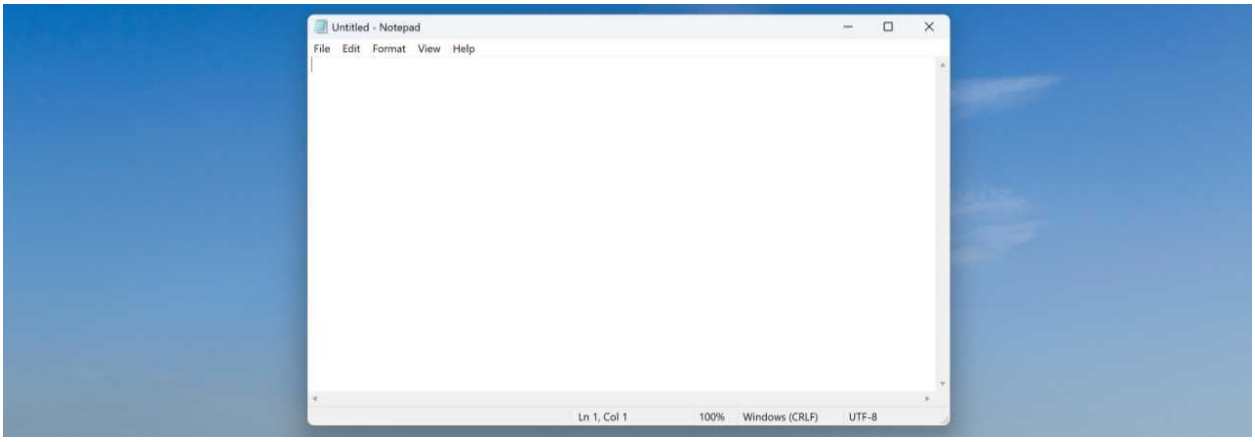
- **Make shorter and Make longer**. These options do what you'd expect as well, but they offer the same length, tone, and format options as Rewrite too.
- **Change tone and Change format**. These options let you rewrite text for tone or format, and you can access the same length, tone, and format options as Rewrite with each generation until you get exactly what you're looking for.

Restore Notepad to its classic look and feel

This isn't well known, but Microsoft actually includes *two* versions of Notepad with Windows 11: The modern Notepad discussed in this chapter and the classic version of the app that it used to ship with previous Windows versions. The modern Notepad is objectively more full-featured than the classic version, and you can disable almost all of its new features if desired. But if you don't like the modern look and feel or just want to use the classic Notepad instead, you can.

Doing so is a multi-step process:

- Open the Settings app and navigate to Apps > Advanced app settings > App execution aliases. Then, locate Notepad in the (non-alphabetical) list and configure it to "Off."
- Open File Explorer and navigate to C:Windows\ and the locate the executable file Notepad.exe. If you double-click this executable to run it, you will see the classic Notepad appear. This happens because you disabled the modern Notepad app alias in the previous step. Normally, the modern new Notepad would appear instead.



- To make the classic Notepad more easily accessible, you can right-click Notepad.exe and choose "Pin to Start." Or, you can right-click it and choose "Copy as path" and then use that to create a shortcut to this app on your Desktop.

What you *can't* do, sadly, is make classic Notepad the default app for text files. Nor can you right-click a text file, choose "Open with" and then select classic Notepad.

Screenshots and Screen Recordings

Windows 11 includes various ways to capture, save, edit, and share *screenshots*–still images that represent the contents of your PC's display–and *screen recordings*, video representations of what's happening on-screen.

Defaults

Windows 11 supports classic keyboard shortcuts for capturing screenshots, some dating back many decades, though most of them work a bit differently now. They are:

- **Print screen**. When you tap this key, the *Snipping Tool* appears so you can capture a screenshot or screen recording.

- **Windows key + Print screen**. This keyboard shortcut works as before: It captures a screenshot of the entire screen, saves it as a PNG file in your Screenshots folder, and copies the image to the Clipboard.
- **Alt + Print screen**. This keyboard shortcut captures a screenshot of the active window and copies the image to the Clipboard.

> **Tip**: If you sign in to Windows 11 with a Microsoft account, a OneDrive window appears the first time you type either of the latter two shortcuts and asks if you would like to store them in Microsoft's cloud storage service as well as locally on this PC. You can choose between "Save to OneDrive," "Ask me later," and "No thanks" options.

Though they are designed to capture game screenshots and screen recordings, there are also two Game Bar keyboard shortcuts that work outside of games: Windows key + Alt + Print Screen will capture a screenshot of the active window and Windows key + Alt + R will start a screen recording. In both cases, the result is saved to the Captures folder in your Videos folder.

> **Learn more:** Game Bar

Customize

Microsoft configures the Snipping Tool in-box app to run when you press the Print screen key, but you can change this to work as it did in the past and simply capture a screenshot of the entire screen and copy the image to the Clipboard.

To do so, open the Settings app, navigate to Bluetooth & devices > Keyboard and configure the option "Use the Print screen key to open screen capture" to "Off."

Snipping Tool

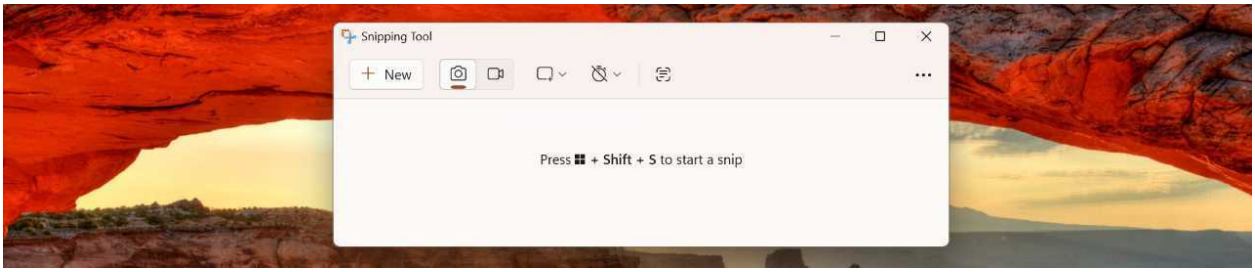
Snipping Tool is a modern app that should meet most users' screenshot and screen recording needs.

> **Tip:** Unfortunately, Snipping Tool uses its own language for these tasks: It refers to screenshots as "static image snips" and screen recording as "video snips."

Defaults

Snipping Tool offers two different user interfaces, depending on how you start the app:

- **Run Snipping Tool normally.** When you launch Snipping Tool from Start or Windows Search, the app appears as a small floating window with a toolbar that provides several commands related to screenshots and screen recordings.



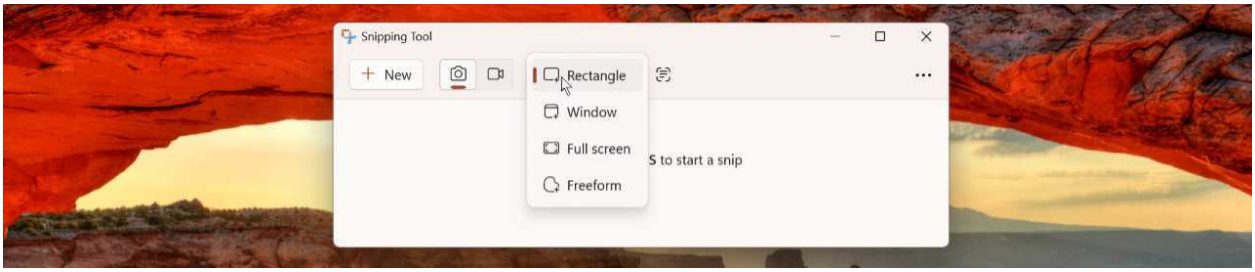
- **Tap the Print screen key**. Here, the screen dims and Snipping Tool appears at the top displaying only its toolbar and various options.

Snipping Tool supports the following actions via its toolbar buttons:

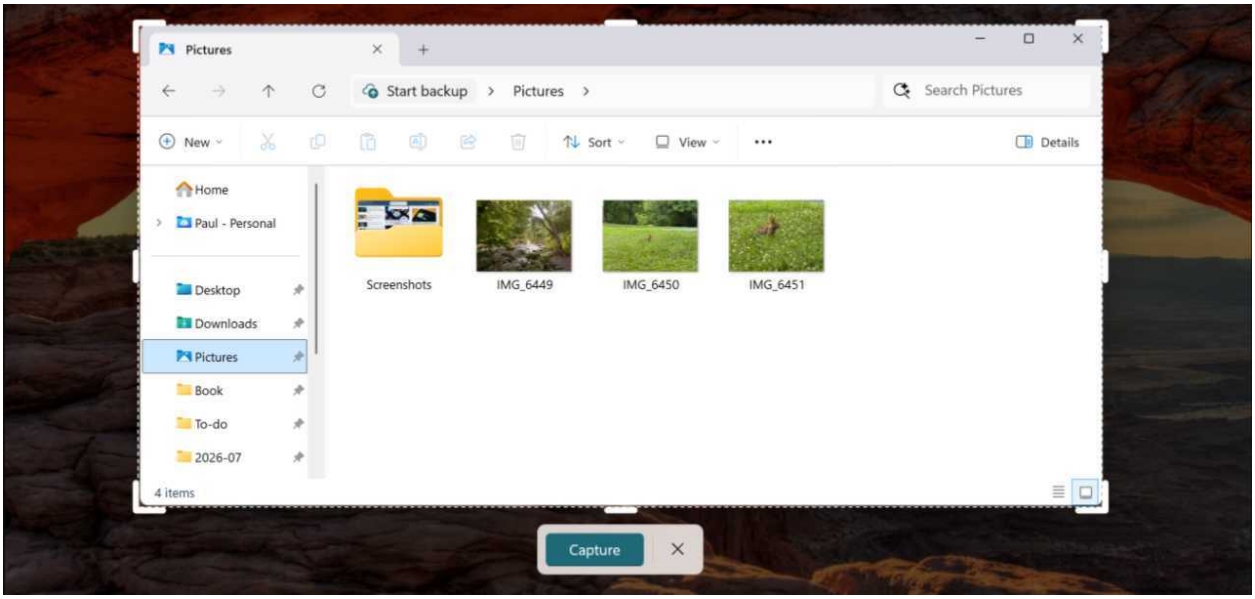
- **New screenshot/recording**. Available only in the normal app window, the "+ New" button is used to start capturing a new screenshot or screen recording, depending on which capture mode the app is currently configured to use.

> **Keyboard shortcut**: You can also type "Ctrl + N" to capture a new screenshot or screen recording.

- **Snip/Record**. This toggle button is used to switch the app between its two available capture modes, Snip (screenshot) and Record (screen recording).
- **Snipping area**. Available when Snipping Tool is in Snip (screenshot) mode, this button opens a drop-down so you can choose between "Rectangle," "Window," "Full screen," and "Freeform" snipping areas.

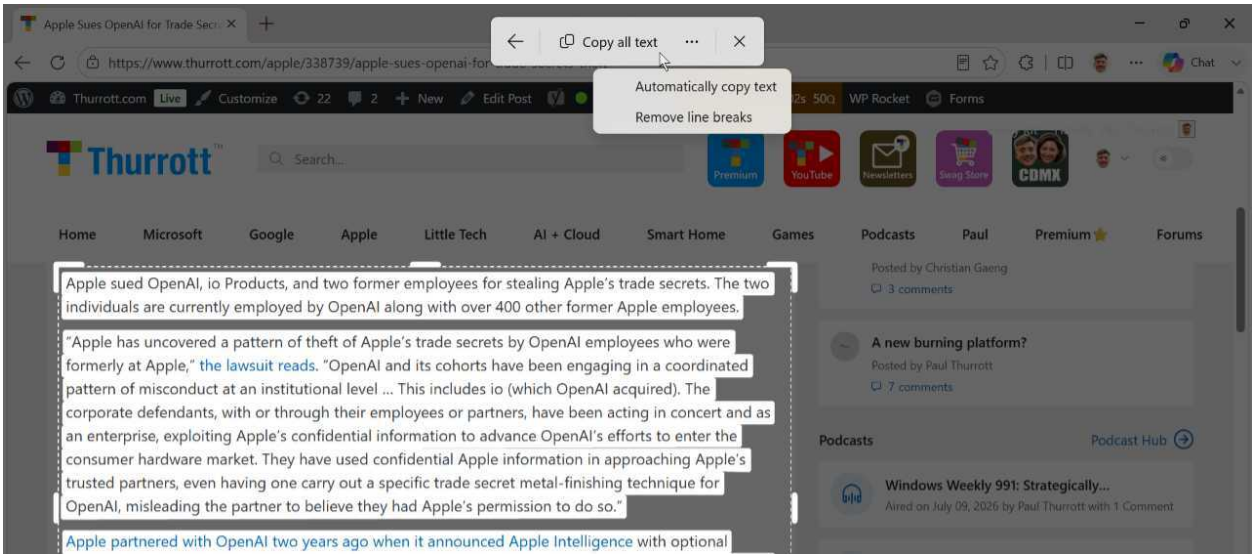


- **Perfect screenshot (Copilot+ PCs only)**. Available only in the app's full-screen capture mode and with the Snipping area set to "Rectangle", this feature uses local, on-device AI to examine the area of the screenshot you take and then trim it intelligently. When it's done, there are grab handles around the selection area in case you want to fine-tune it before clicking the provided "Capture" button.

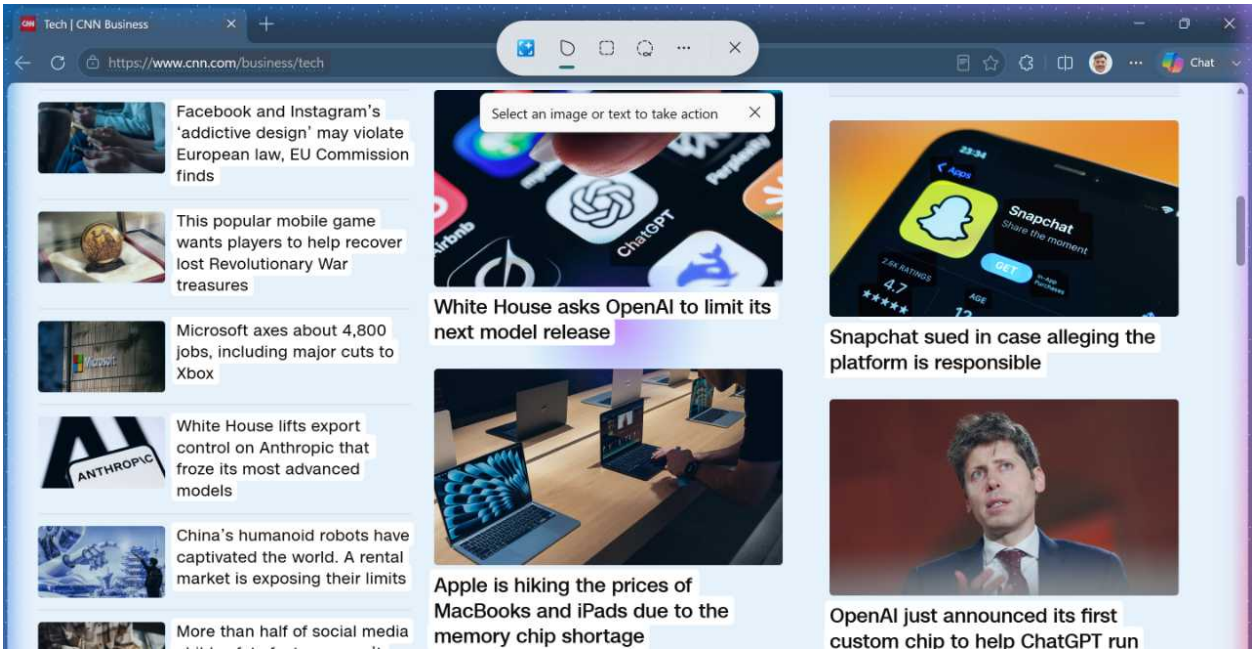


> **Tip**: You can also invoke Perfect screenshot by holding down the Ctrl key while the Snipping area is set to "Rectangle."

- **Delay snip**. This button is available when Snipping Tool is run normally and is in Snip (screenshot) mode. It lets you optionally delay the start of a screenshot capture by 3, 5, or 10 seconds.
- **Text extractor**. This incredibly useful tool can be used to highlight all the text in the capture area so you can copy the text to the Clipboard and use it in any app that supports plain text. There are two options, "Automatically copy text" and "Remove line breaks," that are off by default but accessible via a "More options" ("...") button.



- **Quick markup**. Only available in the full-screen capture experience, this button acts as a toggle you can enable so that when you make a capture, you can access pen, highlighter, eraser, and shapes tools on-screen to mark up the captured area before saving it.
- **Click to Do. (Copilot+ PCs only)**. This button acts as a front-end for the standalone Click to Do app on Copilot+ PCs that lets you interact with on-screen graphics and text in powerful ways.



- **Color picker**. Available only in the full-screen capture experience, this tool is useful for anyone who needs to get an exact color they see on-screen so they can use it elsewhere.

When selected, a Color picker pane appears on-screen with a color format chooser–so you can switch between hex, RGB, and Hue, Saturation, and Lightness (HSL) color formats–and the mouse pointer turns into a color picker with a floating window displaying the color below it. When you find the color you want, just click it's saved to the Clipboard as text.

- **Open file**. Available in the normal app window, this option lets you open an image or video file so you can view or edit it with Snipping Tool.
- **Settings**. Available in the normal app window, this opens the Snipping Tool settings interface.

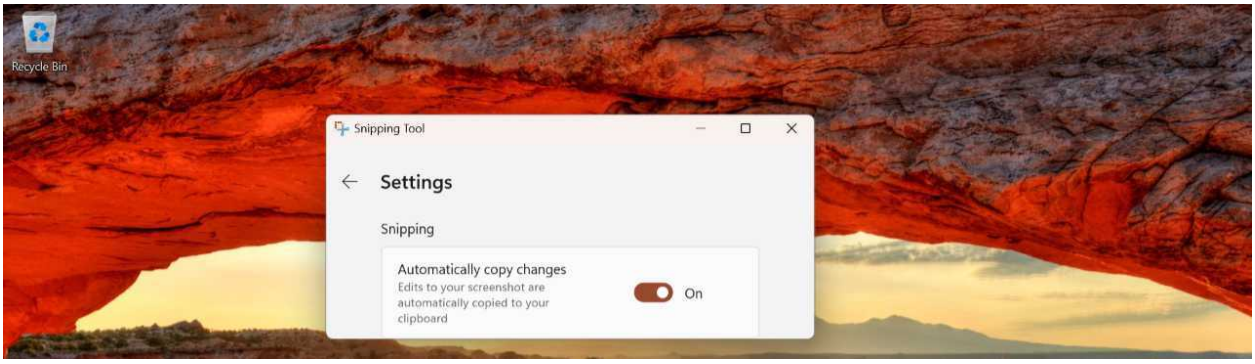
Screenshots are saved in PNG format to your Screenshots folder (in your Pictures folder), while screen recordings are saved in MP4 format and saved to your Screen recording folder (in your Videos folder). It doesn't support using other image and video formats.

> **Tip**: One feature Snipping Tool lacks–in both Snip (screenshot) and Record (screen recording) modes–is the ability to capture the mouse pointer. If you need to do that, you must use a third-party utility like and Greenshot or ShareX instead.

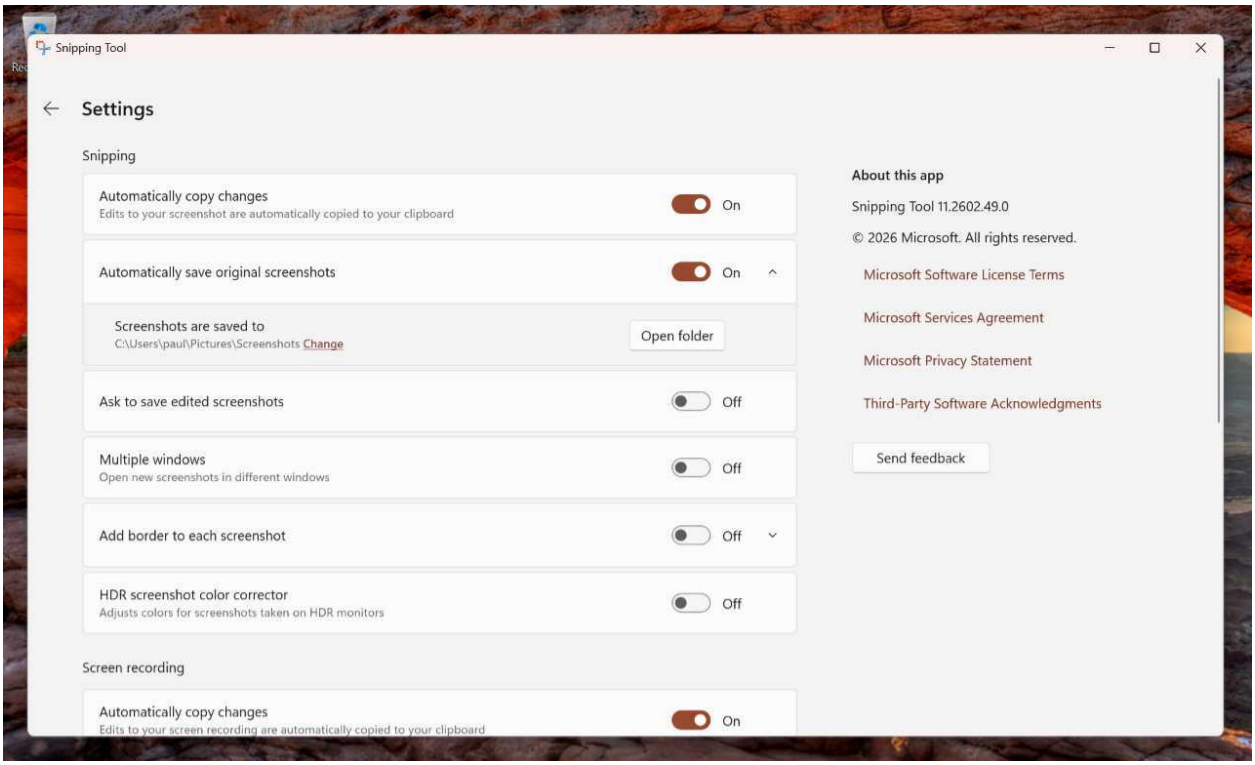
Customize

Before using Snipping Tool to capture screenshots or screen recordings, you should make sure it's configured properly for your needs.

To do so, open Snipping Tool, click "See more" ("…"), and then choose "Settings" in the menu that appears.



As with other modern in-box Windows 11 apps, the settings interface appears inside the main app window rather than in a separate window. But if Snipping Tool is in its default configuration–a small floating window–then most of the settings interface will be cut off.



To see more, resize or maximize the Snipping Tool app window.

Snipping Tool settings has different sections for screen captures ("Snipping") and screen recordings. Most of these are straightforward, but the following options are noteworthy:

- **Automatically copy changes**. Available separately for both screenshots (screen captures) and screen recordings, this option determines whether either capture is also copied to the Clipboard. It's enabled by default.
- **Screenshots are saved to**. This option lets you configure the save location for screenshots.

- **Screen recordings are saved to**. As above, but for screen recordings.

Capture and edit a screenshot

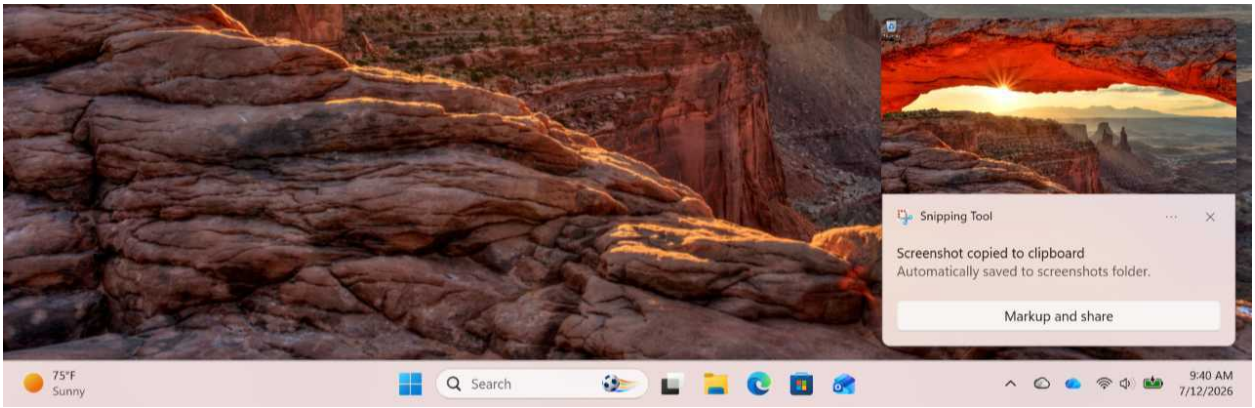
Snipping Tools provided extensive screenshot capture and editing capabilities. And if you have a Copilot+ PC, there are additional features that take advantage of local, on-device AI that can be quite useful.

Capture a screenshot

To capture a screenshot, tap the Print screen key or open Snipping Tool and click "New." Either way, the screen dims and a floating toolbar appears as described earlier.

Unless you changed this previously, Snipping mode is in Snip (screenshot) capture mode by default, you can just accept the defaults and make the screenshot, or you can access the various options presented by the buttons in the app's toolbar, as described earlier in the chapter.

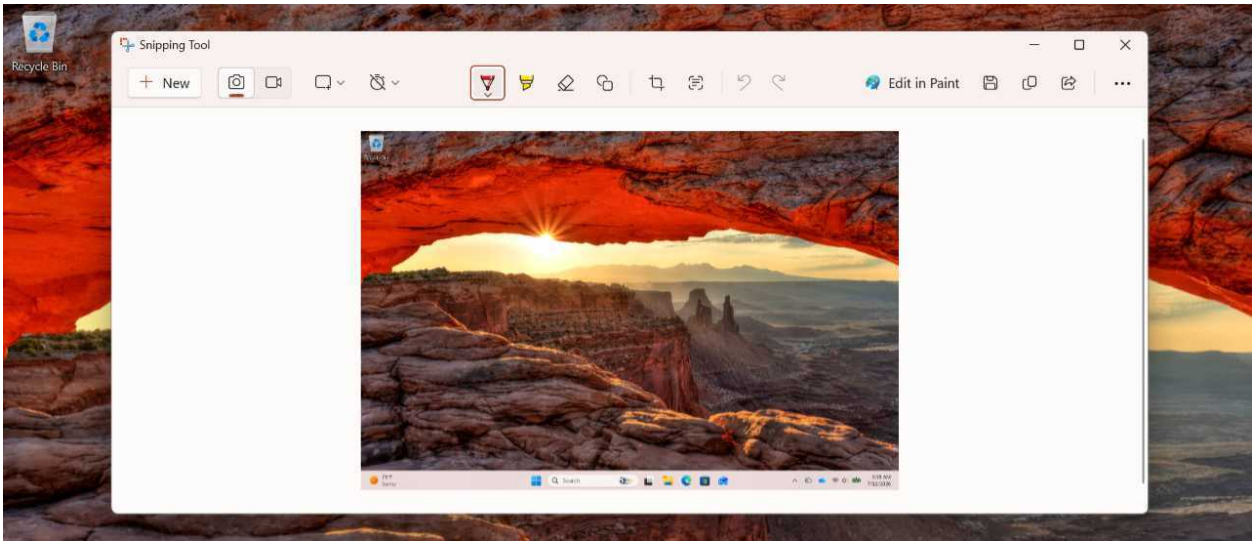
If you capture a screenshot or screen recording from the full-screen Snipping Tool interface, a banner notification appears displaying a thumbnail of the capture.



You can click its "Markup and share" button to display the normal Snipping Tool app experience that displays the capture below the toolbar.

Edit a screenshot

After you capture a screenshot, a thumbnail of the capture appears in the Snipping Tool window, along with several new controls related to editing, sharing, and saving the capture.

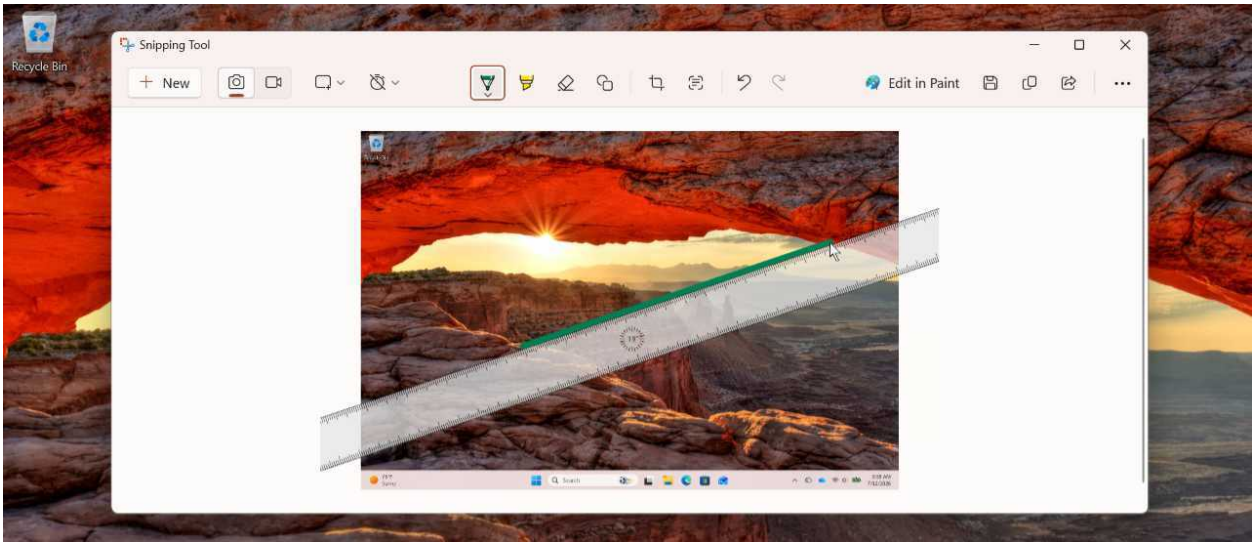


> **Tip**: This window is resizable and the capture will scale as you resize it. The available controls can move to different positions within the app depending on how you size it.

Available tools include:

- **Ballpoint pen**. This markup tool lets you draw or write on the screenshot in various colors and sizes.
- **Highlighter**. This markup tool works like a virtual highlighter and it also supports multiple colors and sizes.
- **Eraser**. This markup tool lets you erase the ballpoint pen and highlighter additions you previously made individually or, via an “Erase all mark-ups” option in a drop-down, all of them with one click.
- **Shapes**. This displays a toolbar with options to draw emojis or various shapes on the screenshot with fill and outline choices.
- **Image crop**. This provides a cropping interface with drag handles but no preset aspect ratio choices.

- **Scan text**. As described earlier, this tool highlights all the on-screen text in a screenshot so you can copy the text to the Clipboard and use it in any app that supports plain text.
- **Undo/Redo**. Snipping Tool keeps a history of edits so you can individually undo or redo them as needed.
- **Edit in Paint**. This opens the saved screenshot in Paint.
- **Save as**. This lets you save another copy of the image file in a different location and/or with a different name.
- **Copy**. Click this to copy the edited screenshot to the Windows Clipboard.
- **Share**. Click this to share the screenshot using the system Share pane.
- **Zoom**. Snipping Tool displays the screenshot fully so that it fits within the size of the app window, but you can use the sub-controls here to zoom in and out arbitrarily or display the screenshot full-sized.
- **Show ruler/Hide ruler**. This displays an on-screen ruler so you can draw precise straight lines using the Ballpoint pen or highlighter tools. To rotate the ruler, use your multitouch touchpad with two fingers or position the mouse pointer in the center of the ruler and then scroll the wheel on your mouse.



- Visual Search with Bing. Click this to open Bing with your default web browser and search online for an image similar to the screenshot.
- **Open file**. Click this to open any image file and use any Snipping Tool features with it.
- **Open screenshots folder**. This will open your Screenshots folder in File Explorer.
- **Print**. Click this to print the screenshot.
- **Settings**. Click this to access Snipping Tool settings.

Capture and edit a screen recording

Clipchamp can be used to make and edit screen recordings, though these features are more basic than the app's screenshot capabilities.

Capture a screen recording

To make a screen recording, open Snipping Tool and toggle the "Snip/Record" to "Record." Then, you can choose from two Recording area options, "Rectangle" or "Window."

> **Tip**: No, there's no "Full screen" option, which is the choice I would make most times. But you can capture the entire screen by choosing "Rectangle" and then drawing a rectangle that stretches from one screen corner to the far screen corner.

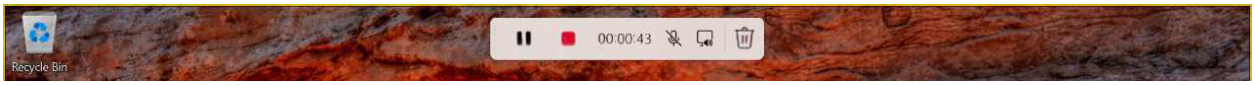
How you start the recording varies a bit depending on which Snipping Tool interface you're using.

- **Normal app**. Choose a Recording area option, click the "+ New" button, and then use the mouse pointer to choose the window or rectangle area you wish to capture.

- **Full-screen experience**. Use the mouse pointer, which resembles a "+" selection shape, to choose the window or rectangle area you wish to capture.

Either way, a recording overlay will appear with a prominent "Start recording" button and buttons to toggle the microphone and system audio on/off.

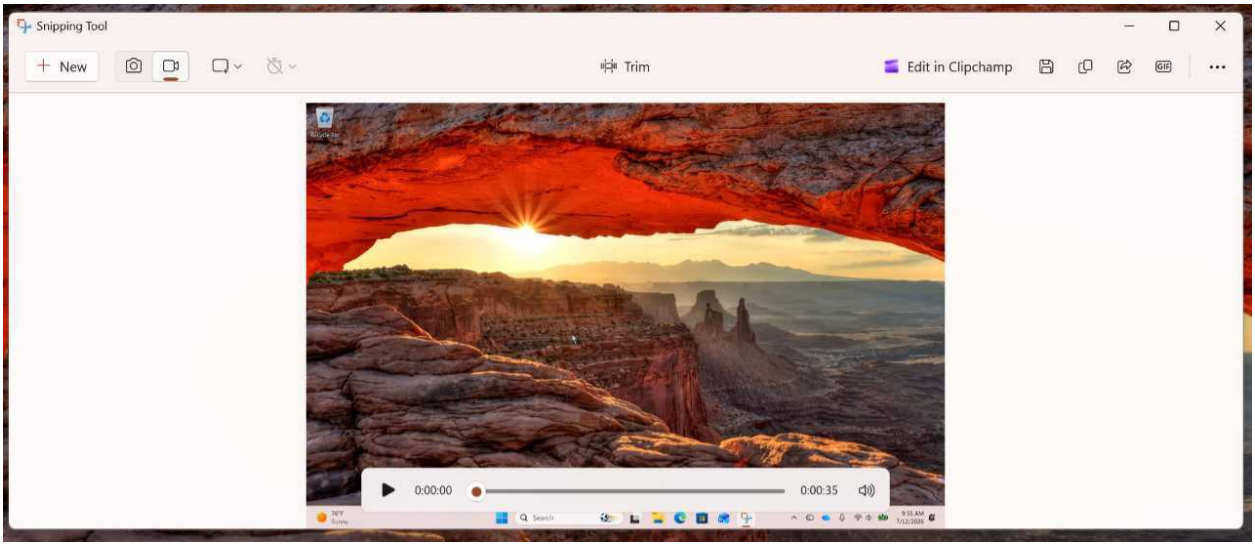
When you're ready to record, click "Start recording." After a three-second countdown, screen recording begins and the Snipping Tool overlay displays "Pause recording" and "Stop recording" buttons next to a counter that displays the length of the recording in real time. There's also a trashcan-like "Discard recording" button if you want to give up and start over.



As you record, the area being recorded is surrounded by a colored rectangle.

When you're done recording, click the red "Stop recording" button in the Snipping Tool overlay. Two things happen:

- The screen recording is saved to a Screen recordings sub-folder in your Videos folder
- The Snipping Tool app window reappears on-screen and displays the recording you just created along with basic playback and editing controls.



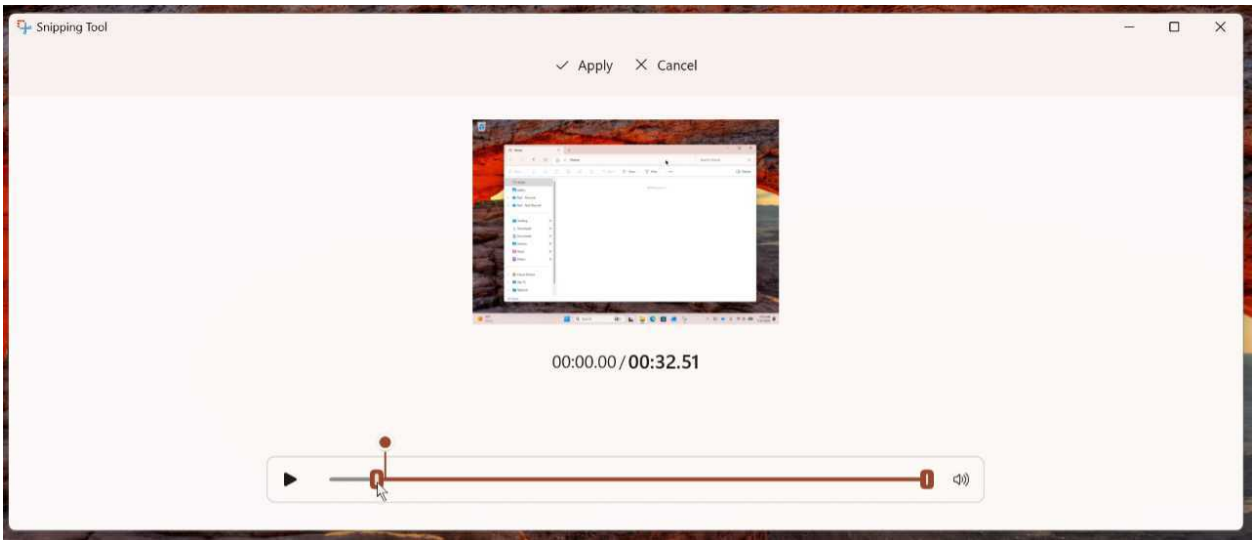
If you don't need to edit the recording, you can preview it using the playback controls at the bottom, close Snipping Tool or click one of the following buttons in the upper-right of the app window:

- **Save as**. This lets you save another copy of the recording file in a different location and/or with a different name.
- **Copy**. Click this to copy the recording file to the Windows Clipboard.
- **Share**. Click this to share the recording file using the system Share pane.
- **Create GIF**. This will convert the recording file (which is in .MP4 format) to an animated GIF and export it using "Low" and "High" quality presets.
- **Open screen recordings folder**. Click this to open your Screen recordings folder in File Explorer (C:Users*username*VideosScreen Recordings by default).

Edit a screen recording

Snipping Tool offers a basic *video trim* feature for editing the video. In short, you can trim the beginning and/or end of the recording only.

To trim the recording, click the "Trim" button in the middle top of the window.

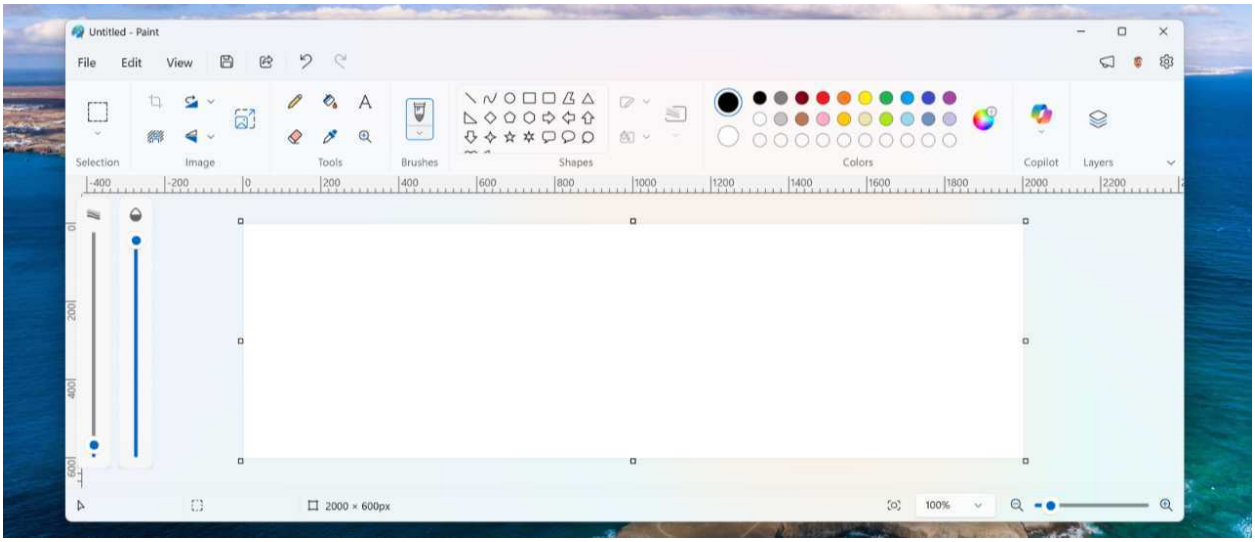


Here, you can drag the handles on either side of the timeline scrubber at the bottom to trim the beginning and end of the recording while testing the results with the "Play"/"Pause" button. When you're done, click "Apply" to save the editing recording or "Cancel" to leave it as it was.

Video trim is the most common need for a basic screen recording, but you can also click the "Edit in Clipchamp" button to edit it further with Clipchamp, the full-featured video editor that also comes with Windows 11.

Learn more: Clipchamp

Paint

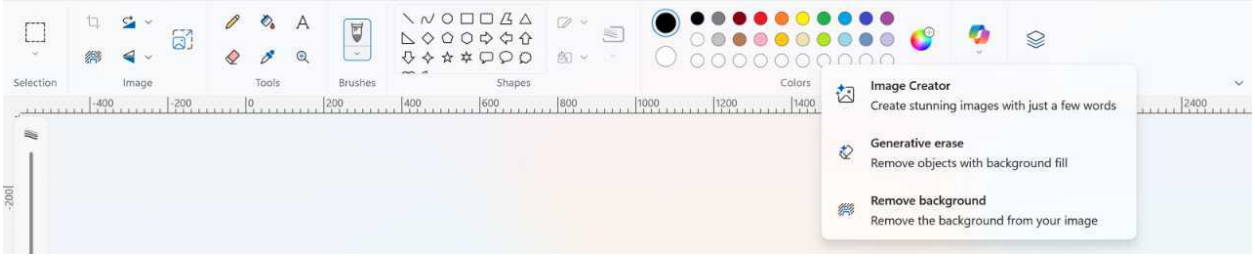


As with Notepad, another in-box app that dates back to the earliest days of Windows, Microsoft has extensively updated Paint since the initial release of Windows 11. Some of these updates modernized the user interface, adding support for system features like Dark mode. But most of the new features are tied to Paint's core bitmap image creation and editing capabilities.

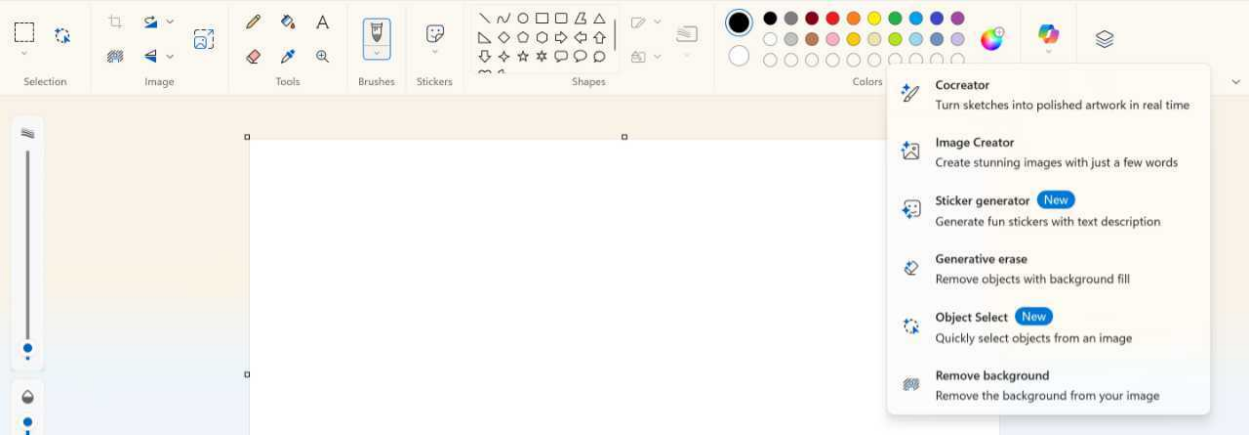
> **Tip**: Unlike Notepad, none of Paint's new features, AI or otherwise, can be disabled. When it comes to Paint, what you see–from a functional standpoint–is what you get.

Defaults

The features you see in Paint will vary based on the type of PC you have. That is, regardless of your PC, you will see most of the features that Paint offers. But those with a Copilot+ PC will see additional image creation and editing features. You can see the difference between each by opening the Copilot menu in the Paint toolbar. On most PCs, you will see the following options.



But on a Copilot+ PC, you will see additional options.



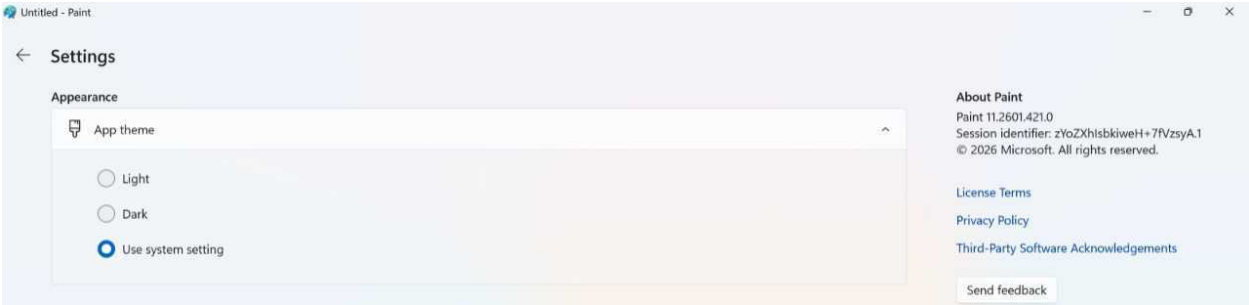
> **Tip**: If you have a Qualcomm Snapdragon X-based Copilot+ PC running Windows 11 on Arm, you'll see an additional option, for Generative fill, too.

I discuss all these new features in this chapter.

Customize

Paint doesn't offer much in the way of customization, and there is no way to disable any of its image creation and editing features, AI-based or not. But here are some key features you can customize:

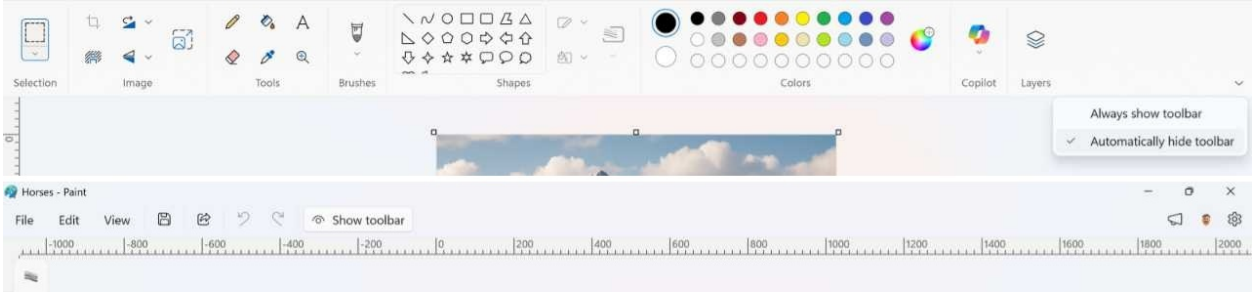
The app theme. By default, Paint will use the app theme–Light or Dark mode–you configured in the Settings app (in Personalization > Colors > Choose your mode). But you can override this choice for Paint only in the app's otherwise sparse settings interface, which you can find by clicking the "Open settings" (gear) icon in the upper-right of the toolbar.



Whether to add a watermark to AI-generated content created with Paint. By default, Paint doesn't add a visual watermark to identify when an image you create or edit in the app was made with AI. But you can configure Paint to add that watermark automatically every time or to ask you each time when you save an AI-created image. You do so in Paint settings, as per the above instructions. If you do enable this feature, the watermark will appear as a small Copilot logo in the bottom right of the image.

> **Tip**: This watermark is a so-called content credentials identifier, based on the C2PA standard used by most popular image editing apps. There are two components to it: The small visual watermark that you and other humans can see and some meta-data that lets compatible software programs identify the work as AI-created.

The toolbar. By default, Paint's rather large toolbar is displayed at the top of the app window, giving you access to its many command-based tools. There's no way to make this toolbar smaller or to hide specific commands. But you can configure the toolbar to auto-hide if you'd like, in which case you can then use a "Show toolbar" button to the right of the Paint menu and Quick access icons to temporarily display it. To do so, click the small caret ("v") at the far right of the toolbar and then choose "Automatically hide toolbar."



> **Tip:** If you want to see the image you're working on better, you can tap F11 at any time to view it full screen. Then, you can tap F11 or Esc to return to the normal Paint app display. This is similar to how Microsoft Edge and other web browsers work.

New Paint features you will see on any PC

After Microsoft announced Windows 11 in mid-2021, it began promoting updates to in-box key apps, including Paint. At first, the changes were mostly visual in nature, with Paint and other apps better conforming to the Windows 11 look and feel. But in time, Paint began to receive functional updates too. These included an updated Text tool, a Photoshop-like layers capability, and transparency support that also allows the app to open and save transparent PNG files; that latter feature works with layers, too, so that you can erase content in one layer and reveal content in a layer below that.

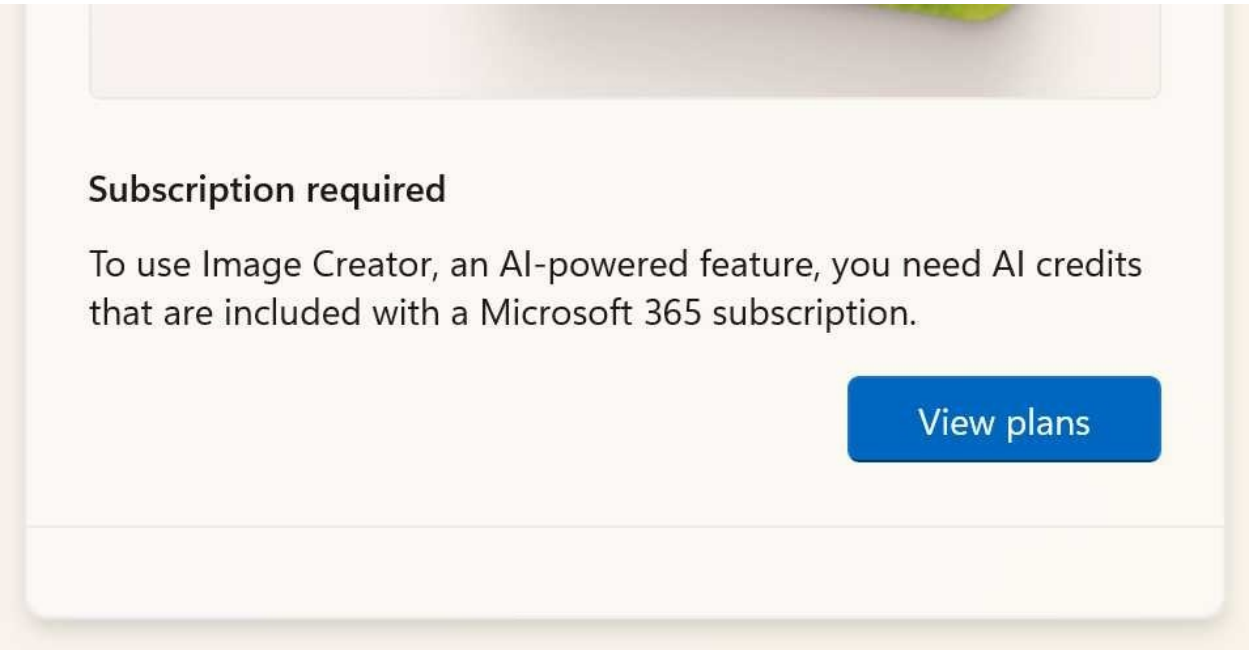
But with Microsoft's AI push in recent years, Paint started to get a lot more interesting. Today, it offers several new AI-based features, some of which work on any PC and some of which require a Copilot+ PC because they rely on local AI functionality and a powerful NPU. Either way, these new AI-based features are available via a drop-down menu that appears when you click the Copilot button in the Paint toolbar. But there is one complication: Some of the AI-based features that Paint makes available to everyone require a Microsoft account and, more importantly, a Microsoft 365 Personal, Family, or Premium subscription, and you will spend so-called *AI credits* each time you use those features.

So what does *that* mean?

According to the Microsoft Support website, Microsoft 365 subscribers receive an allotment of AI credits each month, and they can access advanced, cloud-based AI features offered through the subscription by paying for them with these credits. As an example, a Microsoft 365 Personal subscriber gets 60 AI credits each month, and each time they use the Image Creator or Generative erase features in Paint, they spend one AI credit.

> **Tip**: You can review your AI credit balance at any time on the Microsoft account website.

If you don't have a Microsoft 365 subscription, you can't access those features that require AI credits.



Layers and projects

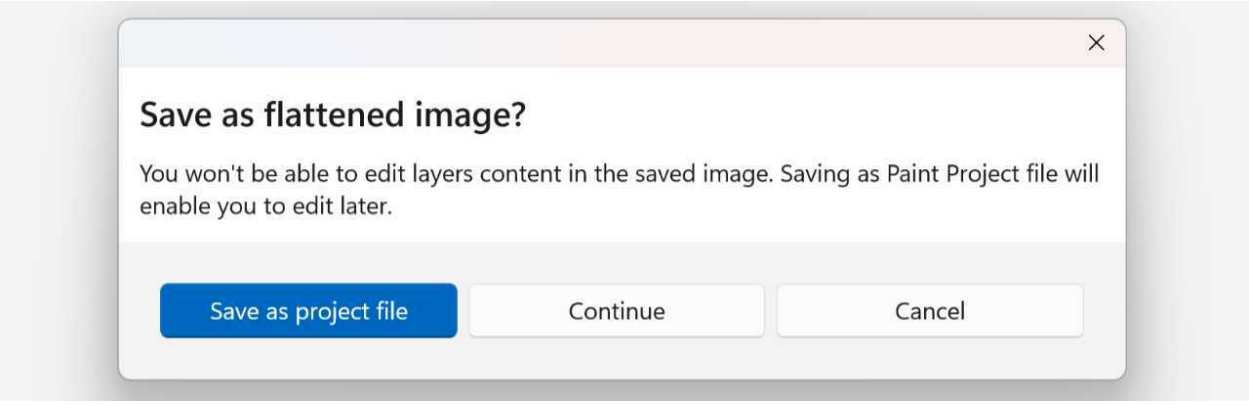
The layers feature in Paint was useful as originally implemented, but it had one major flaw: Once you were done editing an image with multiple layers, you could save it as a file in PNG or some other image format, but there was no way to edit the layers individually after you closed and re-opened the image. But Paint now offers a related Projects feature that lets you save a Paint project with multiple layers as a .paint file so that you can continue working on these images as needed and never worry about losing the layers data.

To get started, open Paint and optionally open an image file. Then, choose File > Save a project to save it as a Microsoft Paint Project.

> **Keyboard shortcut**: Type Ctrl + Shift + S to do this using just the keyboard.

Now, you can add multiple layers to the project, and when you save, it will save that information into the project, not to a static image.

When you're done editing, save the project. Then, choose File > Save as to save this as a PNG, BMP, or other standard image format as before. Paint will prompt you to make sure you wish to "Save as flattened image." Click "Continue" to do so.



When you're done, you will have at least two files, the Microsoft Paint Project file and the image file.

Remove background

Paint includes a useful Remove background tool that does what its name promises, and quite effectively. This one, oddly, is available in two places in the Paint toolbar: As a tool icon in the Image group and through the Copilot drop-down menu. But it's worth trying if you need this functionality. And unlike some AI-based features in Paint, it's completely free, with no AI credits required.

Image Creator

Image Creator is Paint's version of the image creation capabilities found in OpenAI ChatGPT, Google Gemini, and other AI chatbots: You type a prompt–i.e. describe the image you'd like Paint to create–optionally choose an image style from the "No Selection" drop-down menu, and then the app, powered by OpenAI's DALL-E image generation AI model, gets to work.

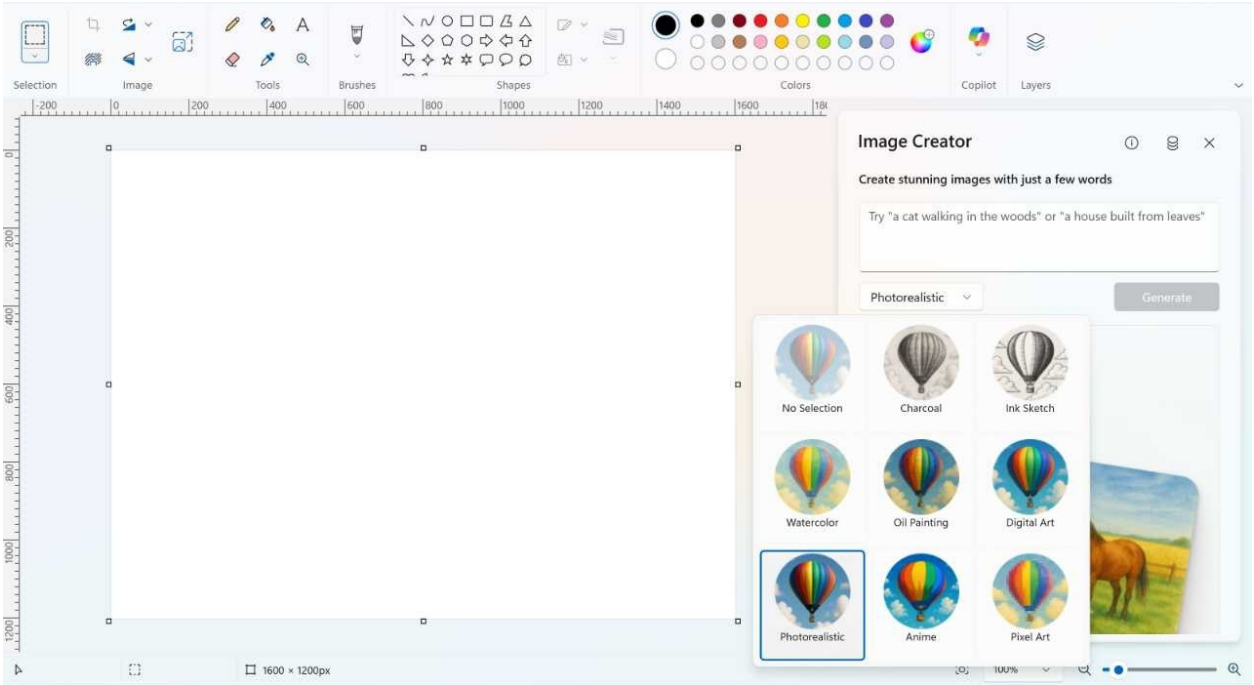
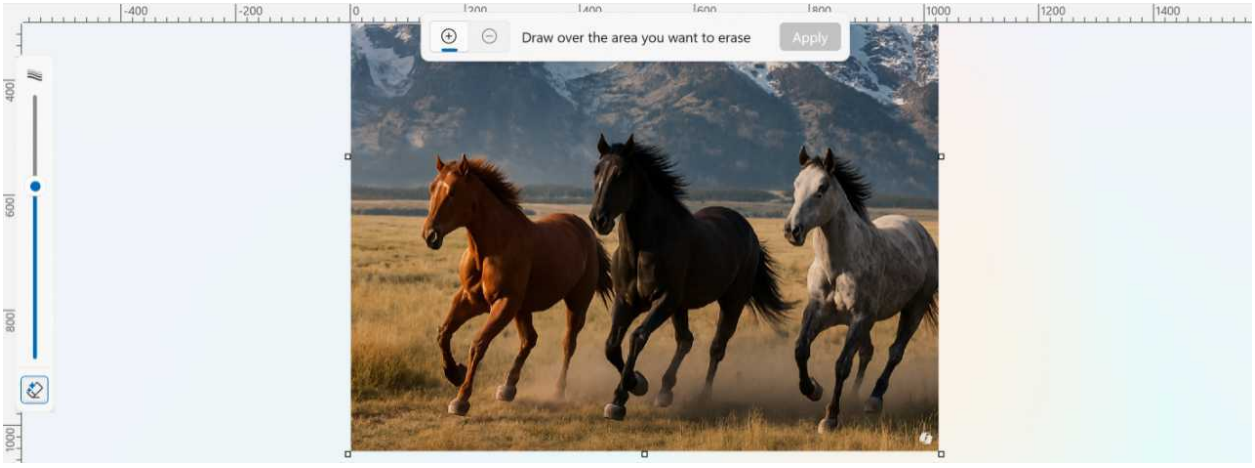


Image Creator can make high-quality images, as you can see from the horses image used elsewhere in this chapter. But there are some downsides compared to the competition. You have to have a Microsoft 365 subscription and spend AI credits. It only creates a single image and there's no way to make changes in an ongoing conversation. And there's no way to configure it to create images in anything apart from a square aspect ratio.

Generative erase

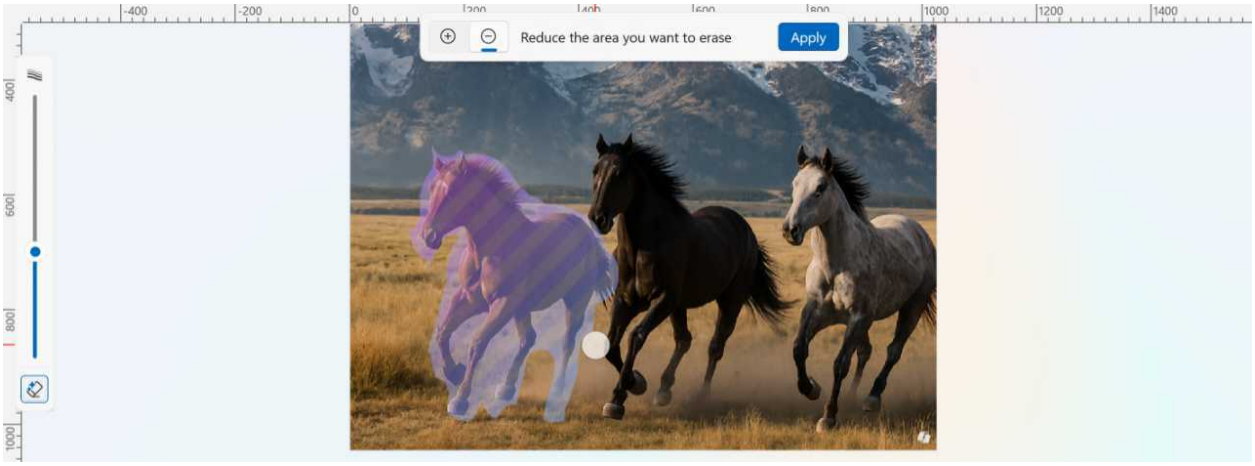
Generative erase is a cloud AI-based tool that can remove objects from an image, similar to Magic Eraser in Google Photos.

To get started, open an image in Paint and select Generative erase from the Copilot menu. When you do, two new interfaces appear: A Generative erase pop-up in the top center of the app with "Add area to erase," "Reduce area to erase," and "Apply" buttons, and a Generative erase slider on the left that lets you resize the round eraser cursor you will use to select one or more areas to erase.

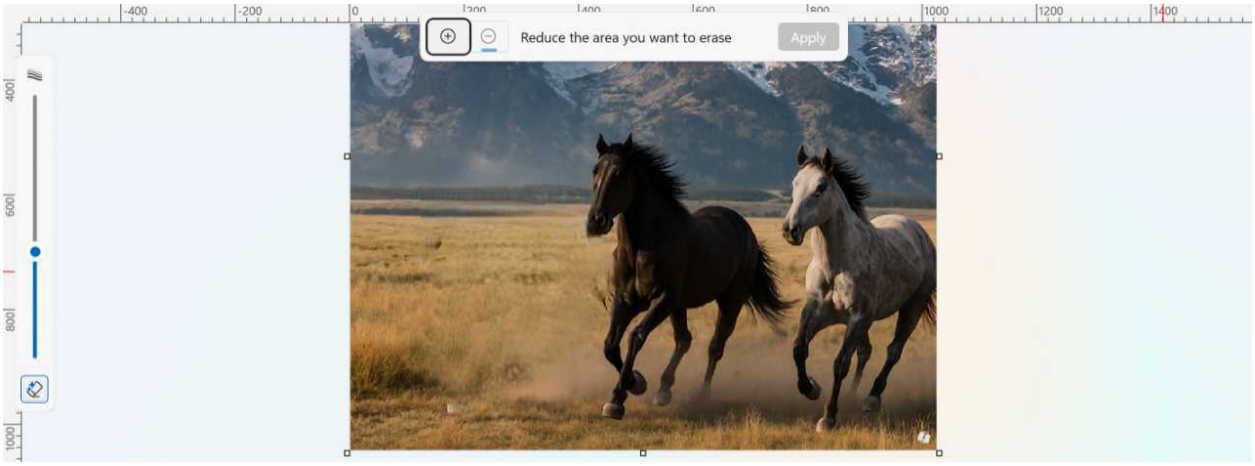


From here, you can:

- Change the size of the eraser cursor you'll use to select (or reduce) the area in the image you wish to erase.
- Use the eraser cursor to select the area you wish to erase. Note that you don't have to be particularly accurate.
- After you've selected an area to erase, you can fine tune it by clicking the "Reduce area to erase." Then, you can optionally resize the eraser cursor and use it to remove parts of the selected area.



- When you're ready to erase, click the "Apply" button in the top pop-up. After a blue-purple-pink animation that's typical of generative AI these days, the edit is made.



From here, you can erase other areas or use Undo (Ctrl + Z) to reverse the change.

New Paint features that require a Copilot+ PC

Copilot+ PCs are AI PCs that include a modern AMD, Intel, or Qualcomm processor, at least 16 GB of RAM, 512 GB of SSD storage, and a Neural Processing Unit (NPU) that delivers at least 40 TOPS of hardware-accelerated local AI performance.

> **Learn more:** Copilot+ PC: Click to Do and Recall

That latter requirement is most pertinent to the features in Paint that are only available to those with a Copilot+ PC: Each of these features runs locally using small language models (SLMs) installed on the PC. Because they don't require or even use cloud-based AI, they can be used while the PC is offline, too. And unlike the most useful cloud AI-based features described previously, there are no limits, AI credits, or Microsoft 365 subscription to worry about.

> **Tip**: If the SLM required by Paint isn't yet downloaded to the PC, you will be prompted to install it from the Microsoft Store when you attempt to access any of these features.

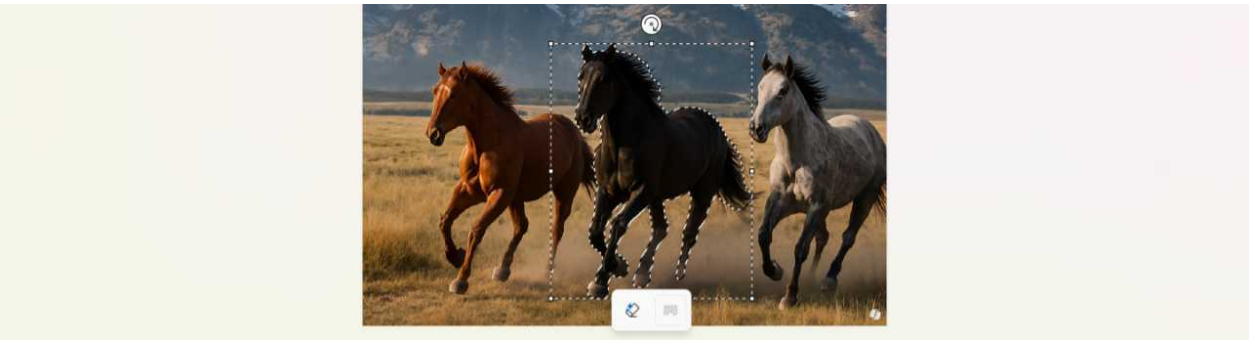
Object select

Object select works like similar features in Adobe Photoshop and other professional image editing solutions: You can mouse over objects in an image and Paint uses AI to select each in turn, so you can find the one you want and then copy, move, or erase it, or replace it using Generative fill.

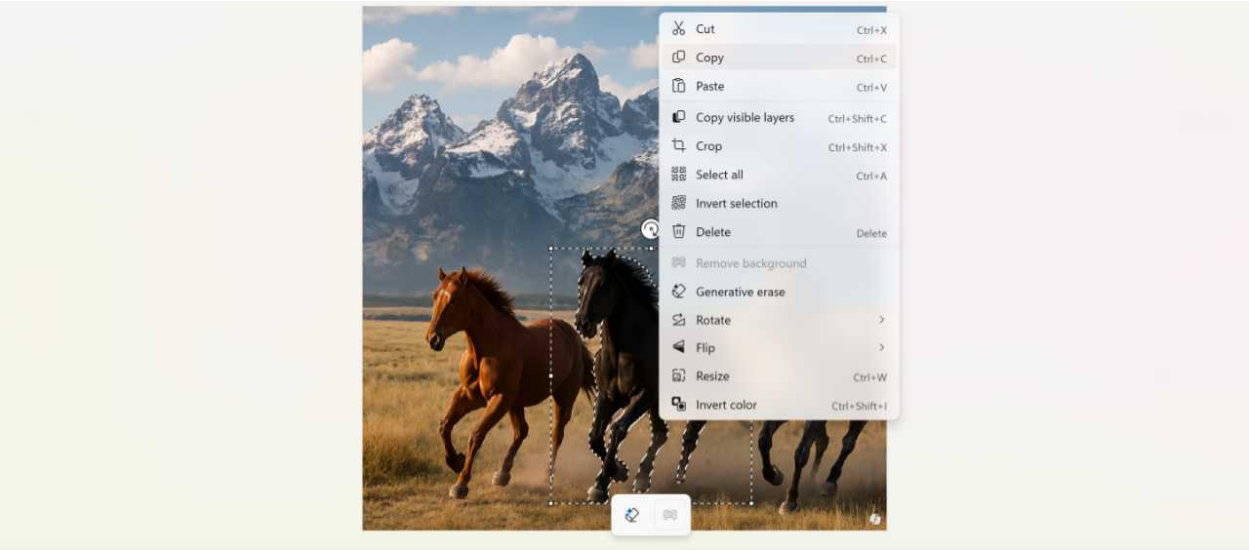
> **Tip**: Generative fill requires a Qualcomm Snapdragon X-based Copilot+ PC.

To get started, open an image and select Object selection in the Copilot menu. Then, as you move the mouse cursor over the image, it will highlight individual objects it can select.

When you find the object you wish to select, click the mouse button. A selection rectangle will appear around the object with a pop-up below it; if the object is in the foreground, it will display a "Generative erase" button. If the object is in the background, the "Remove background" button will also be available.

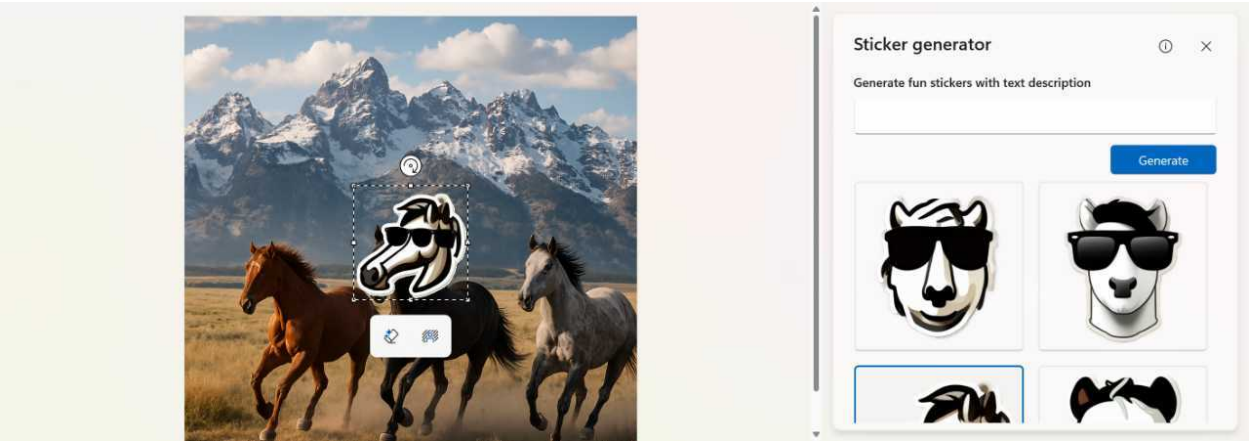


From here, you can copy or cut the selected object to the Clipboard so you can paste it elsewhere, invert the selection, delete the object, and access other actions: Just right-click to see what's available. You can also resize or rotate the selected object using the rotation tool and handles on the selection rectangle.



Sticker generator

This somewhat frivolous feature lets you prompt the AI to create a digital sticker as a way to add a personalized visual object. This one couldn't be easier: Just open Sticker generator from the Copilot menu, describe the sticker design you want in the prompt, and click "Generate." Paint will create four designs to choose from. To add a sticker you like, double-click it; you can then resize or rotate it, move it to a new location, or access Generative erase and Remove background tools from the associated pop-up.

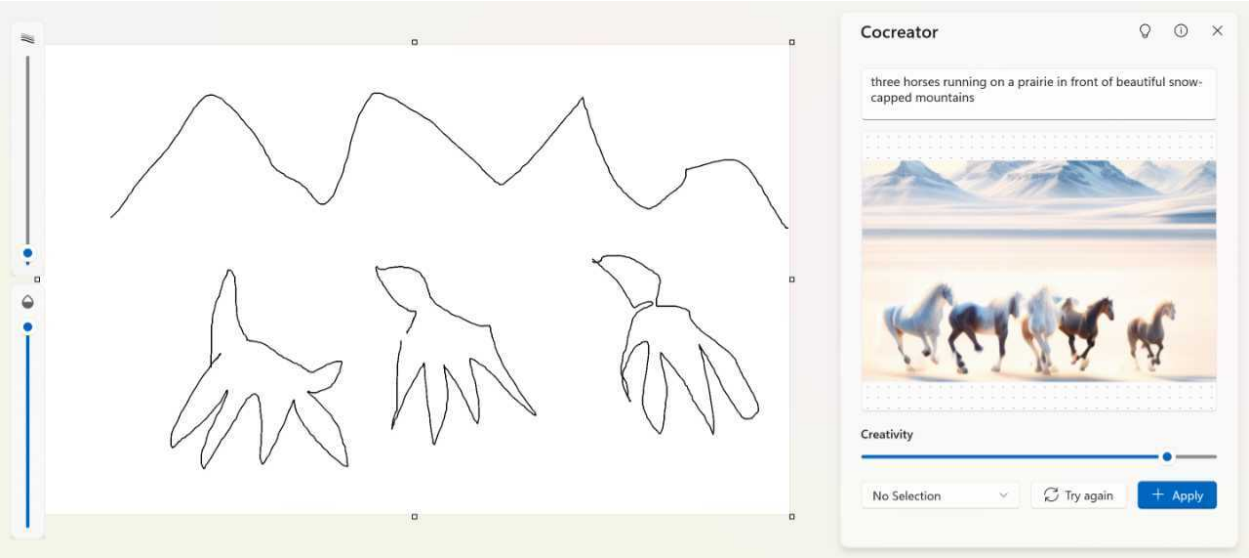


Each sticker in the Sticker generator pane also has an associated “More” (“...”) button that displays a menu of commands for copying and saving it separately.

Cocreator

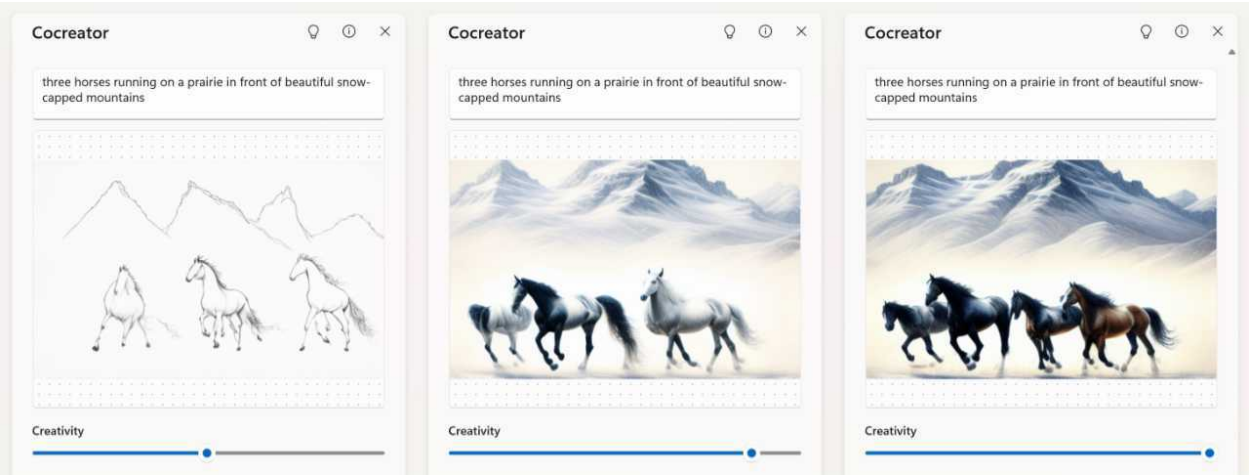
Cocreator works a bit like Image Creator in that you can write a text prompt to instruct the AI to create an image. But it uses a local AI model instead of DALL-E. And it adds a twist, too: You can draw a design using the mouse or a smartpen, and the AI will use that drawing to generate a more professional looking version of it. This is useful whether you have any drawing skills or not.

To get started, open Cocreator from the Copilot menu. Then, write a prompt in the text box and begin drawing even a very rough sketch of the design you want on the image canvas. As you draw, an image will appear on the dotted grid in the Cocreator pane.

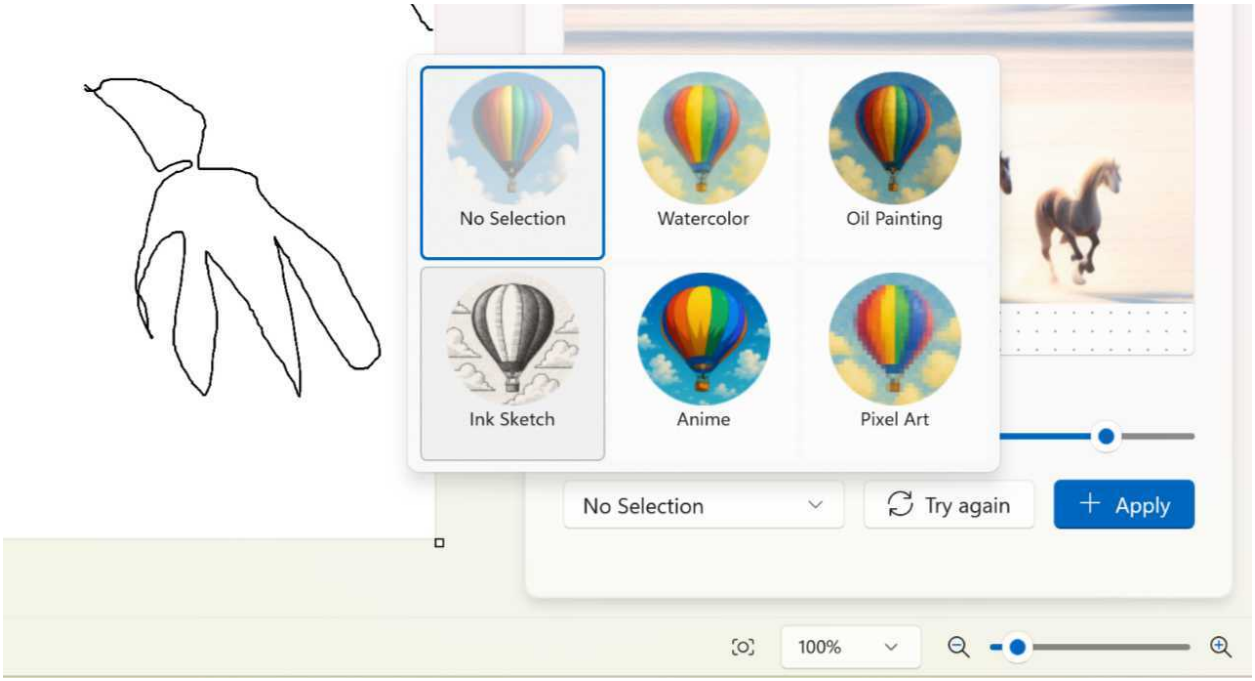


Note the Creativity slider: It defaults to 70 , in a range of 0 to 95, and the higher the value, the better the quality of the image it creates. At 0, the image will be identical to the drawing you

make on the canvas.



You can also click the "No Selection" drop-down to choose a style. Here, those choices are Watercolor, Oil Painting, Ink Sketch, Anime, and Pixel Art.



To apply the generated image and replace your sketch, click "Apply." If you want to regenerate a new image, click "Try again."

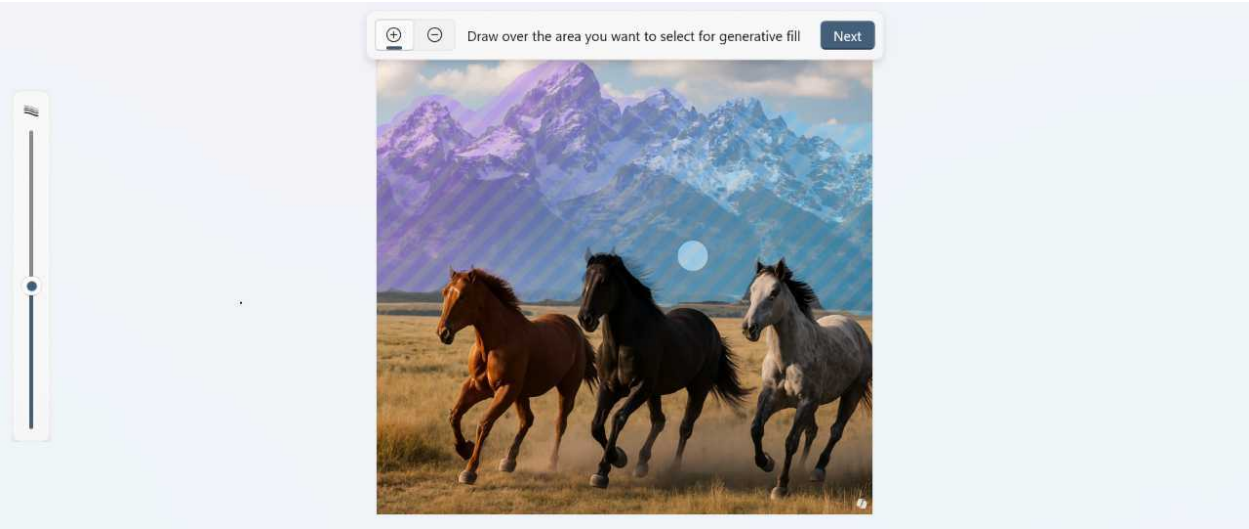
Generative fill (Snapdragon X Copilot+ PCs only)

Generative fill lets you add and replace objects in an image by filling a selected area according to the instructions you provide in a text-based prompt. It works very much like the Generative erase

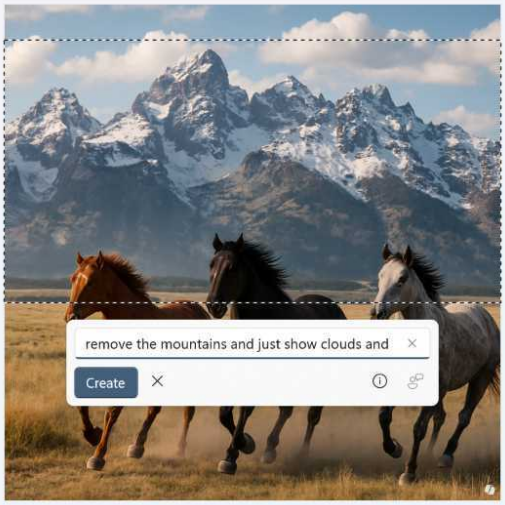
feature described above, with the same basic user interface. But instead of just removing an object, you can *add* information to an image using AI.

To get started, open an image and select Generative fill from the Copilot menu. Two new interfaces appear: A Generative fill pop-up centered over the image with “Add area to fill,” “Reduce area to fill,” and “Next” buttons, and a Size slider on the far left so you can size the selection cursor you’ll use to define the area to change.

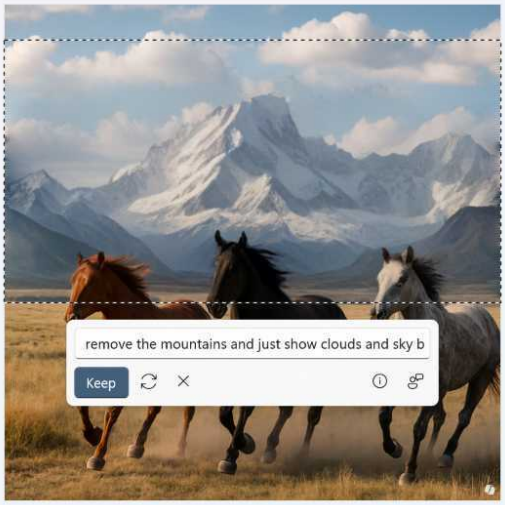
Change the size of the selection cursor as needed and then use it draw over the area you would like to change, using the “Add area to fill” “Reduce area to fill” buttons as needed to refine the selection.



When you’re ready to add or replace an object, click “Next.” A prompt pop-up will display so you can describe the change you want to make.



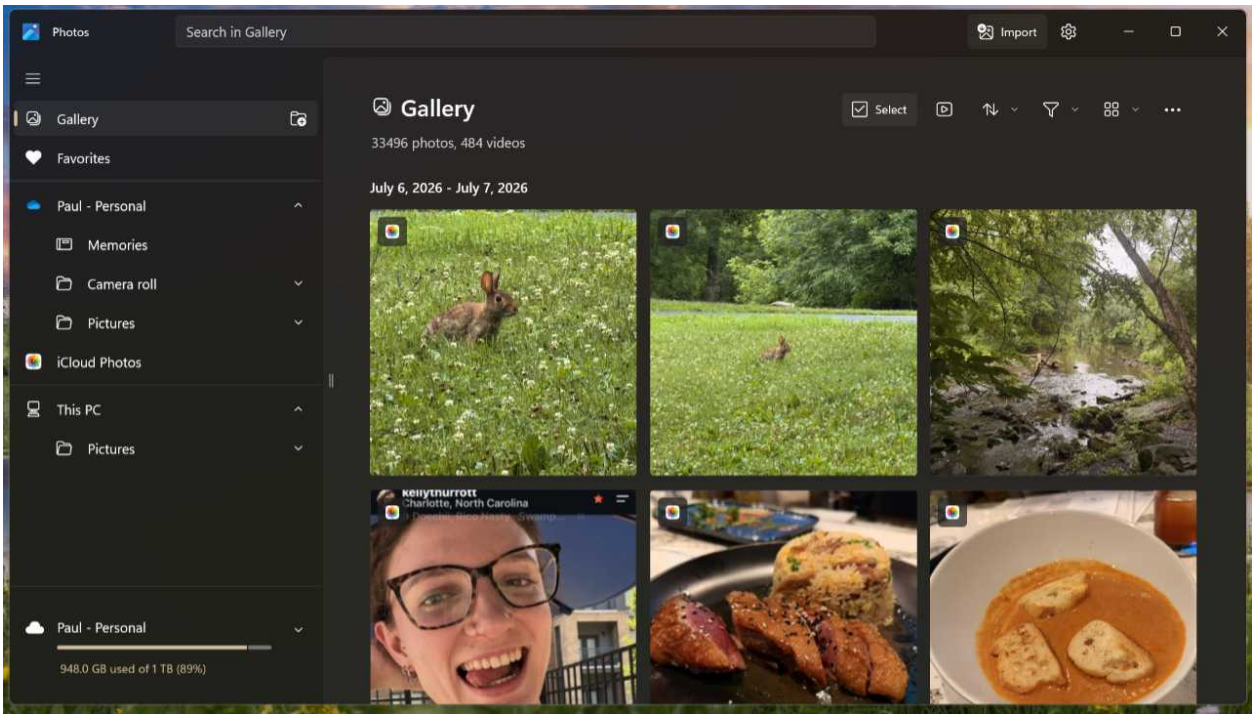
When you're done, click "Create." After a brief blue-purple-pink animation similar to other AI tasks appears, Paint will make the change you requested, or at least try.



If this change is acceptable, click "Keep." If not, you can click a "Try again" button and see whether the AI will get closer to what you want. Or, you can edit the prompt to be more specific.

Photos

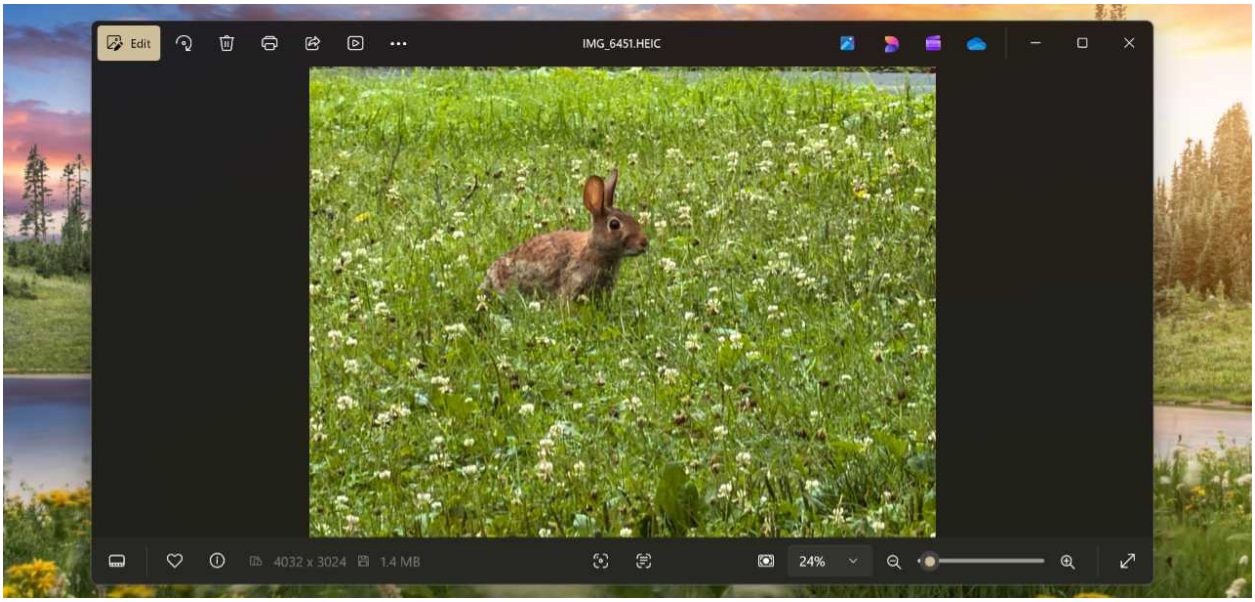
The Photos app lets you view, edit, manage, and share photos, other images, and videos stored on your PC, removable storage devices, your phone, OneDrive, and, optionally, Apple iCloud.



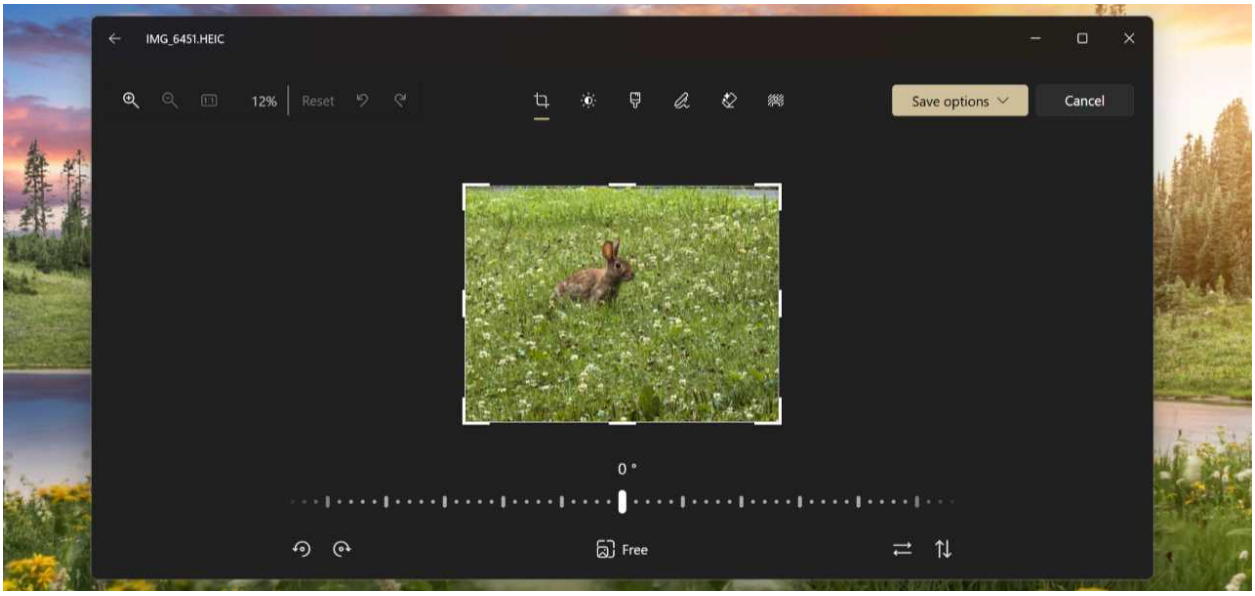
Defaults

Photos is the default in-box app for image files–including popular formats like .bmp, .gif, .heic, .jpg, .png, .raw, and many others–in Windows 11. It works well in this regard and offers a wide variety of image viewing, editing, and management functionality. Oddly, there are three discrete experiences, each of which appears in its own app window:

- **Photo viewer**. When you open an image file from the Photos app, File Explorer, or the Desktop, the app's photo viewer window appears to display the image.



- **Photo browser**. When you open the Photos app directly from Start or elsewhere, its full app experience appears. This window includes a navigation pane and a Gallery view with thumbnails of your photos, sources. The navigation pane is configured with links to Gallery, Favorites, OneDrive, iCloud Photos, and This PC views, plus a collapsible overview of your OneDrive storage and its phone integration capabilities. And there is an "Import" button for copying photos from a phone or other device connected to the PC via USB.
- **Photo editor**. If you choose to edit a photo from the photo viewer or main Photos app window, the editor experience appears. If you do this from the photo viewer, this experience replaces the viewer experience in the same window. If you do this from the main Photos app, the editor experience appears in its own window.



By default, Photos is configured to use a Dark app theme across each of its experiences and windows, even if you've configured Windows 11 to use a Light app theme.

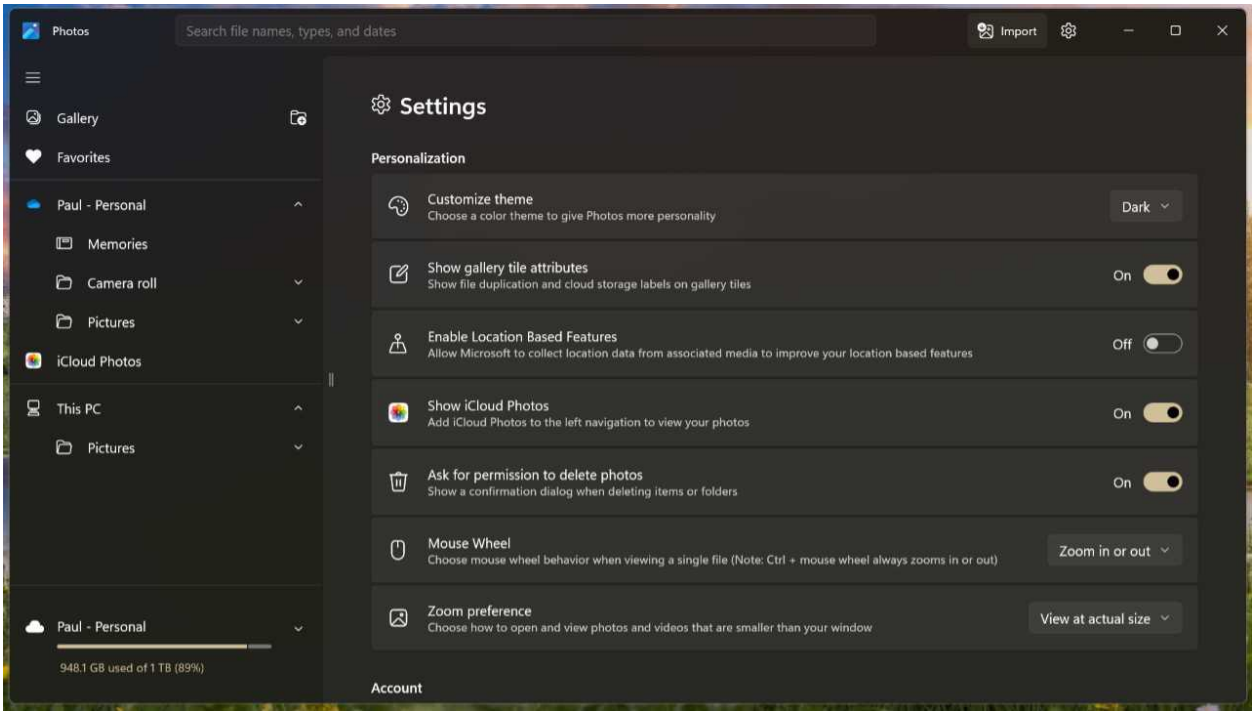
Also, the capabilities provided by Photos can vary depending on your PC. Those with a Copilot+ PC get additional functionality that uses the on-device local AI models provided by the platform in the main Photos app and the Photo editor experience. Features unique to Copilot+ PCs are highlighted as needed throughout the chapter.

Customize

You customize some Photos features directly in the app and with the in-app settings page. But its file associations are configured in the Windows 11 Settings app or, on a case-by-case basis, when you open an image file in File Explorer.

Photos settings

To access this app's settings page, open Photos and click the "Settings" (gear) icon in the top right of the window.



Most of this is fairly obvious, but you should disable "Show iCloud Photos" if you don't use an iPhone or have photos stored in Apple's iCloud storage service. If you will use Photos to manage your photo collection, you should also consider changing "Enable Location Based Features" to "On."

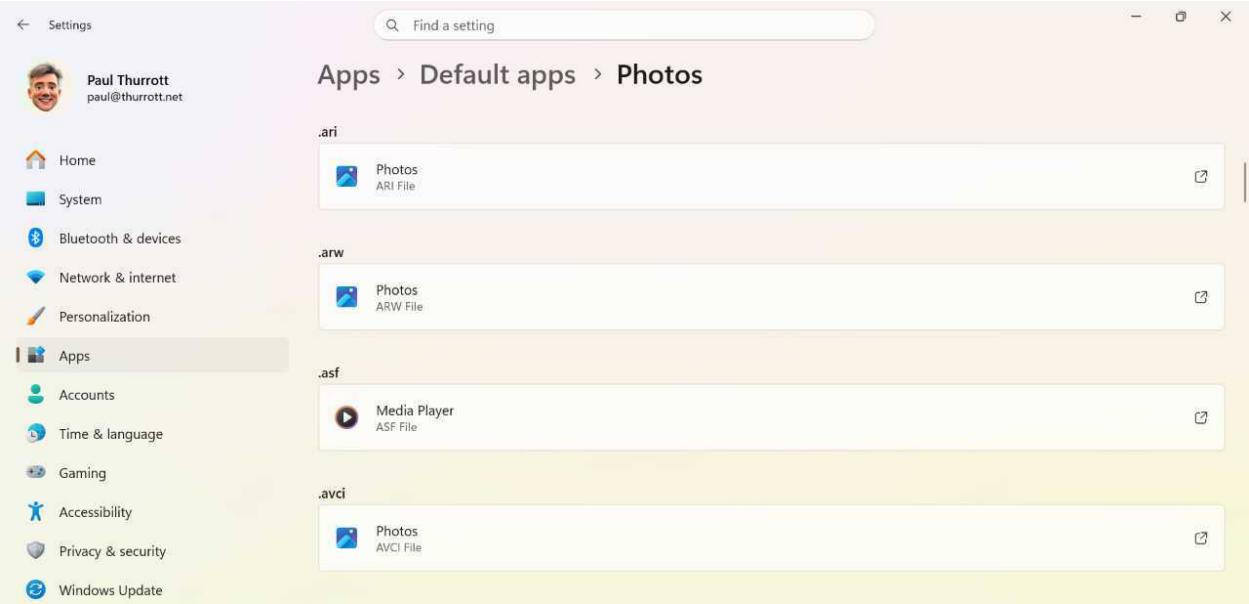
Gallery is the default view and it commingles photos, other images, and videos from multiple sources–OneDrive cloud storage, your iCloud Photos collection (if available), and your local PC–in into a single "River" layout by default. This view is customizable–there are sorting, filter, and layout options at its top–and you can select multiple images to back them up to OneDrive, move or copy them, and perform other actions.

You can click the "Add folder" button next to the Gallery item to add any folder on your PC to Photos so that its contents appear in the app. Less obviously, you can make the following two configuration changes directly in the navigation bar:

- **Remove your Picture folder**. If you don't want the contents of your Pictures folder–including Screenshots and any other sub-folders–to appear in the Photos app, right-click the "Pictures" item in the navigation bar and choose "Remove folder from Microsoft Photos" in the menu that appears.
- **Add a folder**. As per the "Add folder" button noted above, you can right-click "This PC" in the navigation bar and choose "Add folder" in the menu that appears to add a folder as well.

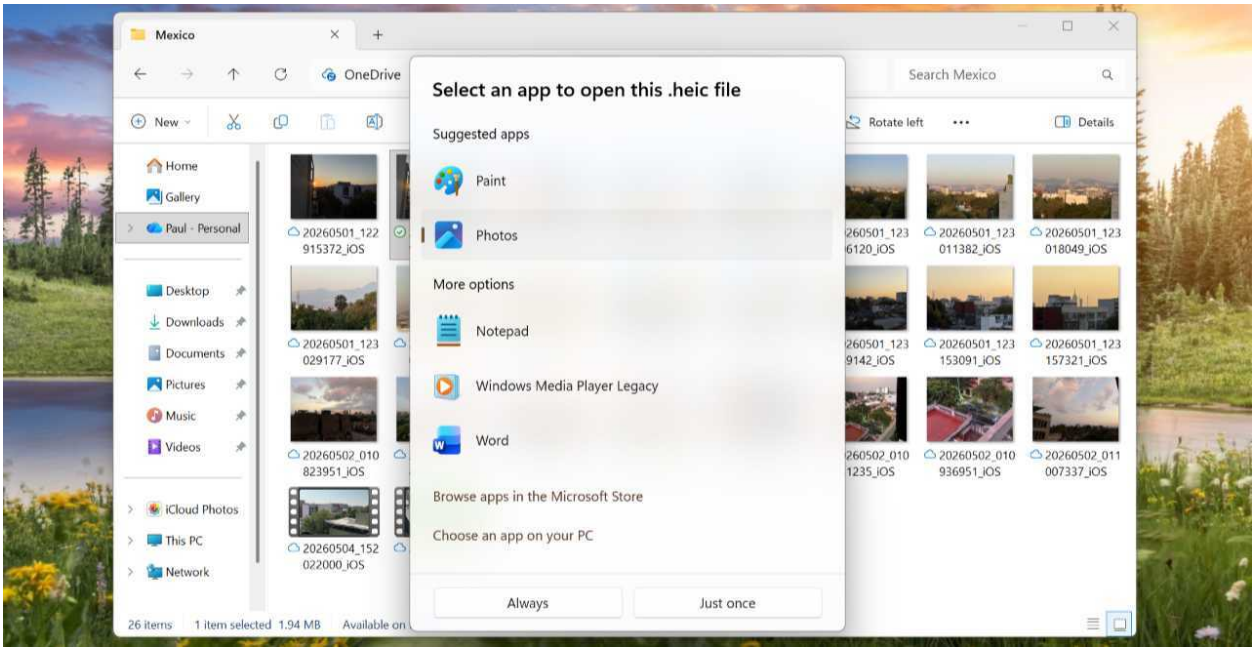
Configure Photos app file associations

You can view and edit the file types associated with the Photos app by opening the Settings app and navigating to Apps > Default apps > Photos.



Because there is no “Select all” or “Select all image file types” option, this interface can be tedious to use. Fortunately, it’s easier to do this on a case-by-case basis in File Explorer (including on the Desktop). Indeed, you will sometimes be given this choice automatically.

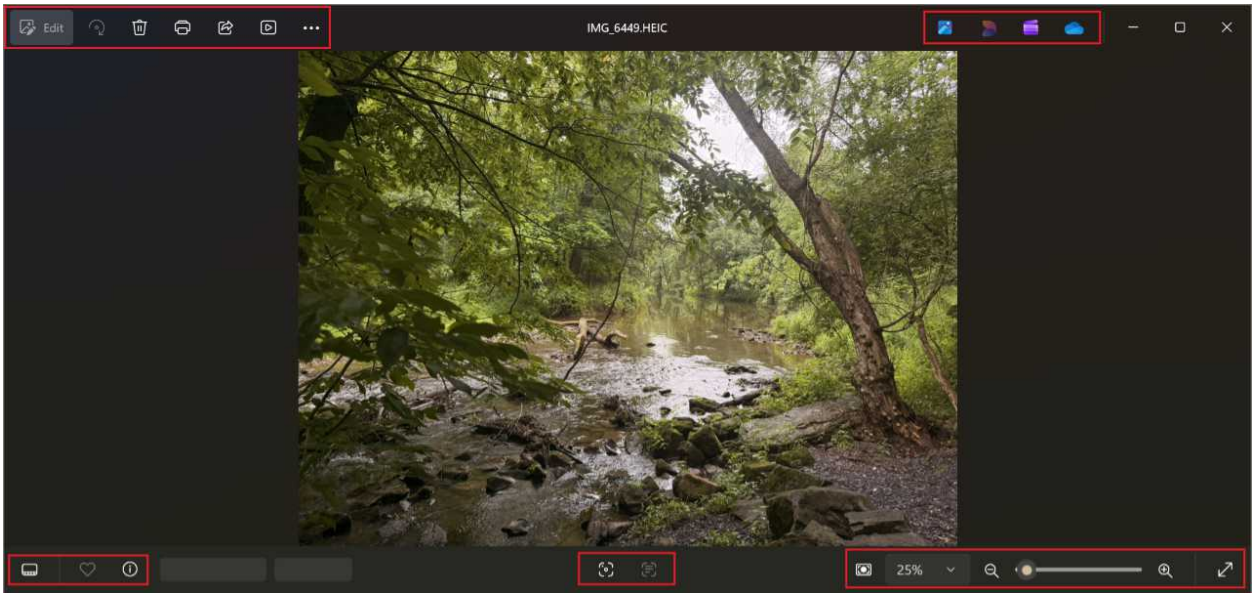
If you install an app that can open image files, Windows 11 will ask you which app you wish to use the next time you try to open an image file in File Explorer or on the Desktop. To continue using Photos for this purpose, select it in the dialog and then click “Always.”



You can also manually make this change at any time: Right-click an image file in File Explorer and choose “Open with” and “Choose another app” from the menu that appears. As above, you can then select Photos and then click “Always.”

View an image

Photos offers a relatively sophisticated photo viewing experience. There is an incredible range of functionality here, spread out to various buttons and other controls in the four corners and bottom center of the app.

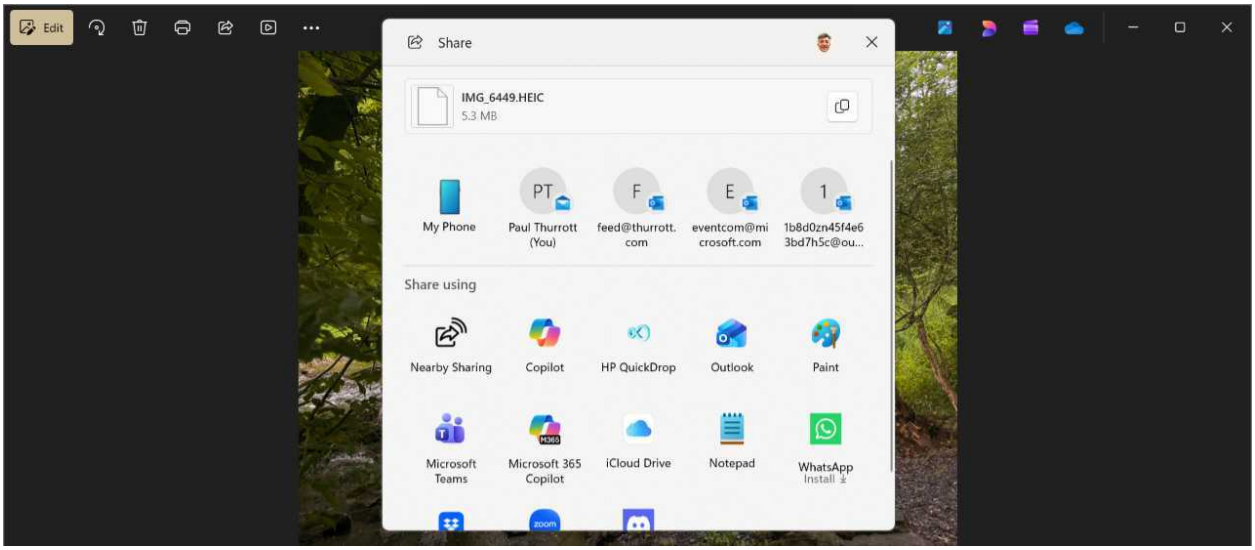


Tools found in the top left of the photo viewer

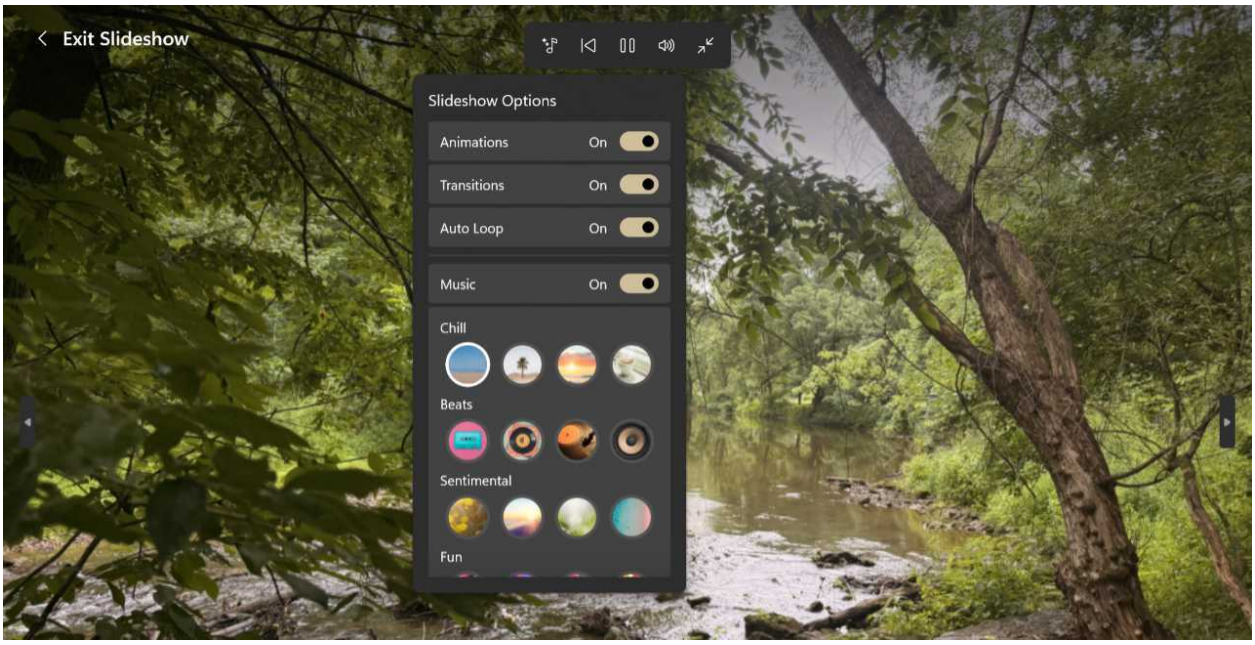
- **Edit**. Click this button to replace the Photos photo viewer experience with its image editing experience.

> **Learn more**: Edit an image.

- **Rotate**. Click this button to rotate the image 90 degrees to the right.
- **Delete**. Click this button to delete the image. You will be prompted to make sure this is what you want.
- **Print**. Click this button to display a Print dialog and print the image to a physical printer or PDF file.
- **Share options**. Click this button to display the Windows Share pane so that you can share the image with your phone (if connected), Outlook, Nearby sharing, or any compatible apps.



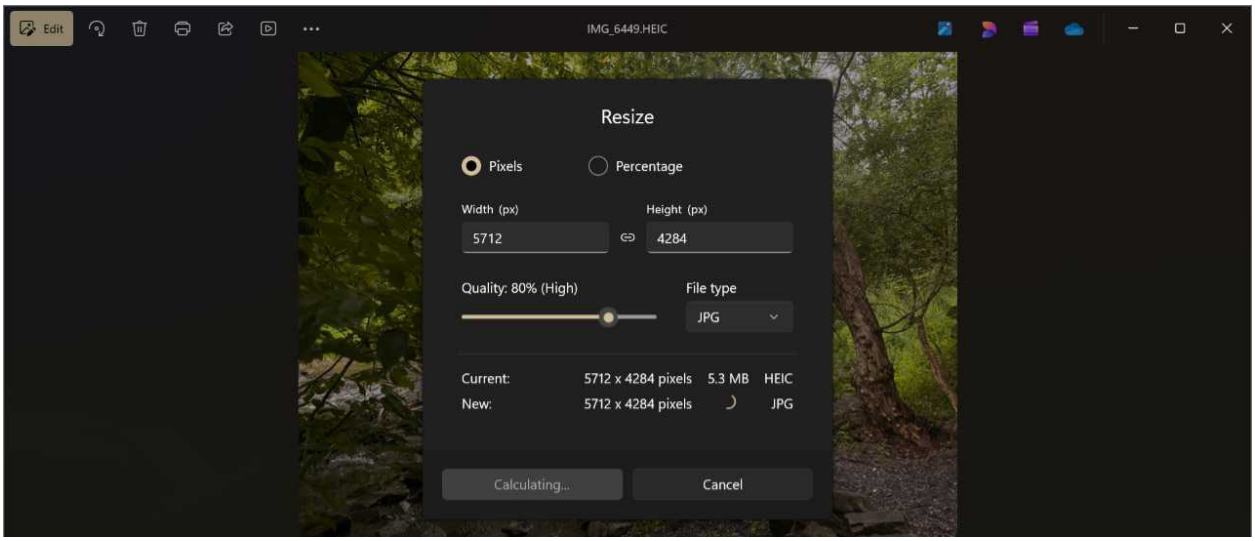
- **Start slideshow**. If there are other images in the folder that contains the image you're viewing, this button will appear in the upper-left so you can view a slideshow of all the images there.



Tools found in the "See more" overflow menu in the top left of the photo viewer

- **Save as**. Click this item to save the image to your PC using a standard Save as dialog.

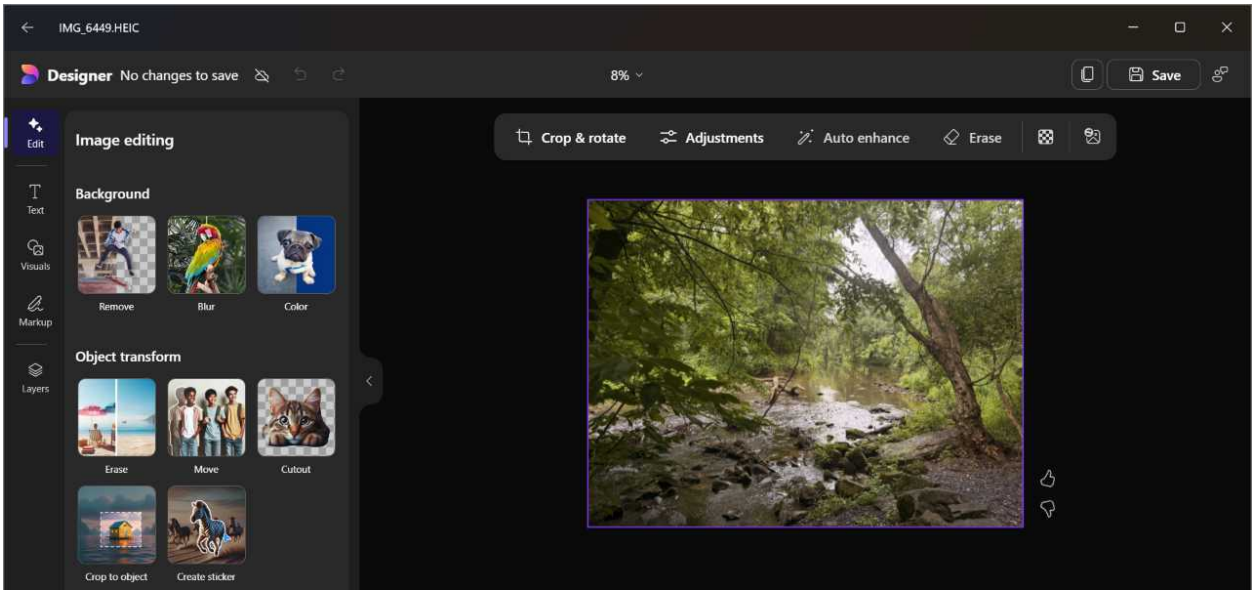
- **Copy**. Click this item to copy the image to the Clipboard so that you can paste it into another application.
- **Set as**. Click this item to set the image as the background of the Lock screen or the Desktop.
- **Resize image**. Click this item to display a Resize window that provides pixel- and percentage-based resizing, quality level, and file type choices.



- **Open in File Explorer**. Click this item to open File Explorer displaying the location of the image in the file system.

Tools found in the top right of the photo viewer

- **Browse all your photos and videos**. Click this button in the upper right of the photo viewer to open the main Photos app window.
- **Edit with Designer**. Click this button to open an in-app version of the image editor used by Microsoft Designer on the web. This editor offers rich AI-powered image editing capabilities separate from the native image editing features found in the Photo app's editor experience, described below.



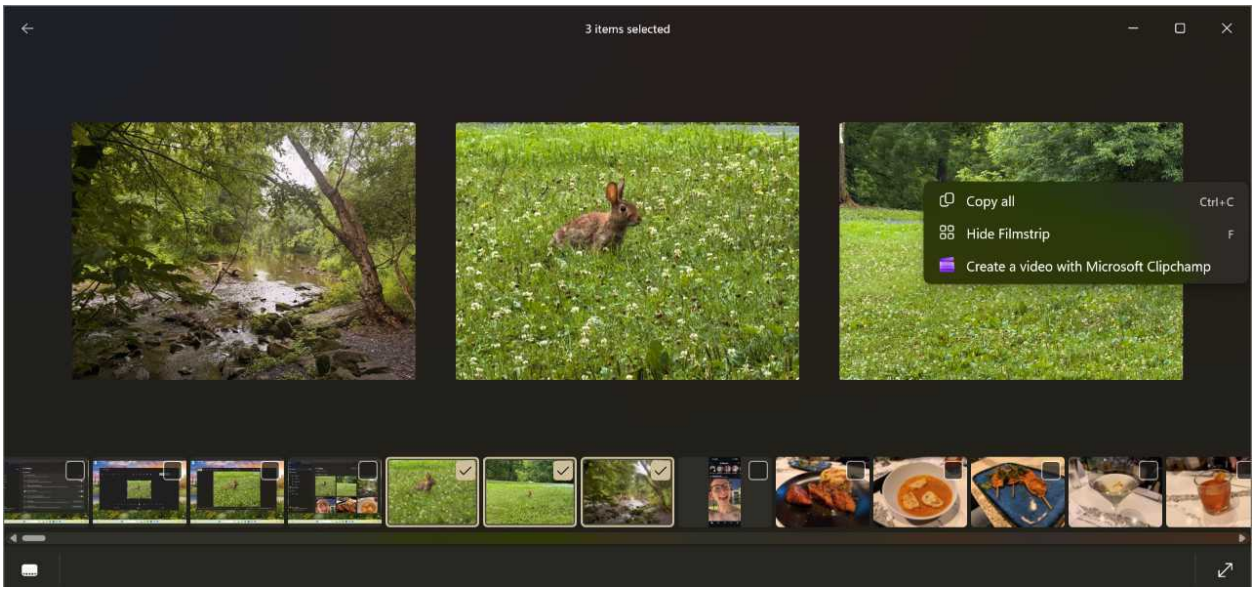
- **Create a video with Microsoft Clipchamp**. Click this button to open Clipchamp and create a new video featuring this image.
- **View OneDrive in Photos**.
- **Previous/Next**. If there are other images in the folder that contains the image you're viewing, Photos will display "Previous" and "Next" buttons on the sides of the app window when you mouse over those areas.

> **Keyboard shortcut**: You can also tap the Left arrow and Right arrow keys to navigate to different images in the same folder.

Tools found in the bottom left of the photo viewer

- **Show/Hide Filmstrip**. This button toggles a filmstrip view that appears at the bottom of the image and displays thumbnails of each image in that folder for easier navigation. You can

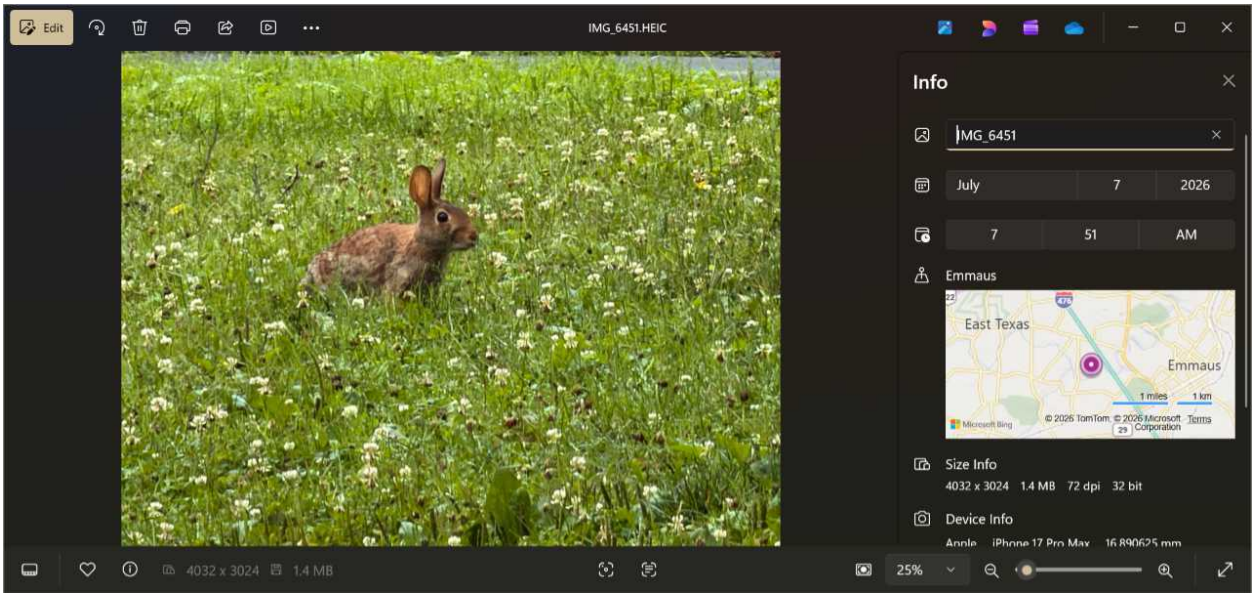
also multi-select images in the filmstrip using a selection box that appears when you mouse over a thumbnail. You can then right-click the filmstrip to reveal a limited set of options like "Copy all" and "Create a video with Microsoft Clipchamp."



- **Add to Favorites**. Click this button to add the image to your list of favorite photos.

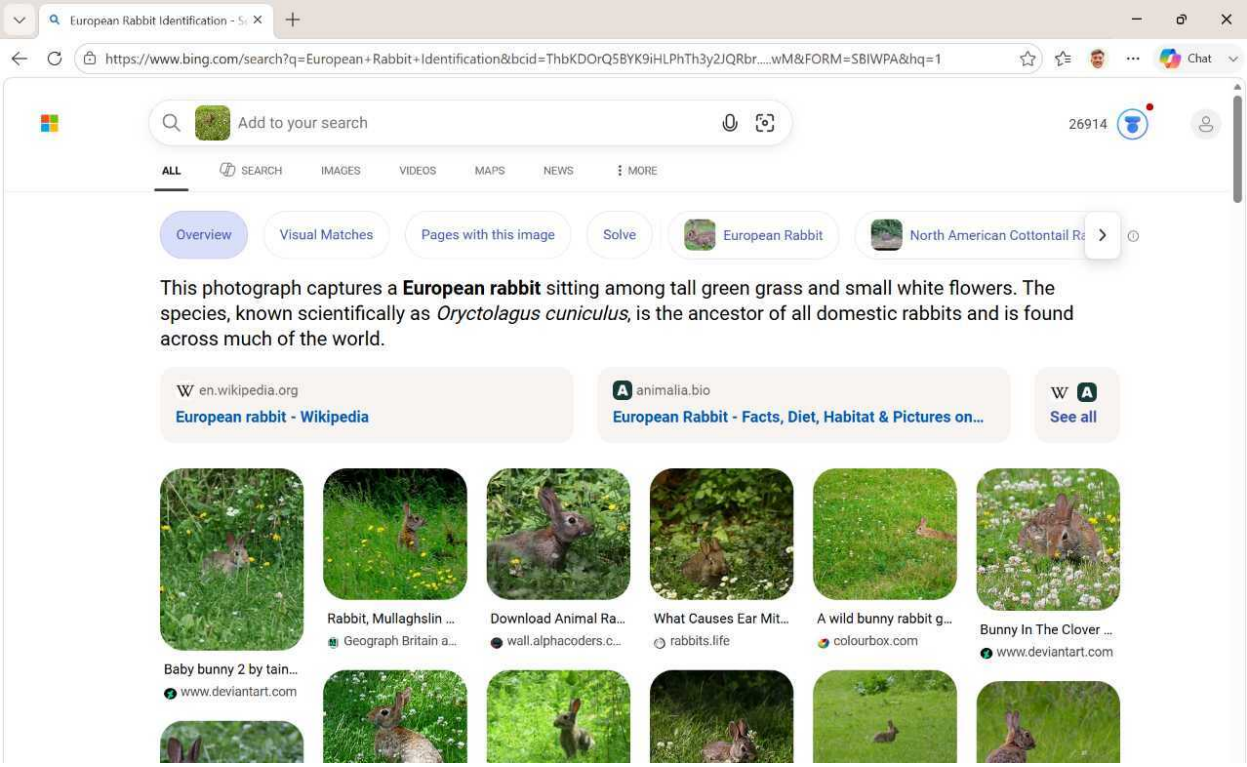
> **Learn more**: Favorites

- **File info**. Photos displays the resolution and file size of the current image next to this button, but you can click "File info" to display–and in some cases, edit–other metadata in a large pane.

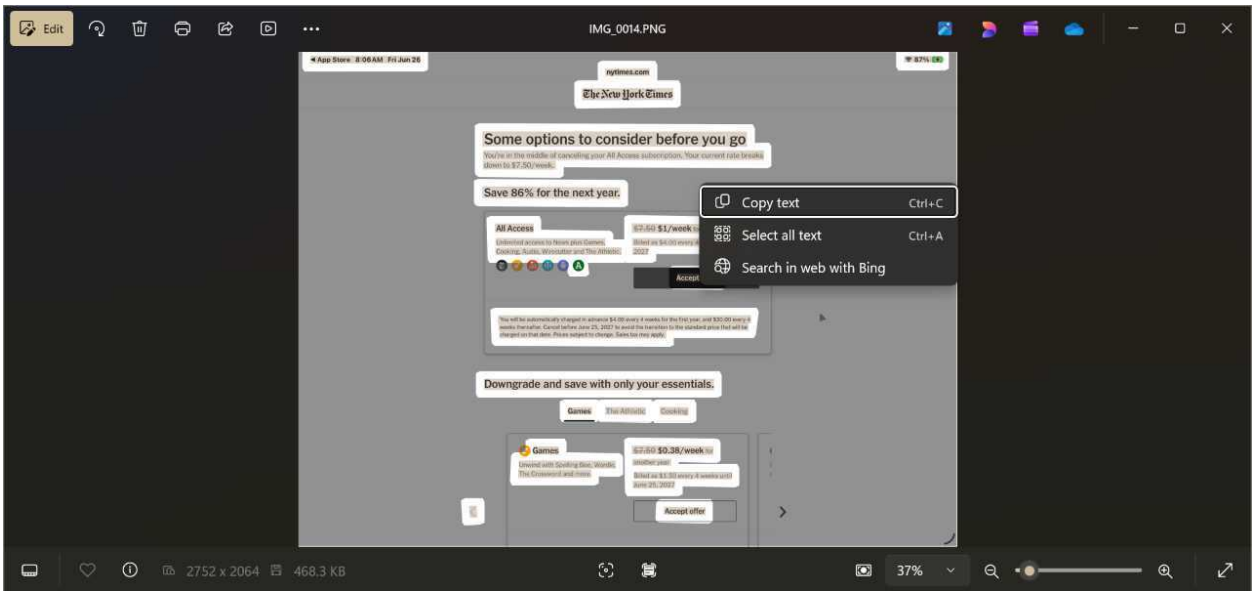


Tools found in the bottom center of the photo viewer

- **Visual search with Bing**. This button opens a new tab in your default web browser so you can perform what's called a "reverse image search" using the current image and find more images like it online.



- **Scan text**. This incredibly useful feature highlights all the text in a photo, screenshot, or other image. Then, you can right-click the image to select "Copy text," "Select all text," and "Search in web with Bing" options from a pop-up menu. Copied text is copied to the Windows 11 Clipboard so you can then paste it into another app, like Notepad.



Tools found in the bottom right of the photo viewer

- **Zoom to actual size/Zoom to fit**. By default, Photos will display images at native resolution if possible. Otherwise, it will scale the image to fit the available space. You can use this button to toggle between the native resolution and the scaled view.
- **Zoom selection**. This control displays a menu of preset zoom sizes you can select, like 10%, 25%, 50%, and so on.
- **Zoom out**, **Zoom**, **Zoom in**. This set of controls is used to zoom the image display in and out arbitrarily.

> **Keyboard shortcut**: Type Ctrl + + (plus) to zoom in on an image, Ctrl + - (minus) to zoom out, and Ctrl + 0 to return the image to its default zoom size.

- **Fullscreen**. Click this item to display the image in full-screen. Tap Esc to exit this view.

> **Tip**: Most of the options listed above can also be accessed by right-clicking the image.

> **Keyboard shortcut**: To close the Photos photo viewer experience, just tap Esc.

Edit an image

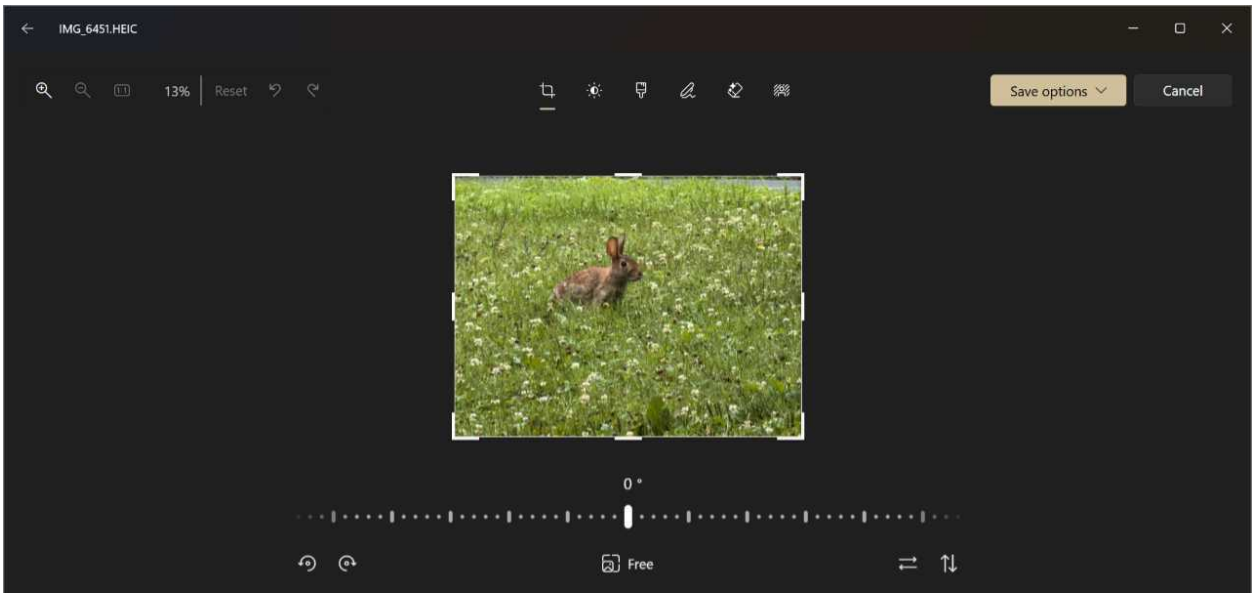
The Photos editor experience offers a solid variety of editing tools on any PC, with an expanded selection of AI-powered tools for those with a Copilot+ PC. There are also general options related to editing in the top corners of the app:

- **Top left**. As you make edits to an image, you can use the “Reset,” “Undo,” and “Redo” buttons in the top left of the app window to revert (or remake) changes.
- **Top right**. When you’re done editing, you can use the “Save options” and “Cancel” buttons in the upper right to save the edited image, save it as another image, copy it to the Clipboard, or cancel at any time; the latter action will trigger a prompt warning that you will lose any changes you made.

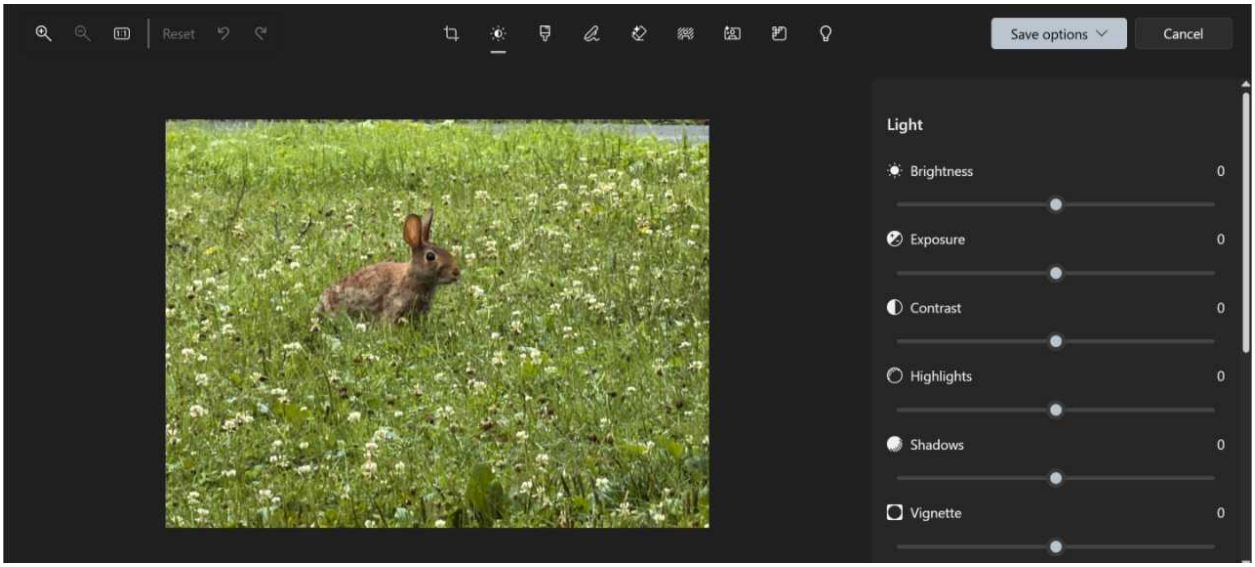
> **Tip**: The tools that require a Copilot+ PC also require you to sign in with your Microsoft account. Some of these tools may also prompt you to download an AI model the first time you access them.

Available editing tools appear in the top-center of the app and include:

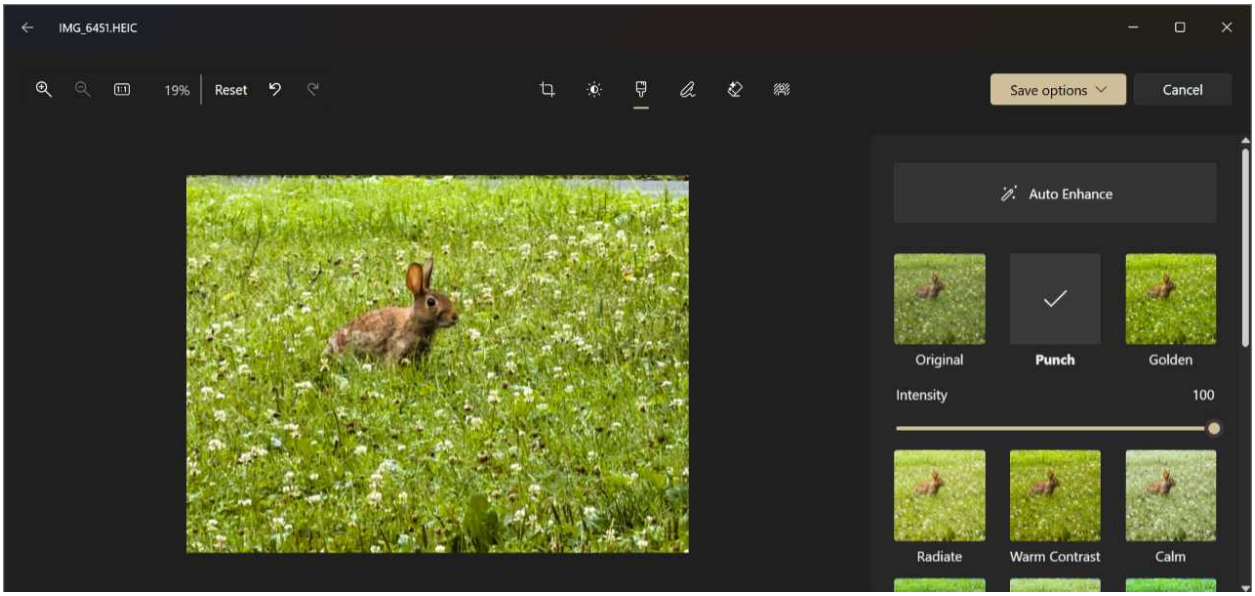
- **Crop**. This tool is selected by default when you open the editor experience. Here, you can use the selection handles to adjust the cropping area and then crop the image accordingly. There are also rotation, aspect ratio, and flip horizontally/vertically controls at the bottom.



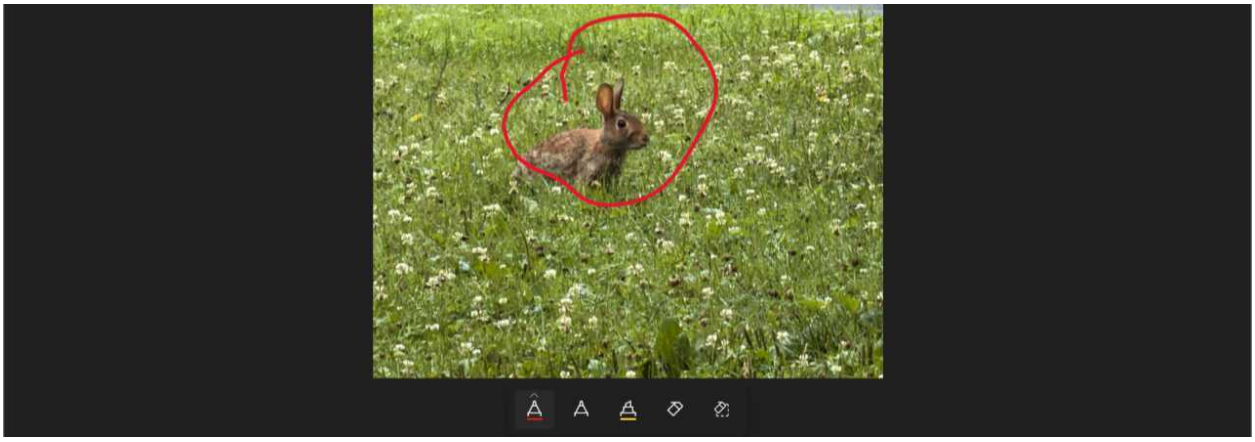
- **Adjustment**. This tool provides several light and color adjustment sliders. For example, to adjust the exposure, drag the Exposure slider to the right or left.



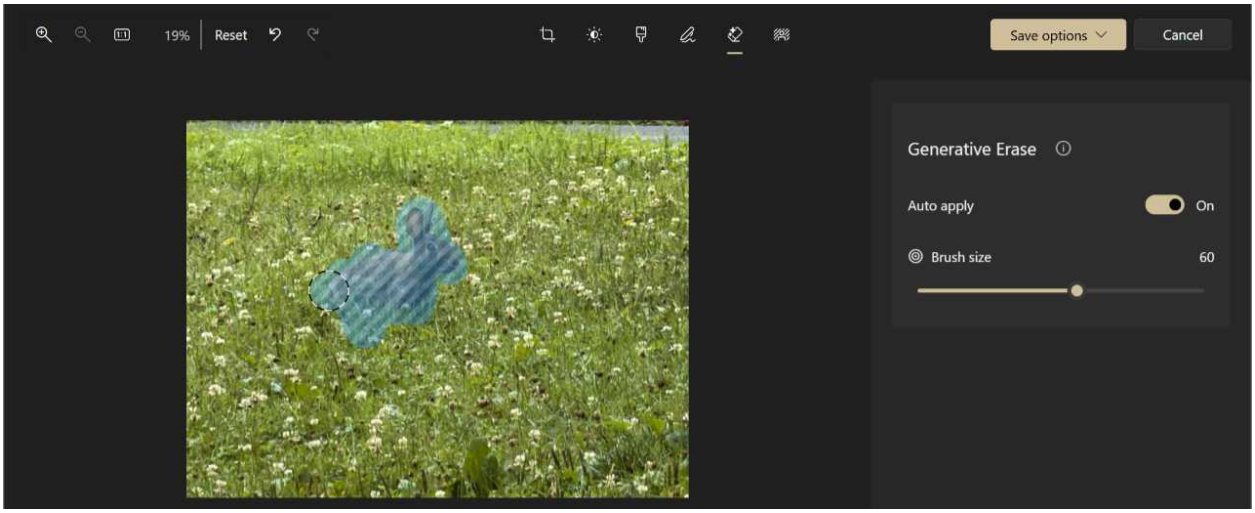
- **Filter**. Here, you can access an "Auto Enhance" button and several filters–Punch, Golden, Radiate, Warm Contrast, and many more–each of which can be fine-tuned with an Intensity slider.



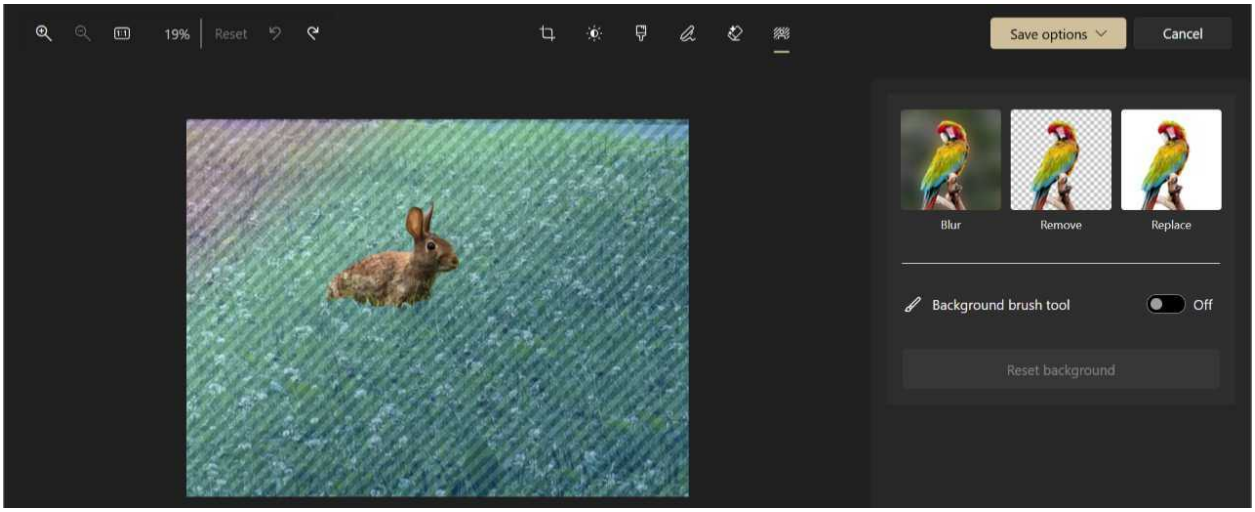
- **Markup**. This tool provides a selection of pens, highlighter, and erasers you can use to markup an image.



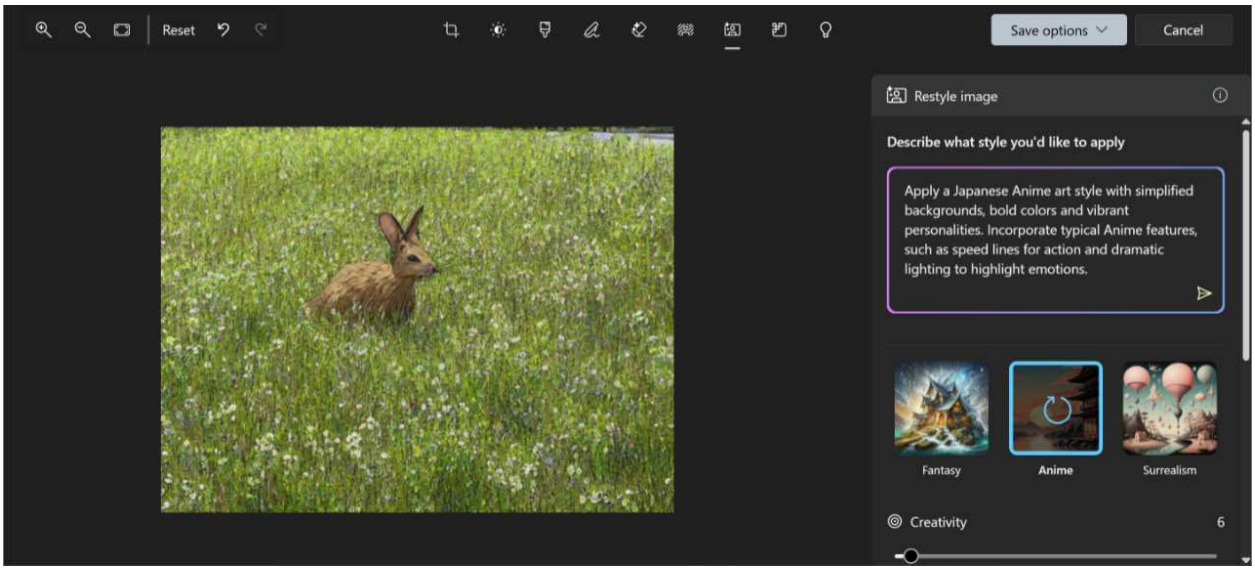
- **Erase**. This tool uses cloud-based *generative AI* to help you remove unwanted elements from a photo or other image. To use it, select a brush size and then "paint" over an area you wish to remove. When you let go of the touchpad or mouse button, the AI will go to work and try to fill in the painted area in a way that makes sense for the surrounding area. You can repeat this process and adjust the brush size repeatedly as needed.



- **Background**. This tool uses cloud-based generative AI to blur, remove, or replace the background automatically, in the latter case using a configurable color. You can also use the "Background brush tool" toggle–which has masking and brush size and softness options–to fine-tune which areas are considered the background and which are not.

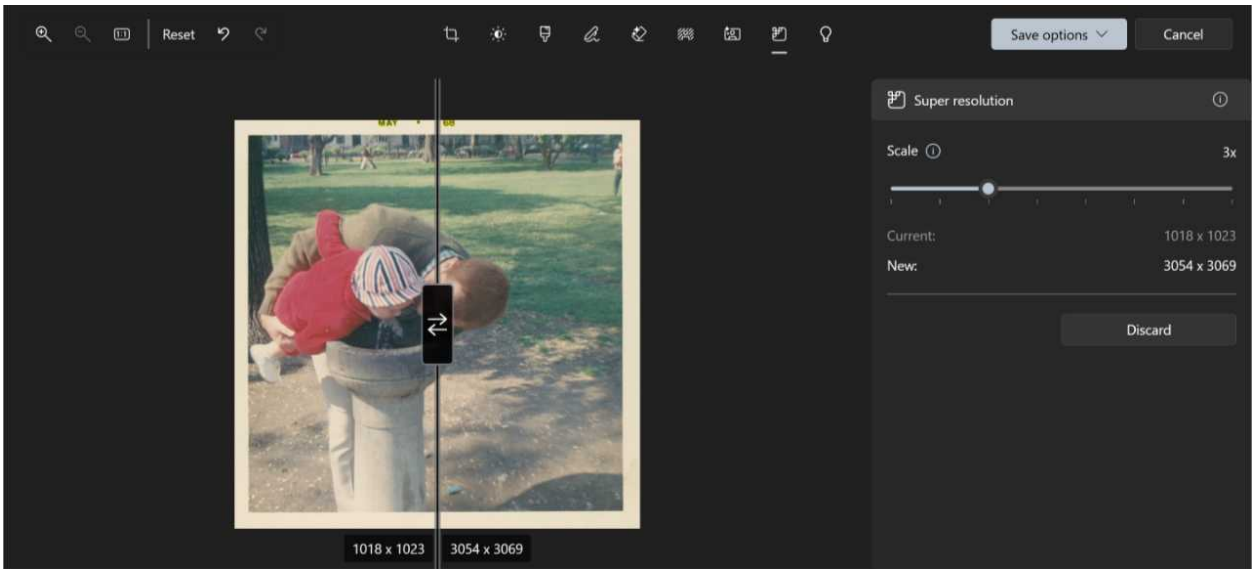


- **Restyle image (Copilot+ PC only)**. This fascinating tool uses local, on-device generative AI to restyle the image using a text prompt. You can type this prompt yourself or use a fun set of thumbnail presets–Fantasy, Anime, Surrealism, and many more–that supply an editable prompt for you. Scroll down to the bottom of the Restyle image pane to find a creativity slider, which can be wild, and a drop-down to choose between restyling the entire image or only the background or foreground.

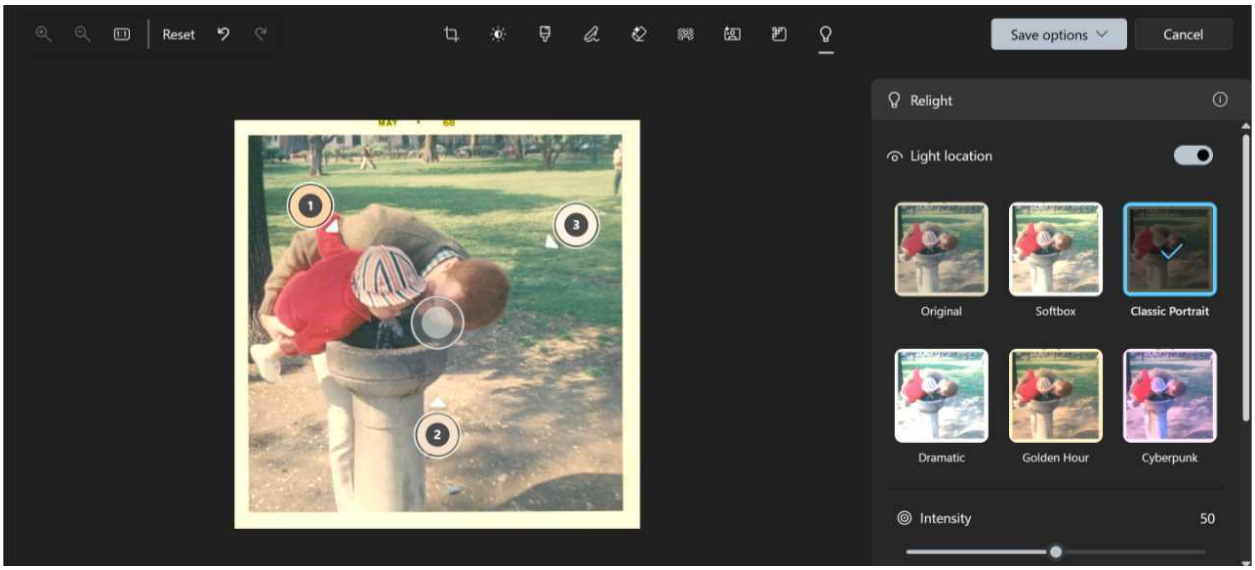


- **Super resolution (Copilot+ PC only)**. If you have a lot of old and low-quality photo scans, this may be the single most useful and powerful feature in the Photos app. It increases the resolution–size–of the image using a slider with presets that range from 1x (the original size) to 8x while preserving or enhancing the image quality. Large scale choices will take more

time to generate, and when it's done, you can view the before and after versions of the image side-by-side before saving the image.



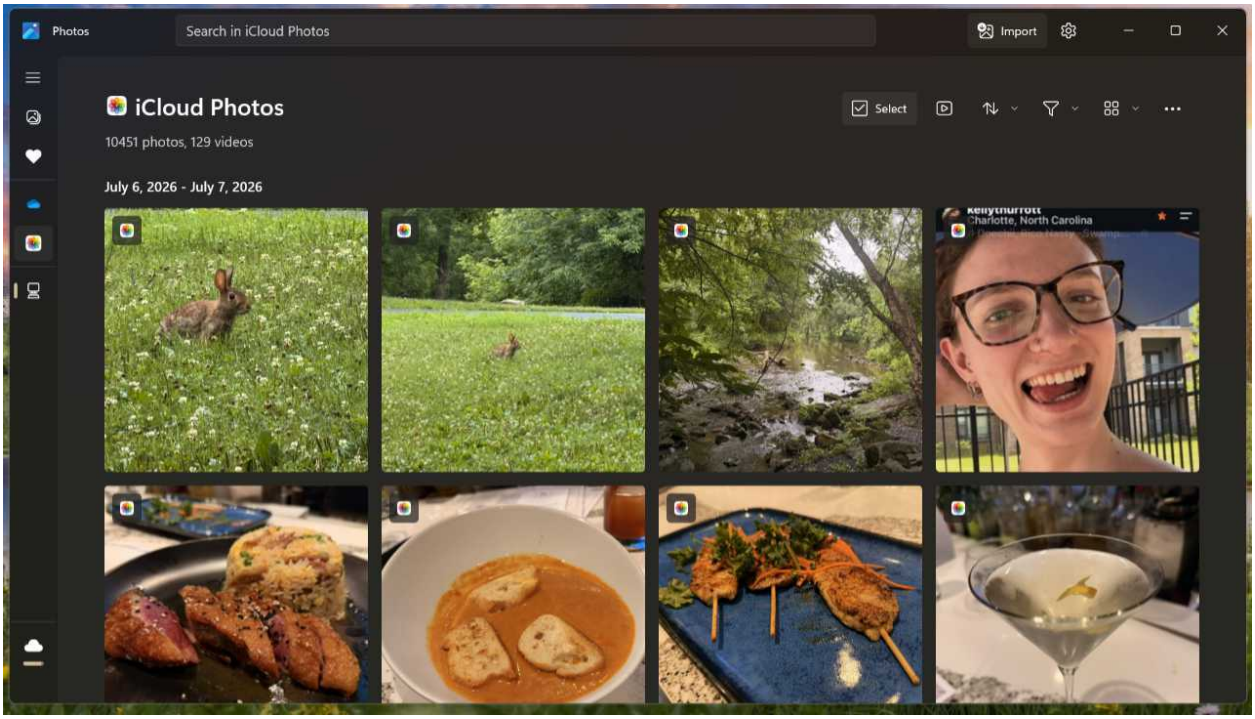
- **Relight (Copilot+ PC only)**. This tool is new to 2026 and helps you adjust the lighting of the image by configuring its direction, color, position, and intensity. You can position three light locations over the image and then adjust the brightness, softness, and color of each individually, or you can just select a preset from a grid of thumbnails. This is perhaps one of the more confusing and complex tools in the app, and one I still struggle to understand fully.



> **Tip:** In addition to the editing tools noted above, don't forget that you can also use the "Edit with Designer" button in the photo viewer experience to access a lot of other AI-based editing functionality.

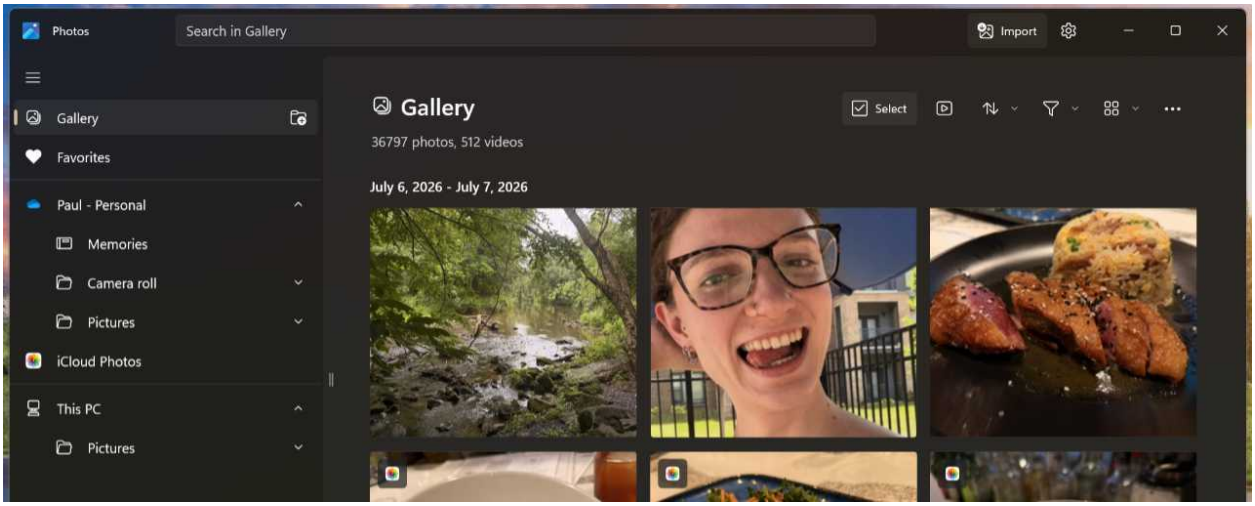
Manage your photo collection

While many people manage their photo collections on a phone or the web, the Photos app offers a hybrid experience with local, OneDrive, and Apple iCloud-based photo collection management capabilities. The app provides a navigation pane on the left, and you can use the misnamed "Close Navigation"/"Open Navigation" toggle at its top to collapse or expand it.



Most of the items listed in the navigation pane display a different view when selected, and a few of these views are unique to Copilot+ PCs as noted below. Available views include:

- **Gallery**. This default view displays your entire photo collection.

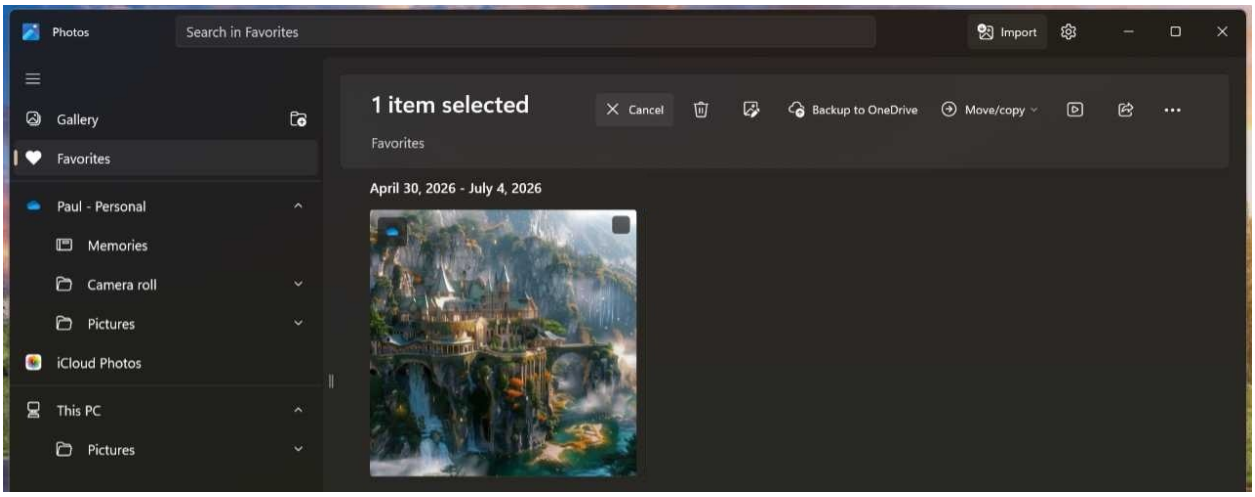


- **Categories (Copilot+ PC only)**. If you have a Copilot+ PC, Photos will prompt you to enable an image categorization feature that uses local AI to scan your entire photo collection and provide four views–Identity (for photos of your driver's license, passport, and similar documents), Notes (for photos of handwritten notes), Receipts, and Screenshots–so you can more easily find images of things that are not personal photos. The Categories view and its four sub-views appear in the navigation bar if you enable this feature.

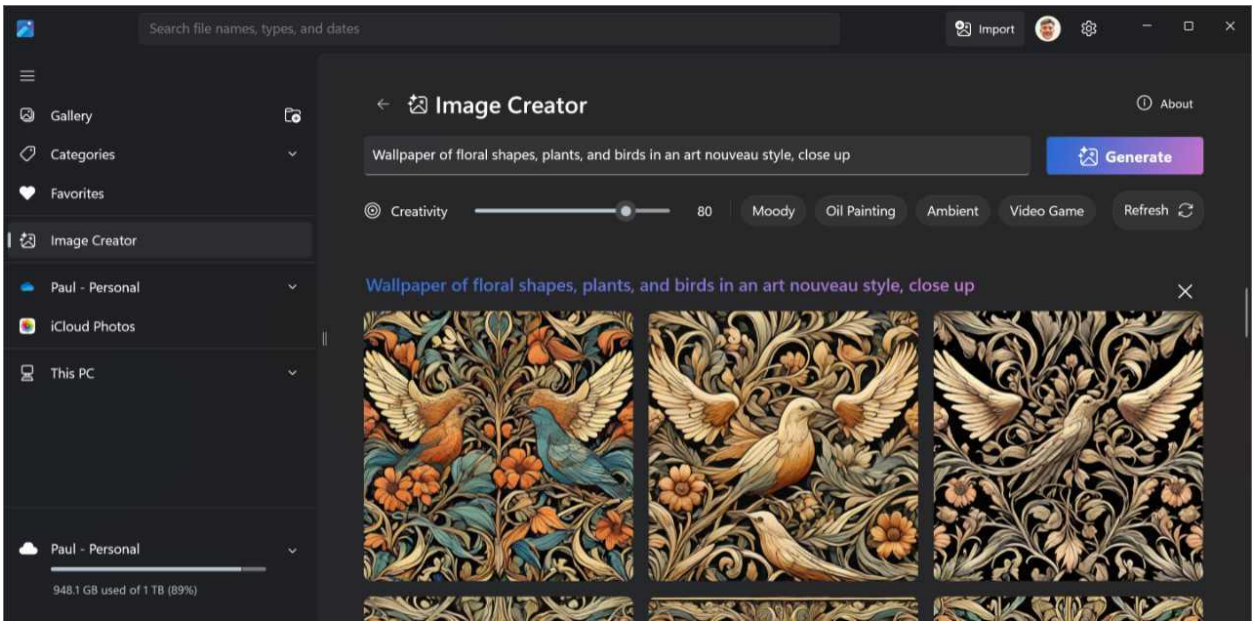
> **Tip**: You can enable or disable this feature at any time using the "Allow image categorization" option in Photos settings.

- **Favorites**. Like the similar feature in Microsoft Edge, Photos lets you mark individual photos

as *favorites* so that you can view your favorite pictures and videos in a single location. But it's limited to JPEG images and MP4 videos.

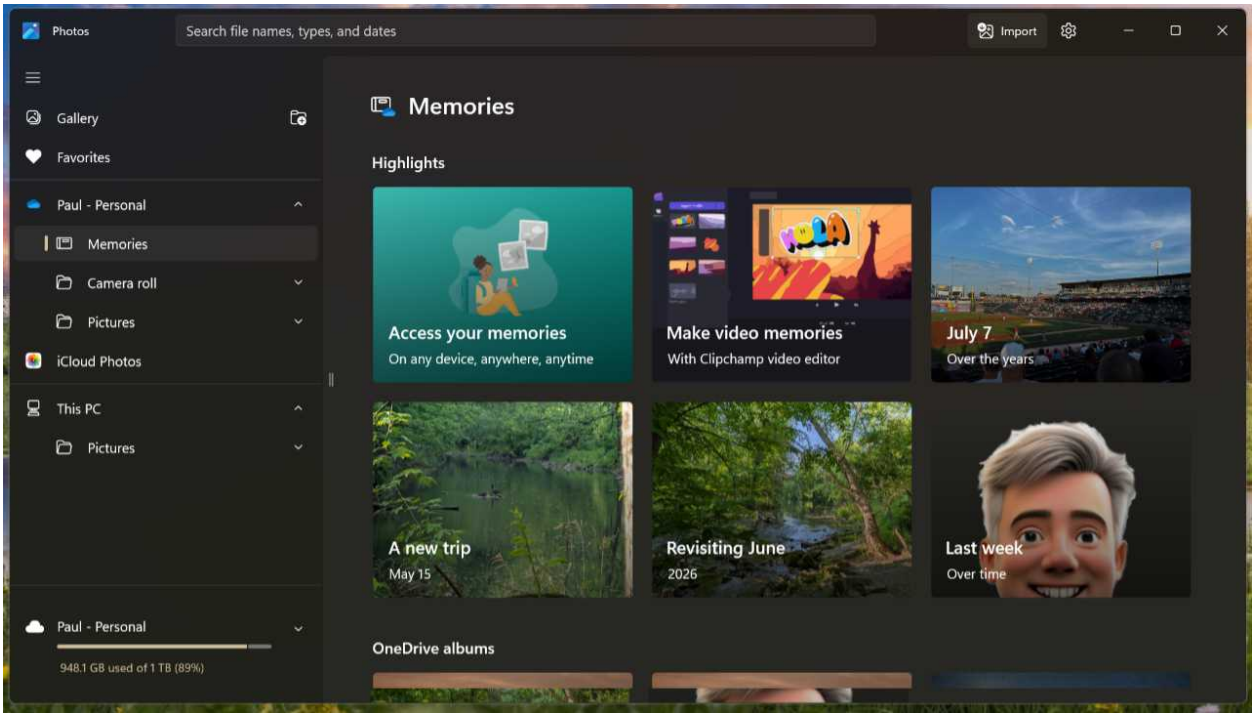


- **Image Creator (Copilot+ PC only)**. This is the one item in the Photos navigation bar that doesn't open a view. Instead, it uses a local, on-device text-to-image AI model to transform a text prompt you write into a series of images you can fine-tune using a Creativity slider and a set of filters. If you don't like any of the first several images it creates, keep scrolling down and it will make more. You can access "Generate variations of this image" and "Save this AI-powered image" options by mousing-over any creation. And if you're stuck for words, the main Image Creator page provides several idea-based thumbnails to help you get started.



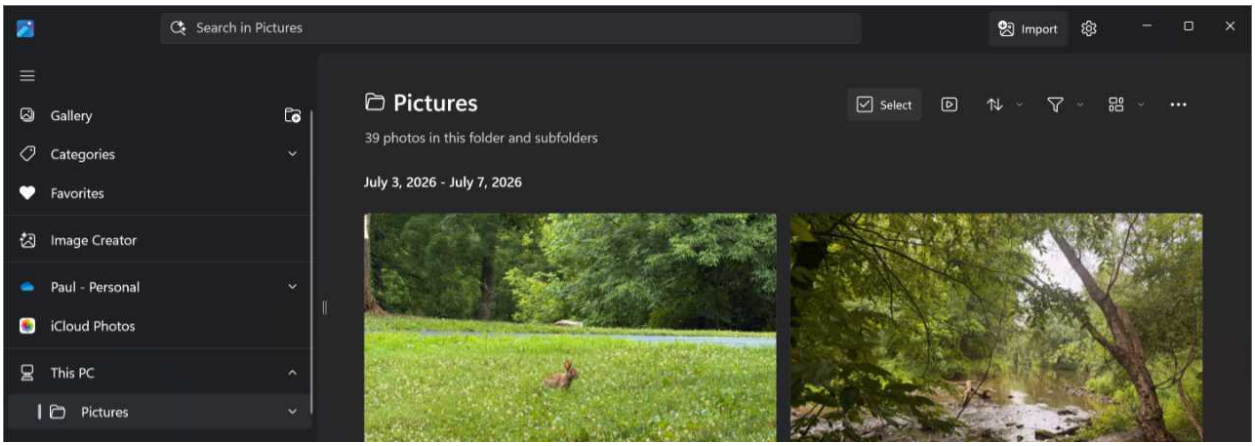
> **Tip**: If you save an Image Creator-made image, it will be saved to C:Users*user-name*PicturesImage Creator by default.

- **OneDrive**. This expandable/collapsible item–which will be named as it is in File Explorer; “Paul - Personal” in my case–displays the photos and videos in OneDrive. There are sub-views for Memories and the Camera roll and Pictures folders.



- **iCloud Photos**. If you install the Apple iCloud app from the Microsoft Store, sign in to your Apple account, and enable the app’s iCloud Photos feature, your iCloud-based photo collection–including photos, videos, and screenshots–will appear in this view.

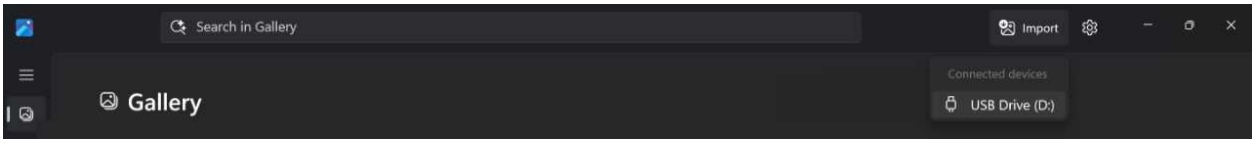
- **This PC**. This view expands and contracts to display the local folders used by the Photos app. By default, there will be a single sub-item, for your Pictures folder. But you may also see other items below This PC, including those for removable storage devices.



Import photos and videos from your phone or another device

Photos lets you import photos, other images, and videos from a phone, camera, or other removable storage device that's connected to your PC via USB.

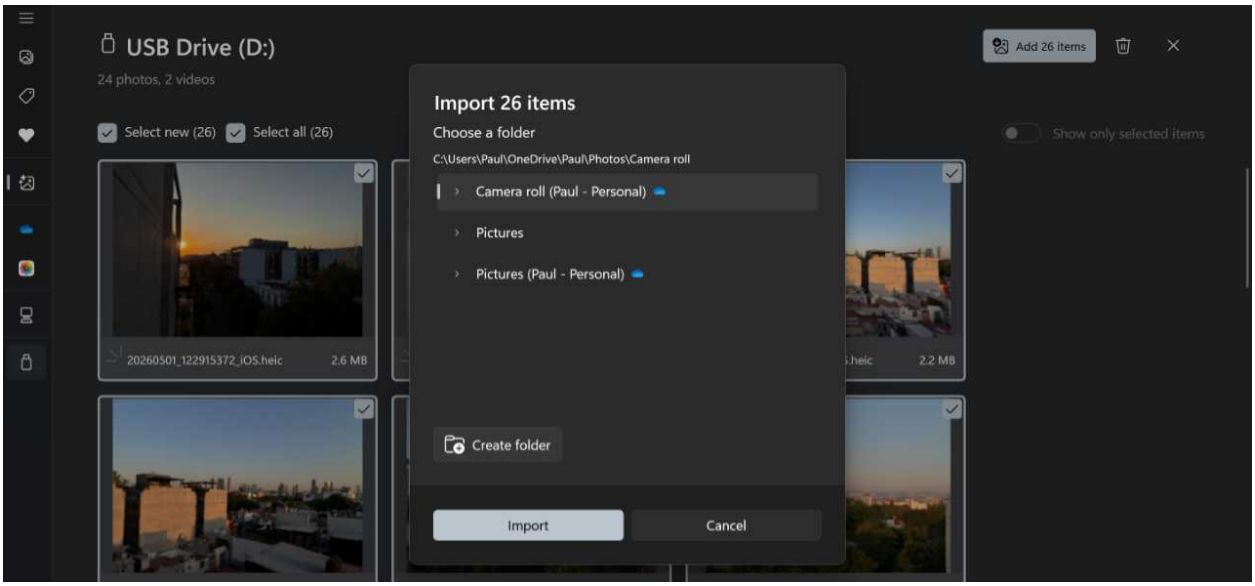
To do so, connect the device, open Photos, and click the "Import" button. A drop-down menu will appear displaying a list of connected devices.



Select the device from which you want to import content. Photos will scan the device and display all the photos, videos, and other content you can import. This can take a long time if there are many photos on the device.

> **Tip**: You will also see a new External Devices section appear in the navigation pane below the This PC section. The device you connected will be displayed there and selected.

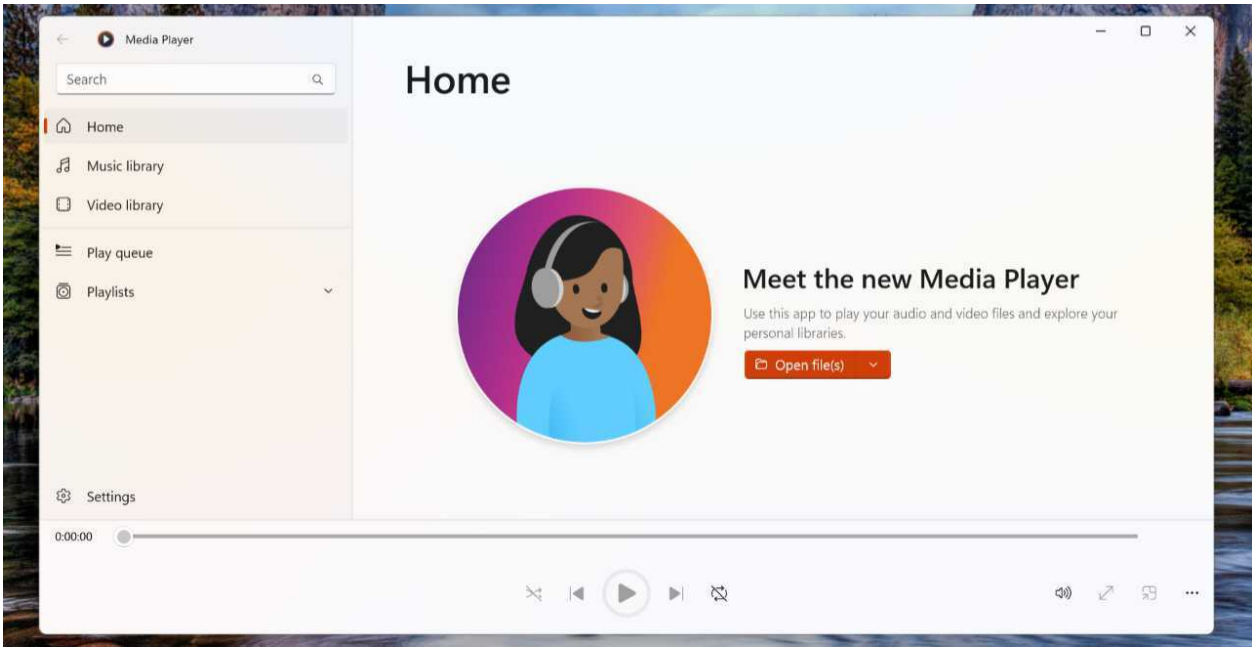
Once Photos is done loading the available items, you can determine which to import using the "Select new" and "Select all" toggles and by selecting or deselecting individual items. When you're ready click the "Add # items" button, and Photos will prompt you to choose a location in the file system for the imported files.



> **Tip**: What you *can't* do is determine how the imported files will be named, as they will retain their original file names. Nor can you specify a folder organizational hierarchy. It's just a raw dump of the files.

Media Player

Media Player is the default audio and video app in Windows 11 and the modern replacement for Windows Media Player. It lets you play downloaded and locally stored audio and video files and can help you manage your personal music and video collections. This can include content you've purchased online, ripped from CD, DVD, or Blu-ray, or downloaded from the Internet and now store on your PC or on other PCs on your home network.

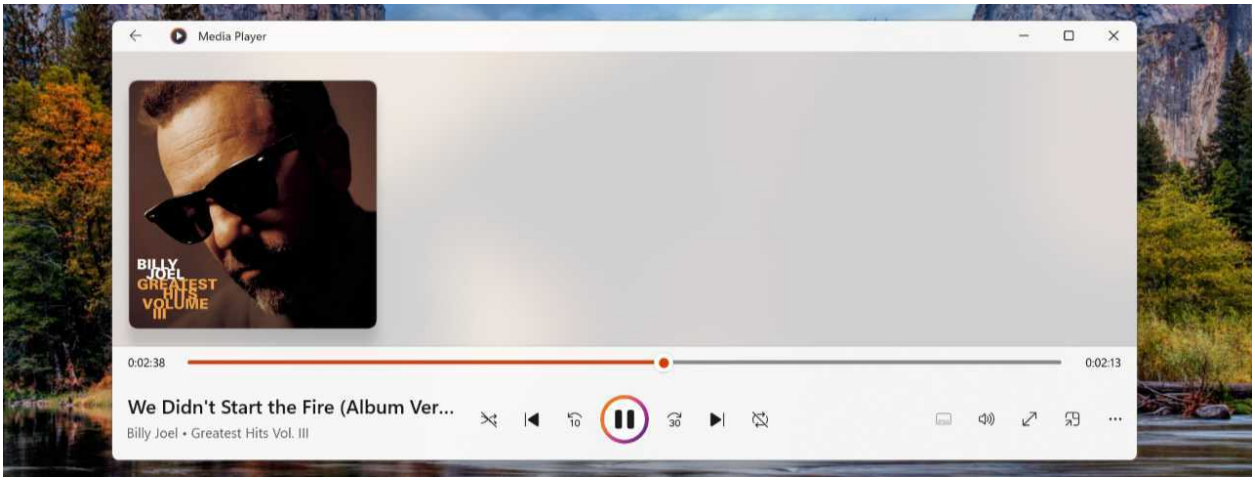


Tip: Windows Media Player Legacy is still available in Windows 11 if you're nostalgic for the early 2000s.

Tip: Media Player can only manage or play content that is unprotected by *Digital Rights Management* (DRM) technologies. So it cannot access the movies and other videos you may have purchased from online services like Apple or Google or music from subscription music services like Apple Music, Spotify, or YouTube Music.

Defaults

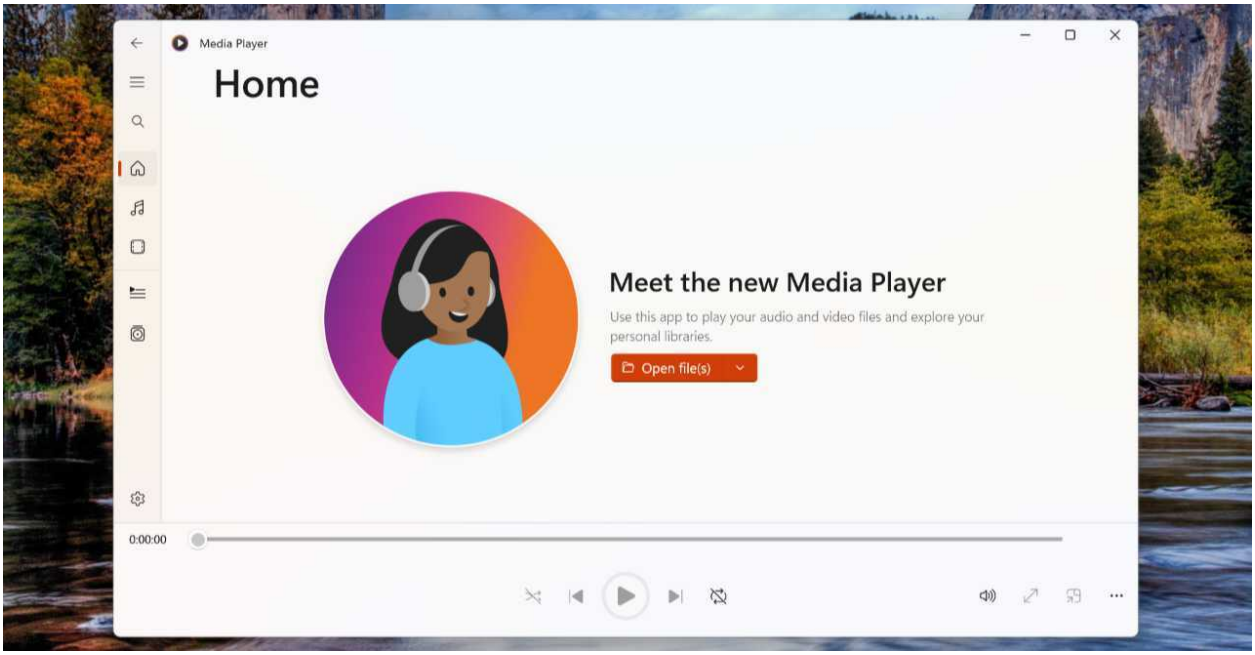
Media Player is the default in-box app for audio and video files (in .aac, .mp3, .flac, .m4a, .mp4, and many other formats) in Windows 11. In this role, the app is adequate and works as expected.



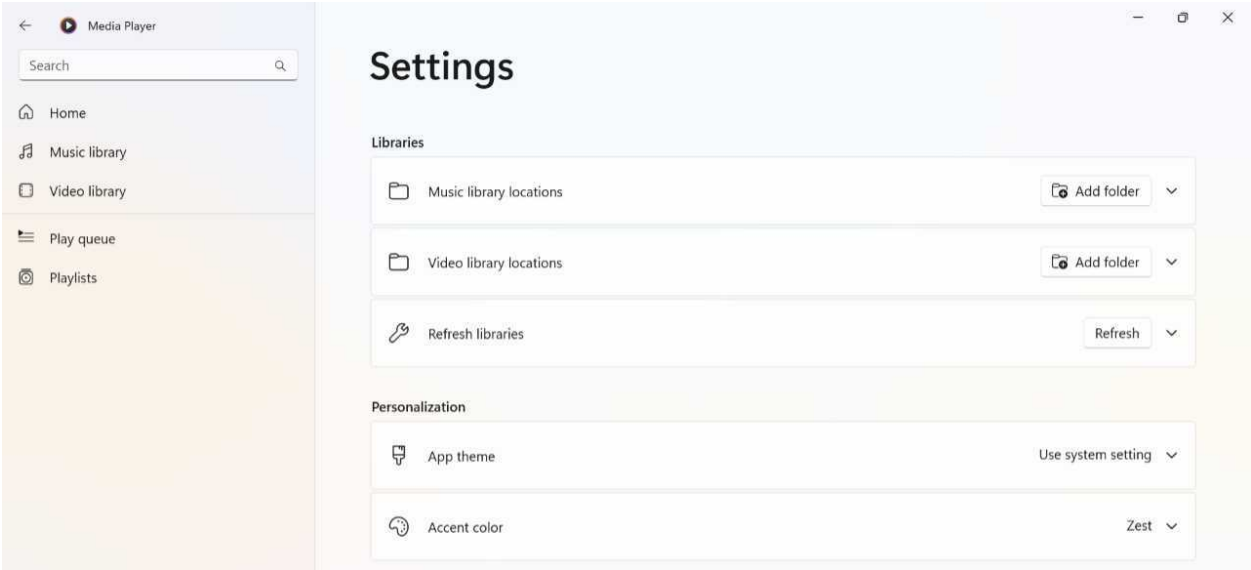
Media Player can also be used to manage local music and video collections, an infrequent need these days thanks to the popularity of music streaming services. If you maintain local music and video collections, it's unlikely that Media Player will meet your needs, but it monitors your Music and Video folders by default and populates the related views in the app with that content.

Customize

Media Player is a simple app with a modern design. There's little you can do to customize the app layout, as the navigation bar on the left is non-resizable and will automatically collapse as needed when the window resizes. But you can't toggle the navigation bar between expanded and collapsed views, nor can you toggle or resize the playback controls area at the bottom.



To customize Media Player, open the app's settings by clicking the "Settings" ("gear") button at the bottom of the navigation bar.



The following settings are of note:

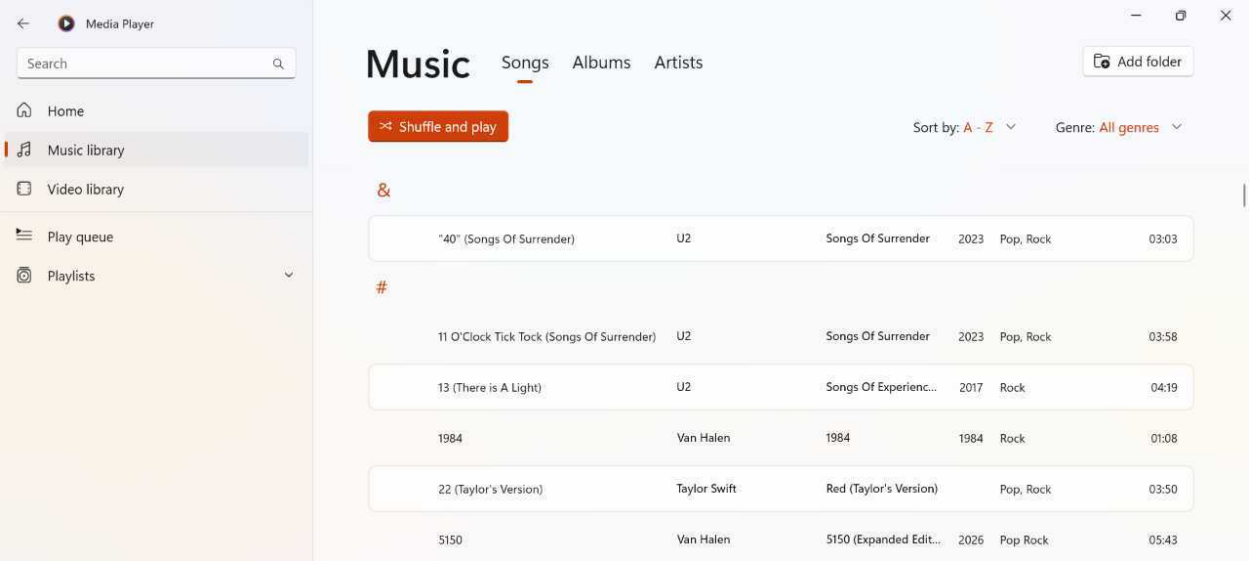
- **Music library locations**. By default, Media Player will monitor your Music folder (C:\Users*user-name*\Music) for content. You can add a new folder to monitor by clicking "Add folder." Or you can expand this item to view or remove the folders it monitors.
- **Video library locations**. This works identically to the Music library, except that the app looks for videos only in your Videos folder (C:\Users*user-name*\Videos) by default. You can

remove and add locations here as needed, of course.

- **App theme**. Like many other Windows 11 apps, Media Player uses the system-wide color mode (Light theme or Dark theme) that you configure in the Settings app in Personalization > Colors by default. But you can change that here.
- **Accent color**. Media Player is also unique among the in-box Windows 11 apps in that it uses its own fun accent color, called "Zest," by default. But you can configure the app to use the system accent color like other apps if you prefer.
- **Media info**. Media Player is designed to connect to an online database to look up any missing album and artist art when possible. If you would prefer it not to do so, you can disable this feature. But as of 2026, this functionality no longer works.

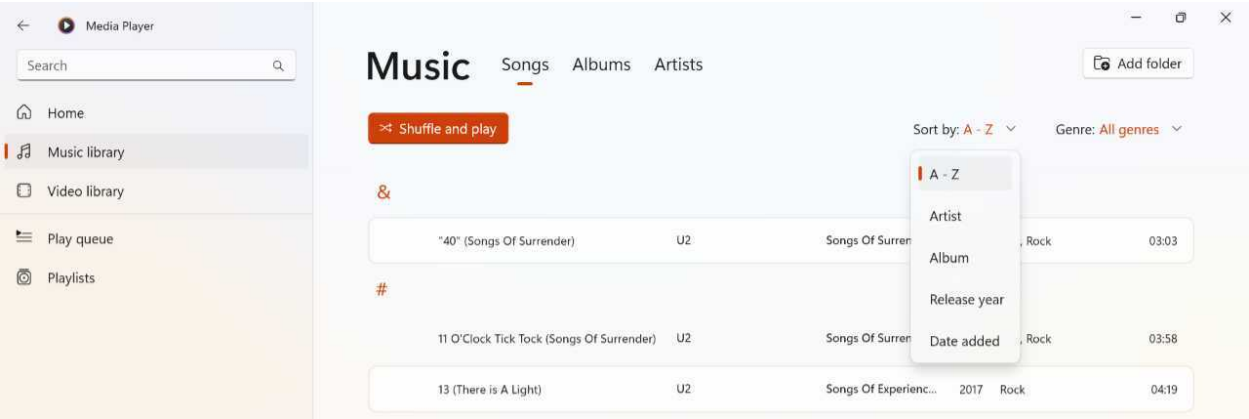
Access and manage a local music library

If you have a local music collection, you can access and manage it using the Music library view in Media Player.

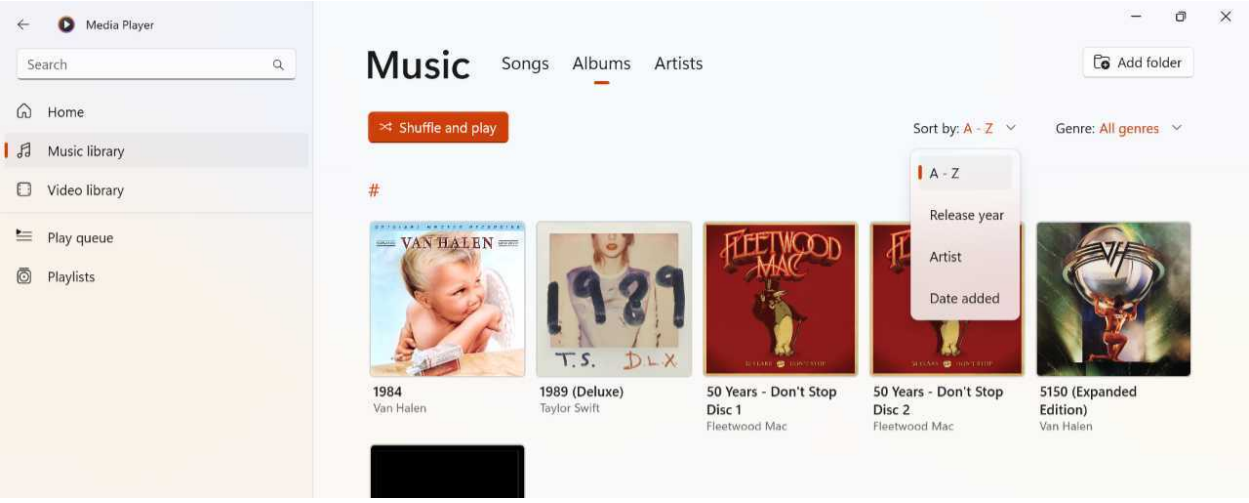


There are three tabs at the top of this view:

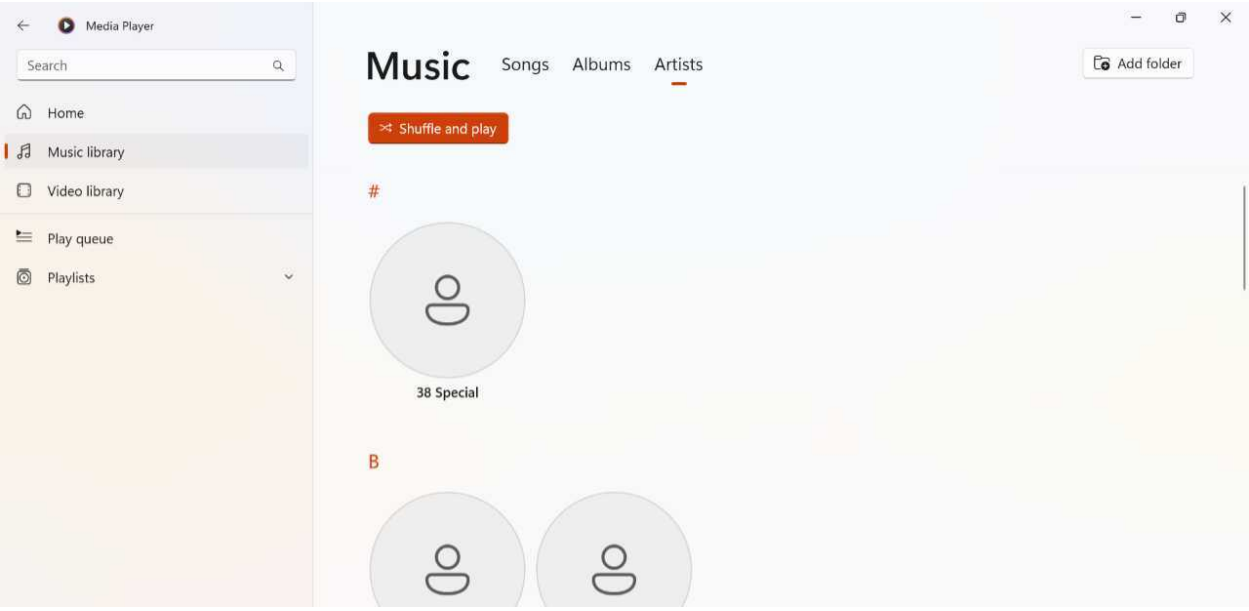
- **Songs**. This default view is an alphabetical list of your songs, grouped by letter. You can sort the view in other ways and filter it by genre using the small controls in the upper-right.



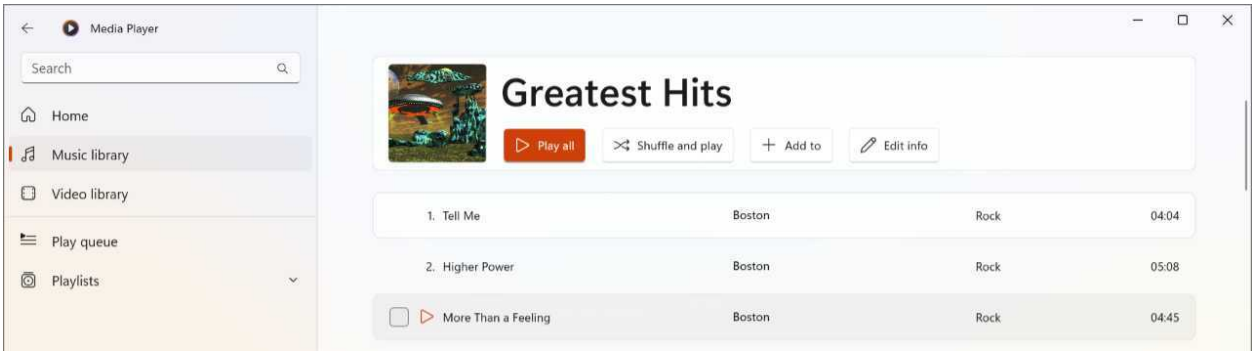
- **Albums**. This view displays your albums with graphical thumbnails, also alphabetical and grouped by letter. You can sort the view in other ways and filter it by genre using the small controls in the upper-right.



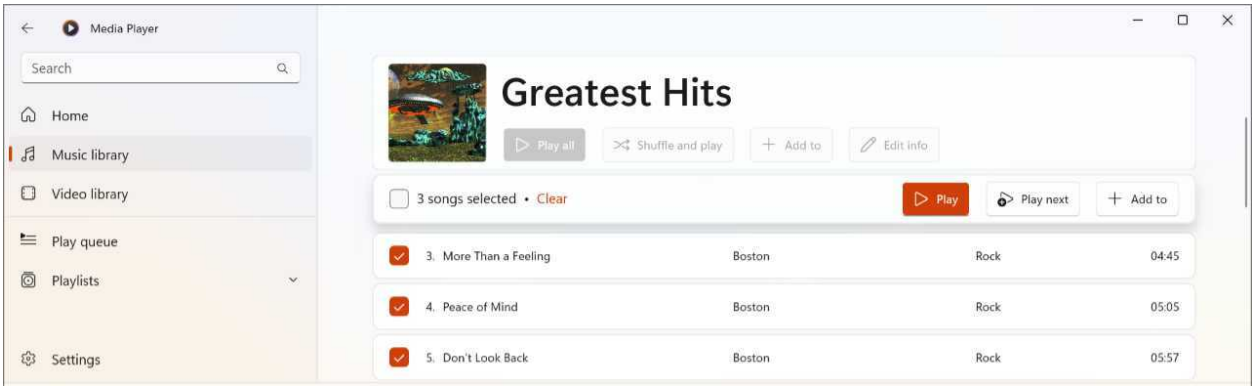
- **Artists**. This strange looking view displays artist thumbnails in circles, also alphabetical and grouped by letter. There are no sorting or filtering options in this view.



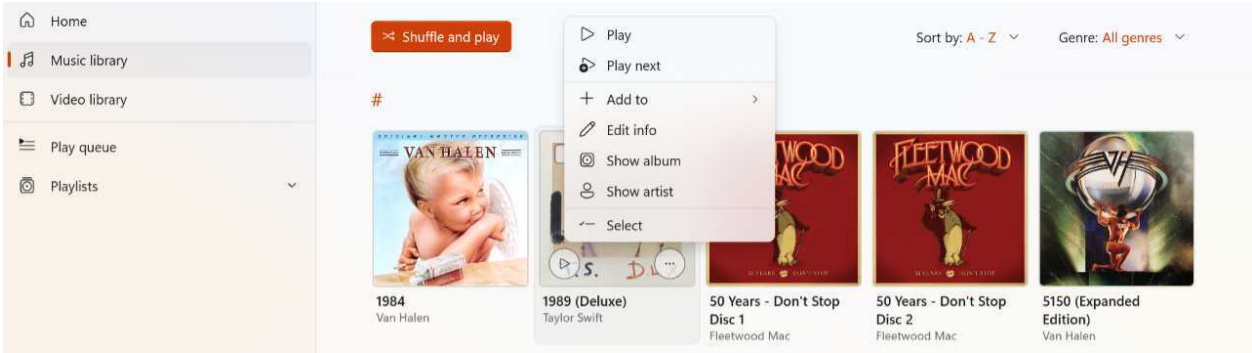
You can play music from any of these views: When you mouse-over any item, a “Play” button appears.



Each view also provides a “Select” button when you mouse-over an item so you can multi-select items and then use a pop-up toolbar to perform actions–“Play,” “Play next,” and more–on all of them.

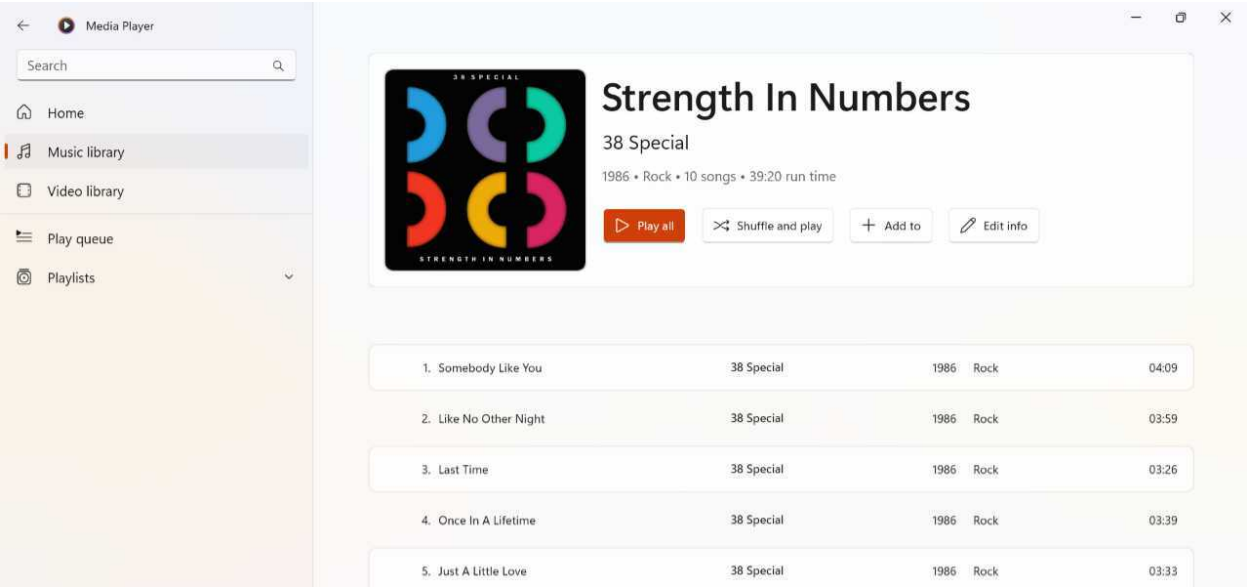


The items displayed in Albums and Artists also display a "More options" ("...") button when you mouse over them. This displays a menu of options that differs by view. In the Albums view, for example, there are options like "Edit info," "Show album," "Show artist," and others.



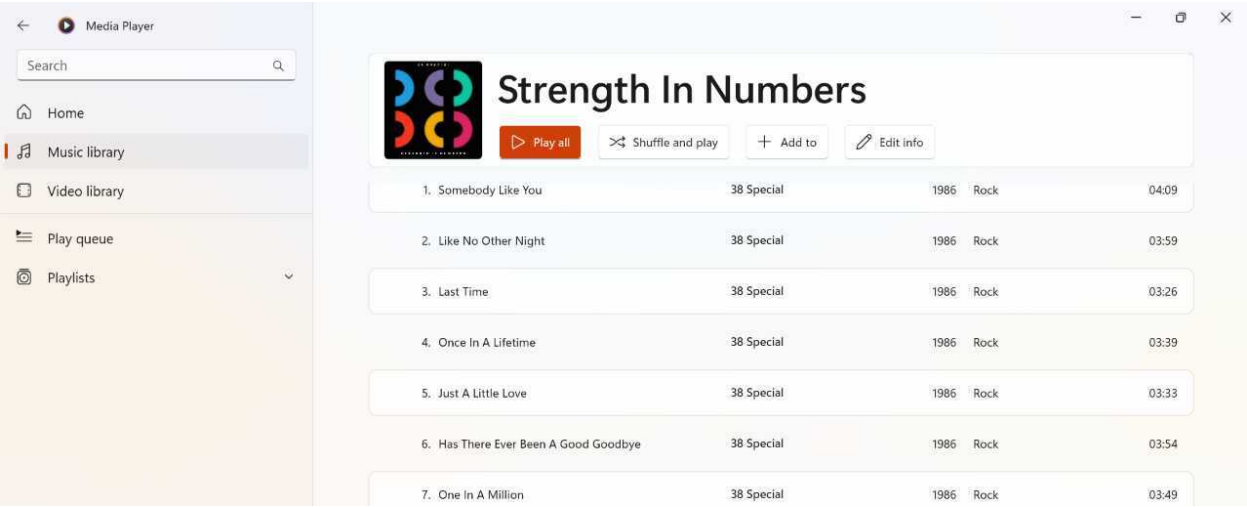
Display an album or artist

You can display an album or artist on its own page by clicking it in the appropriate view.



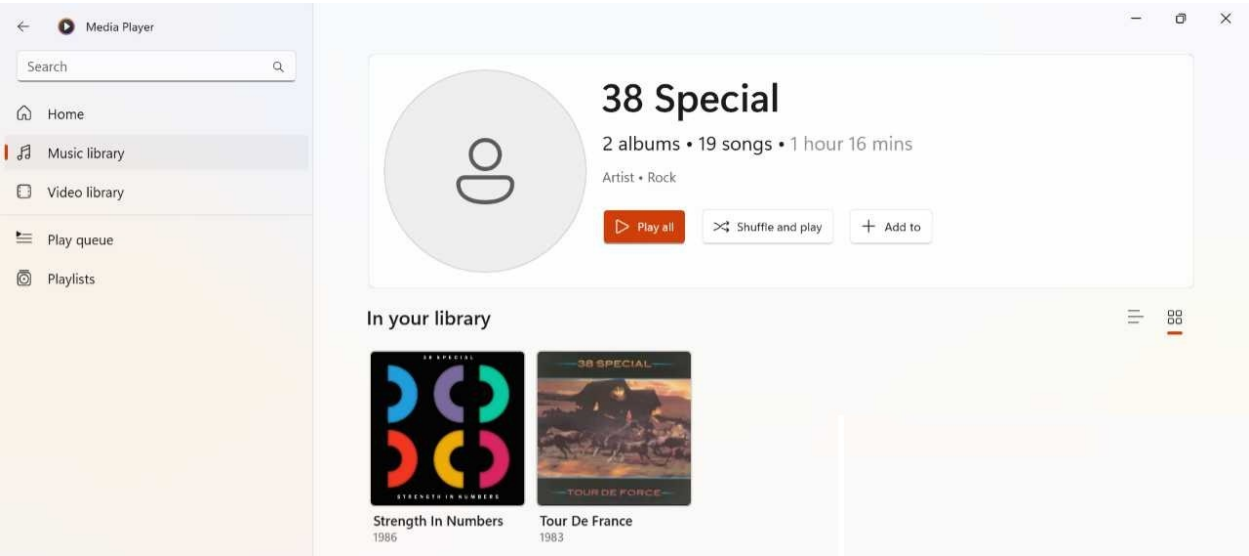
> **Tip**: You can also right-click any item in any view and choose "Show album" or "Show artist" from the menu that appears.

An album view displays album art and other information about the album, "Play all," "Shuffle and play," "+ Add to," and "Edit info" buttons, and each song in the album in order. These views are a bit dynamic, too, in that if you scroll past the bottom of the view, the header area with the album art, information, and buttons contracts a bit to give the song list more space.

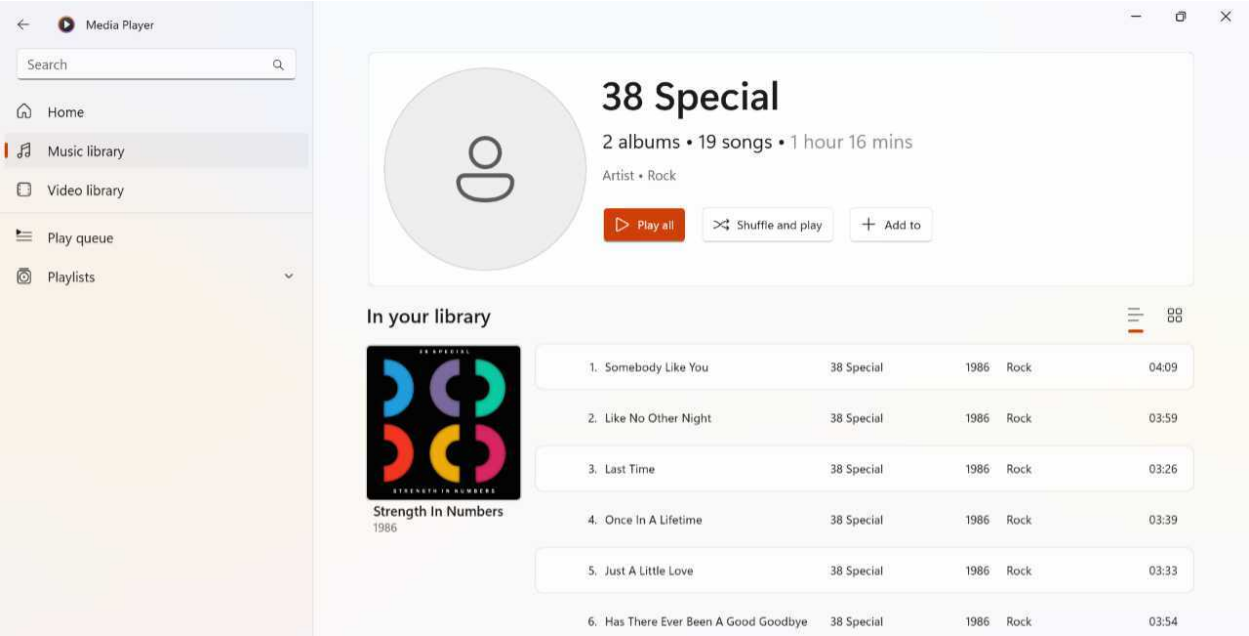


An artist view works similarly but provides an artist thumbnail if available, artist information, "Play all," "Shuffle and play," and "+ Add to" buttons, and a set of thumbnails of the albums you

have by that artist.



You can change the view from album thumbnails to a list so you can see the contents of each album here. Or, you can just click an album thumbnail to display its album page.



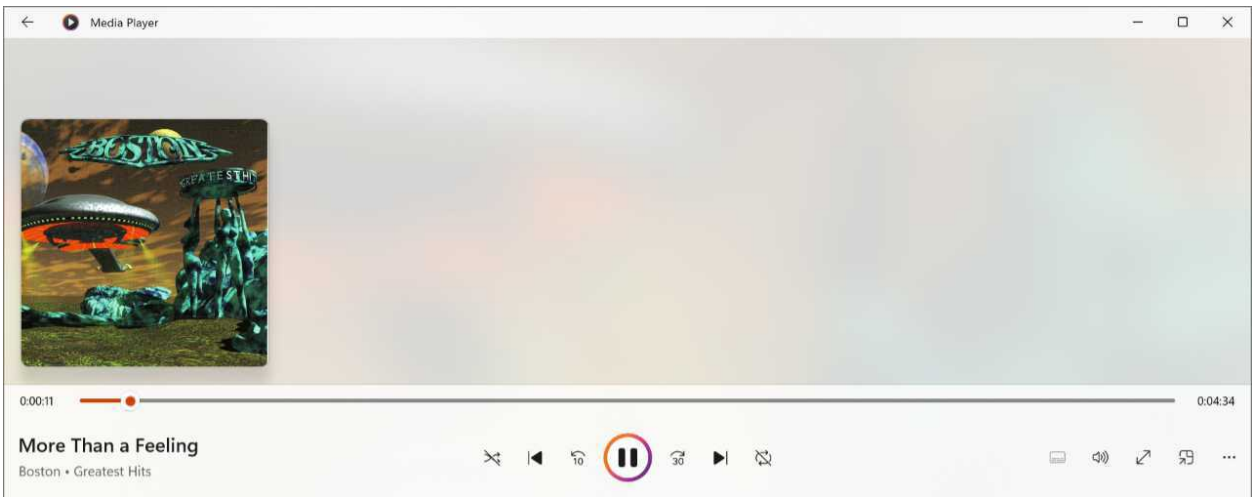
Control music playback

To play music, click the “Play” button associated with a song, album, or artist. The item will begin playing and the playback controls at the bottom will display album art if possible and allow you to access various features. If you are in the Songs view or viewing an album, the currently playing

song is highlighted there as well.

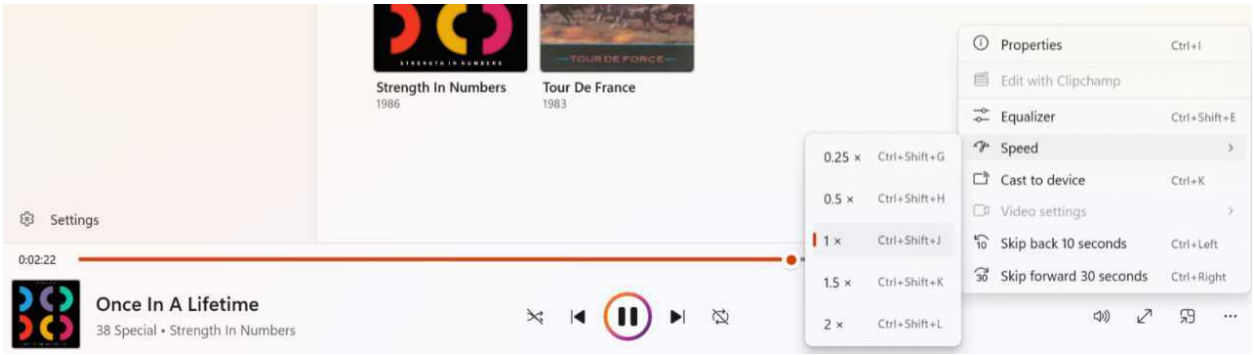
From here, you can do the following:

- **View Now playing**. To access the Now Playing view, click the album art in the left of the playback controls area. To return to the normal display, click the "Back" button in the upper-left of the app.

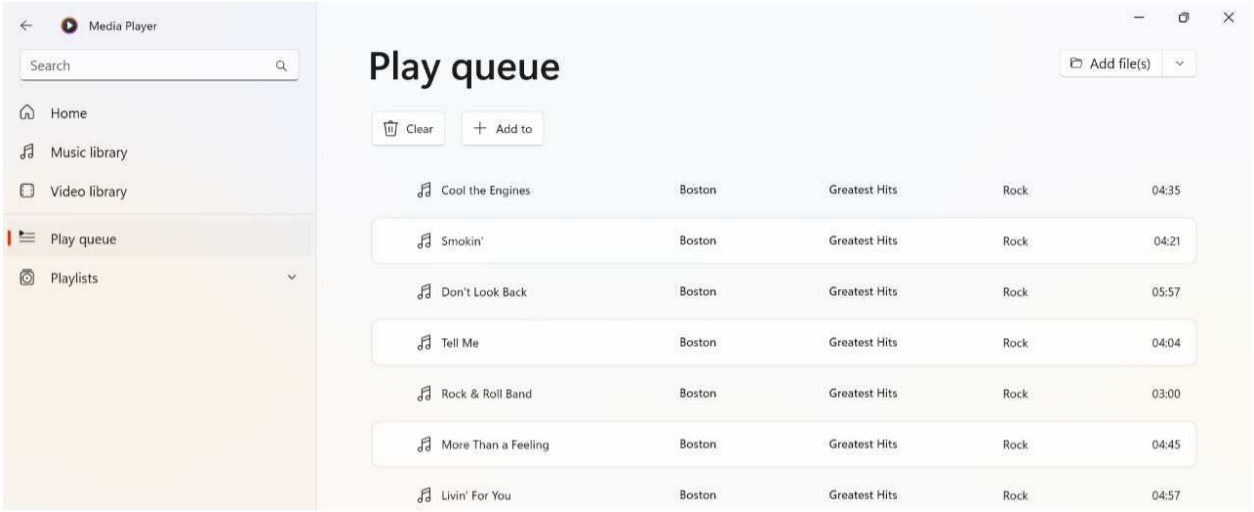


- **Access the playback controls**. Media Player offers all the expected playback controls in the middle bottom of the window, including "Shuffle On/Off", "Previous", "Play/Pause", "Next", and "Repeat Off/All/One" buttons and a *scrubber* to move to an arbitrary point in the content you're enjoying.
- **Adjust the volume**. The "Volume" button displays a vertical volume slider so you can adjust the playback volume separately from the system-wide volume in Windows 11.
- **View Now playing full-screen**. To display the Now Playing view in full-screen, click the "Full screen" button. (You can exit full-screen similarly.)
- **Use the mini-player**. If you start playing music and want to quickly access playback controls while doing other things on your PC, you can click the "Mini player" button in the lower right of the app window. This shrinks the app down to a small window that will always stay on top of other windows. Playback controls appear when the song changes or you mouse over the mini-player.

- **Access the equalizer and other playback controls**. The "More options" ("...") at the far right of the playback controls area lets you access an equalizer, playback speed controls, and other playback options.

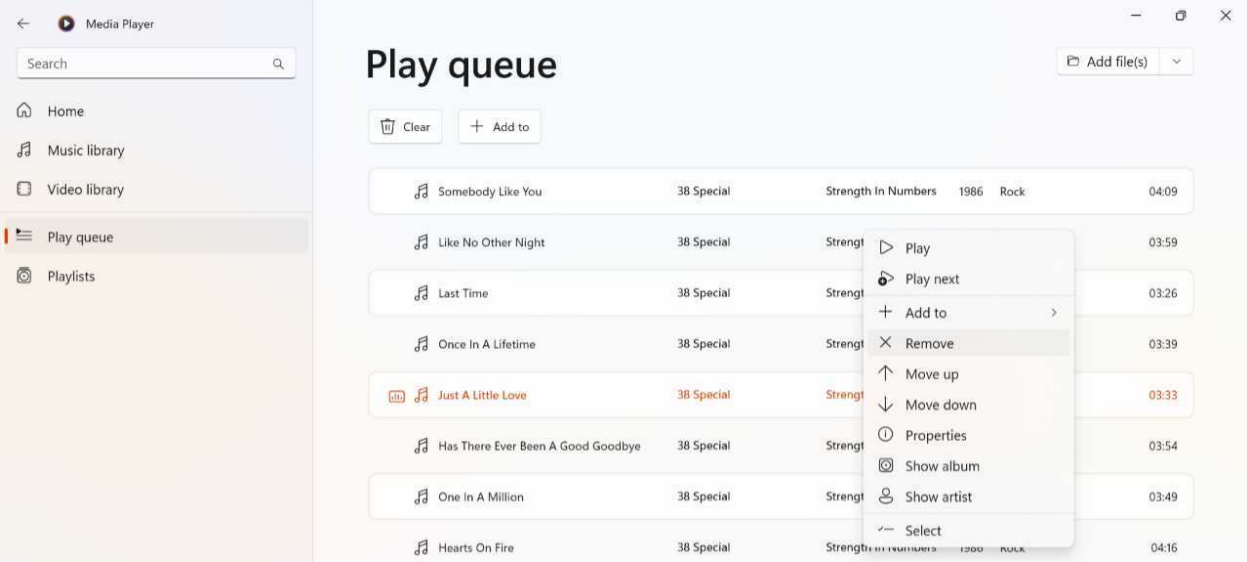


You can navigate through the app and access additional features as needed while music is playing. There's also a dedicated *Play queue* view in the navigation bar so you can see the list of songs that are currently playing. Here, you can add and remove songs, rearrange songs with drag and drop, manually switch to a different song, and clear the queue.



> **Tip**: Click “Clear” in the Play queue view to remove any content in the play queue. This works with music and videos.

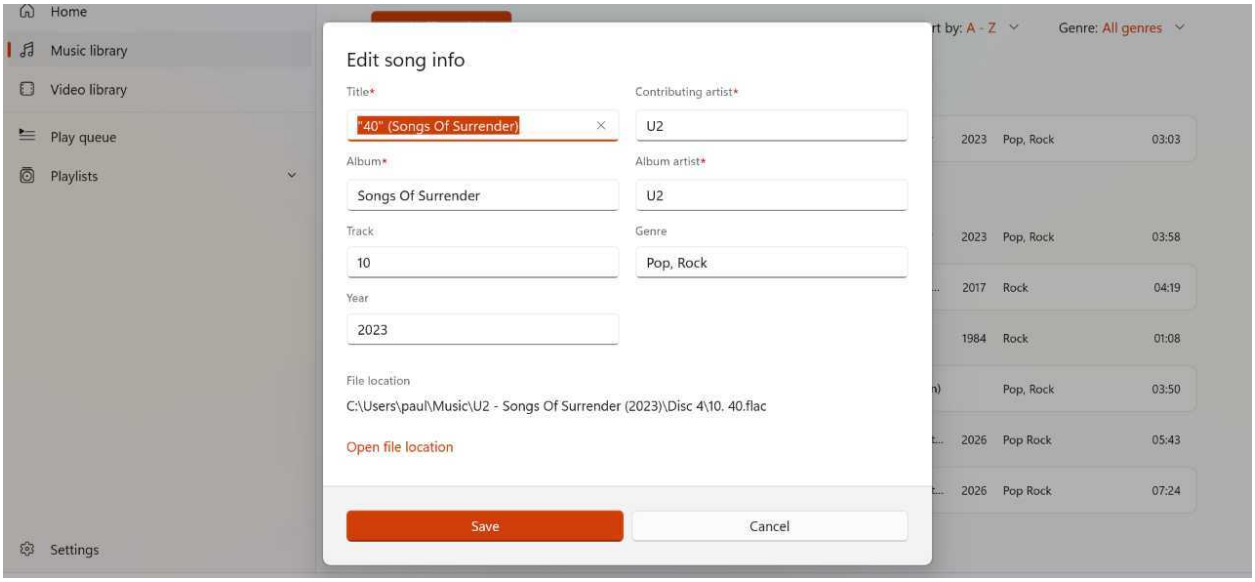
You can also impact the play queue from other views. For example, you can right-click a song in any view and select items like “Play” and “Play next” to change the play queue.



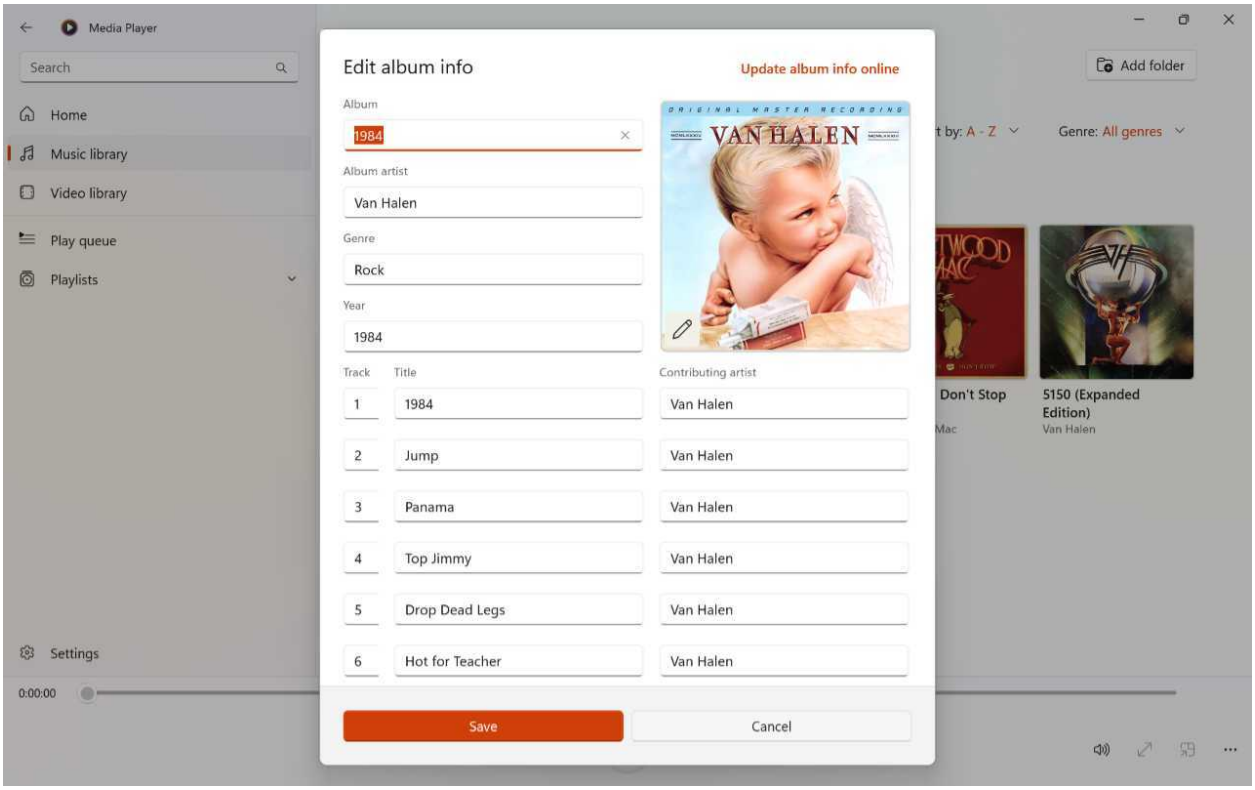
Edit song or album information

Media Player is not a particularly sophisticated app, and it’s likely that anyone managing a local music collection will use a third-party app to edit song or album information. That said, you can do this with Media Player if desired: Just right-click any item and choose “Edit info.” (Or, select the item and click “Edit info” in the toolbar that appears.)

The options you can edit vary. With a song, you can edit meta data like its title, contributing and album artist, album, and so on.



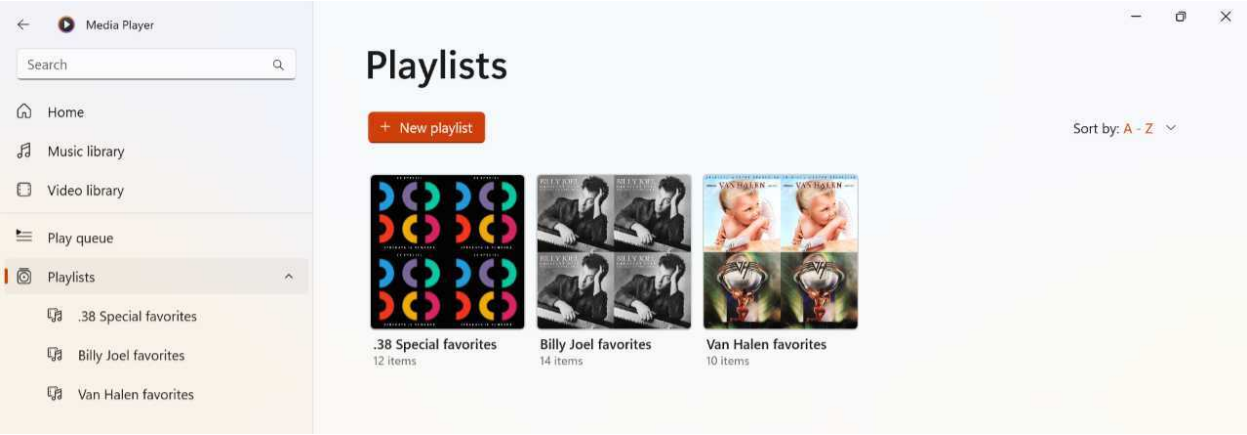
With an album, you can edit its name, genre, year, and individual song track number, title, and contributing artist. You can also add or change the album art by mousing-over it and clicking the "Change album art" (pencil) button that appears.



> **Tip**: That "Update album info online" button no longer works as of 2026.

Create and manage playlists

Media Player also lets you make and manage your own *playlists* via the Playlists view accessible from the navigation bar. Playlists are lists of songs that can be played together as a group, like the modern version of a mix tape. That is, they're a way for you to organize songs and videos you like, or that go together well.

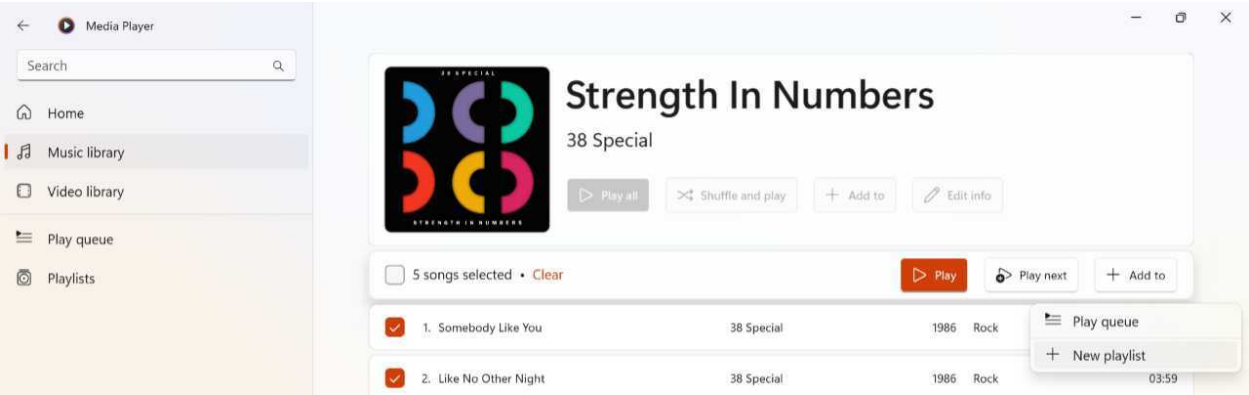


> **Tip**: You can also use videos in playlists, though this is less common.

> **Tip**: Once you create one or more playlists, they will appear under Playlists in the navigation pane for quick access.

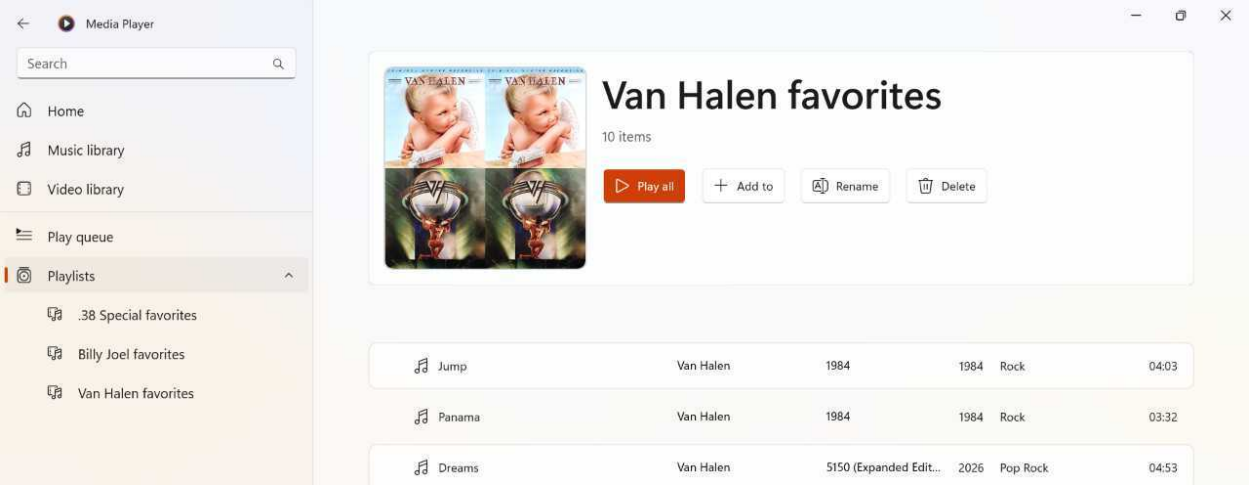
Common playlist-related tasks include:

Create a new playlist. To create a new playlist, navigate to the Playlists view and click "+ Create a new playlist." Alternatively, select one or more songs in any view and choose "+ Add to" > "+ New playlist." Each playlist you create appears in the Playlists view.



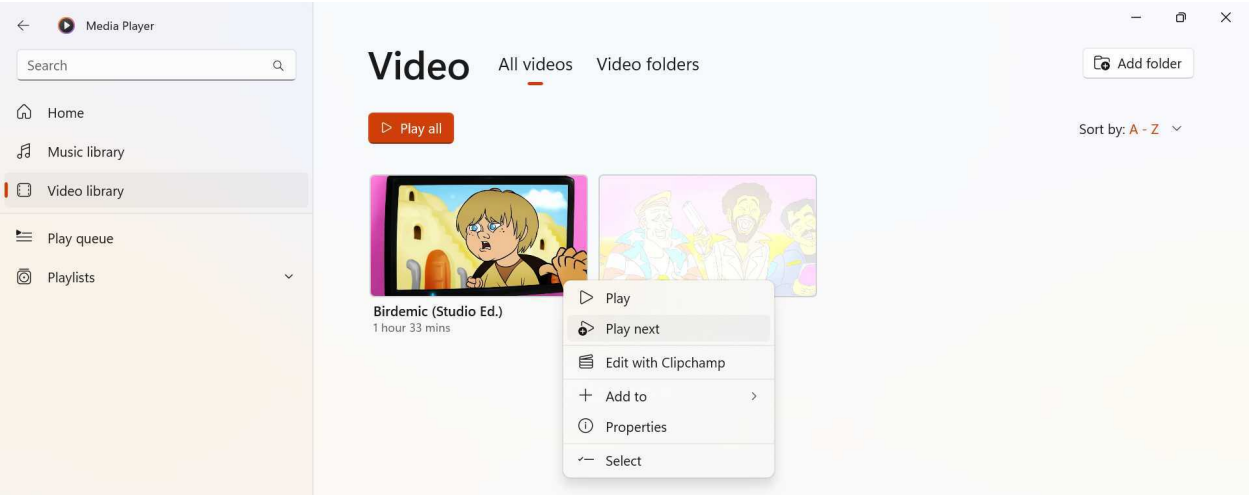
Add content to a playlist. To add a song, album, artist, or some selection of items to a playlist, select it if necessary (or right-click it) and choose "+ Add to" > "*name of playlist*".

View, access, or manage a playlist. To view, access, or manage a playlist, select it in the Playlists view or under Playlists in the navigation bar. Here, you rename or delete the playlist, play it, reorder the songs it contains using drag-and-drop, and access per-item options by right-clicking them.

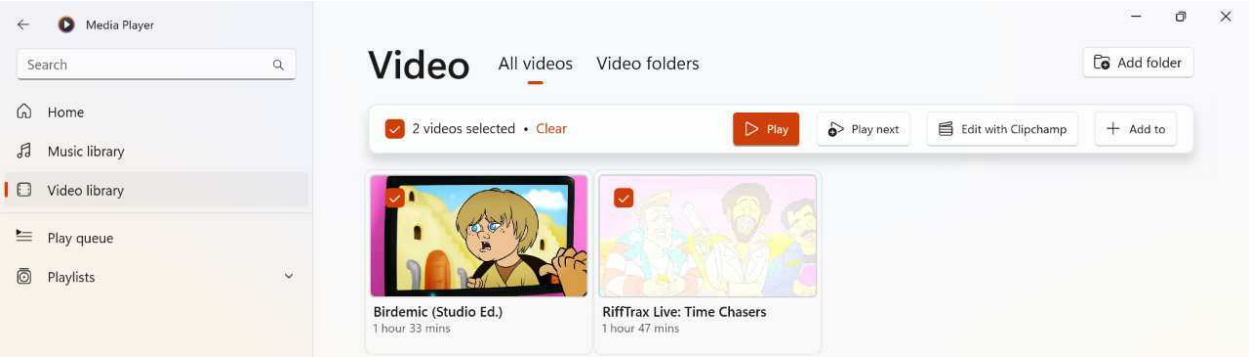


Access and manage a local video library

If you have a local video collection, you can access and manage it using the Video library view in Media Player. There are two tabs, All videos and Video folders, though these will be identical unless you configured Media Player to monitor multiple folders. Each view displays thumbnails for the contained videos, and you can sort the view alphabetically (the default) or by date modified.



Video management works much like music management: Each item displays a “More options” button when you mouse over, and you can click this button to display a list of applicable actions. You can also multi-select items and choose from a shorter list of actions you can perform on them.

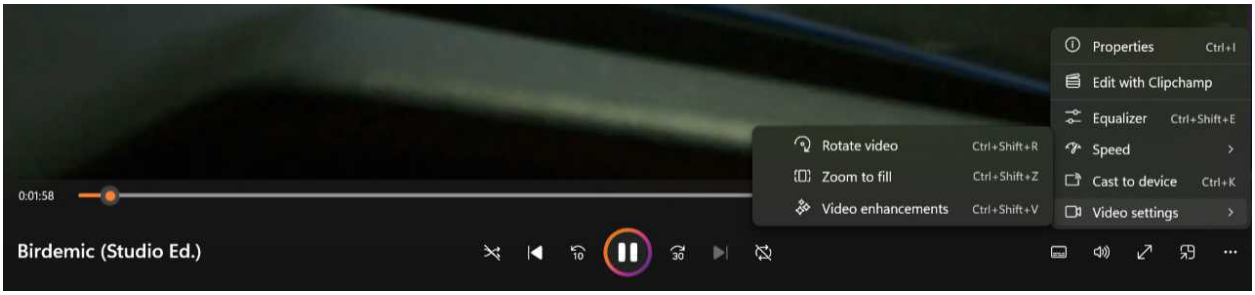


While playing a video, Media Player switches to Dark mode and provides a different set of playback options in the playback controls than is the case with music.

Unique controls here include:

Languages and subtitles. Click this button to choose between any subtitles, language tracks, and/or audio options (like stereo and surround), if available.

More options. This item displays a menu that includes an "Edit with Clipchamp" option and a "Video settings" sub-menu with "Rotate video," "Zoom to fill," and "Video enhancements," the latter of which lets you manually control the brightness, contrast, saturation, and hue of the playback.



Learn more: Clipchamp

During playback, the play queue is replaced with just that one video. And a thumbnail of the video will appear in the Now playing thumbnail in the lower left corner of the app window if you return to the library management interface. This lets you switch back to Now playing when needed.

Sound Recorder, Camera, and Windows Studio Effects

Windows 11 provides useful audio and video recording apps and a set of related features that can help the output from each look as good as possible. They are:

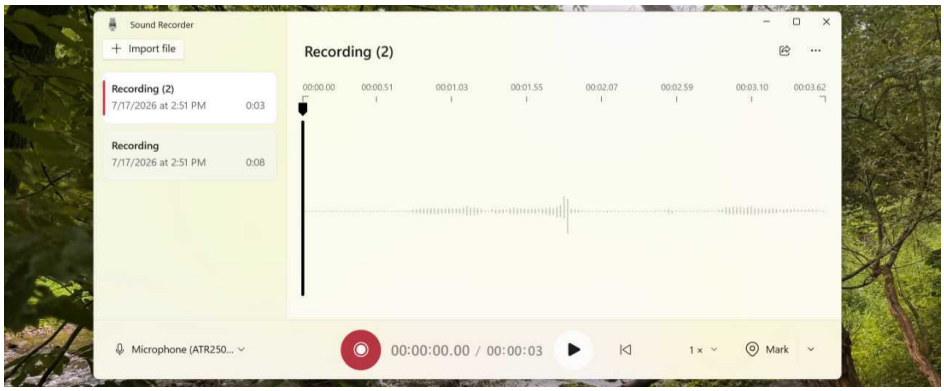
- **Sound Recorder**. This app is used to record audio using your PC's microphones.
- **Camera**. This app is used to take photos, record videos, and scan items using your PC's webcam.
- **Windows Studio Effects**. This set of AI-based camera and audio enhancements can help improve the quality of your audio and video calls.

Additionally, Windows 11 includes a full-featured video editor called Clipchamp that has its own audio, video, and screen recording capabilities.

> **Learn more**: Clipchamp

Sound Recorder

Sound Recorder helps you record your voice and other audio using your PC's microphones.



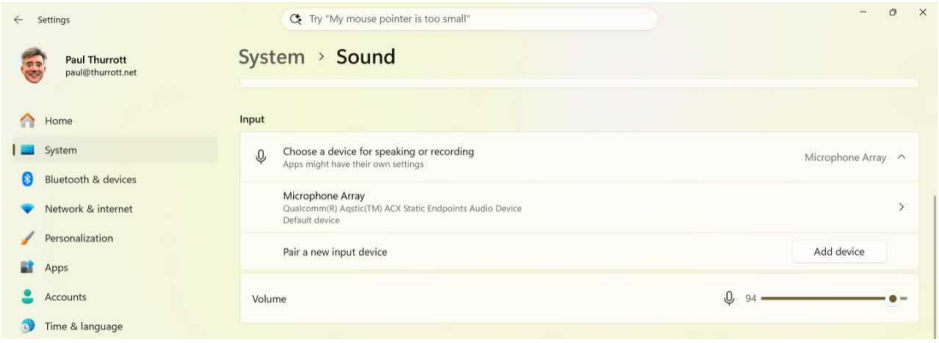
The app features a navigation pane on the left for accessing your recordings, a large recording/-playback area, and a toolbar at the bottom with recording and playback controls. And that's pretty much it, though it's worth configuring a few settings before using Sound Recorder.

Customize

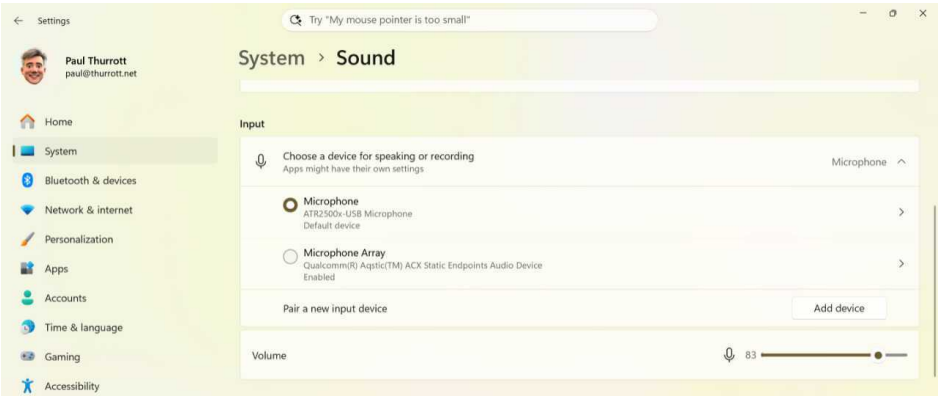
There are two key places to customize how Sound Recorder works: The Settings app, where microphone and other audio input settings are configured, and the settings interface in the Sound Recorder app itself.

Customize audio input in Windows 11

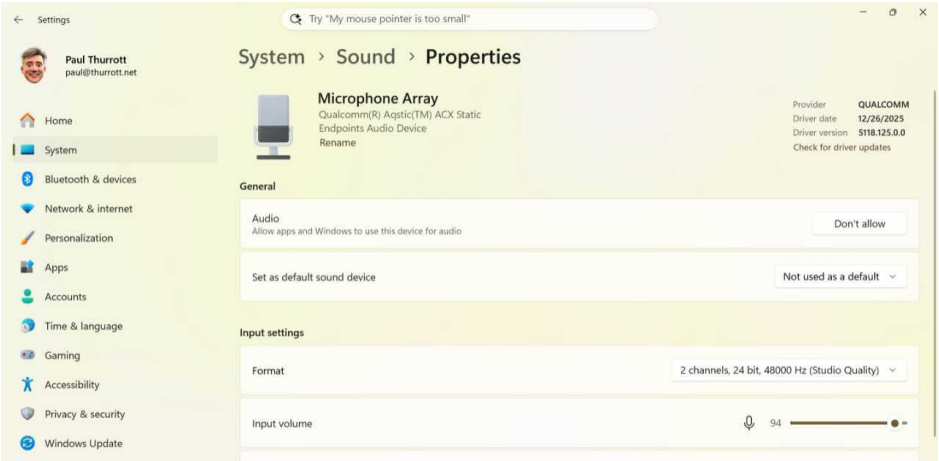
You configure microphones and other audio inputs in the Windows 11 Settings app: Navigate to System > Sound and view the options in the “Input” section to see what’s available.



The “Choose a device for speaking or recording” item auto-expands to display the microphones and other audio inputs accessible through your computer. If there are two or more compatible devices, one of them will be selected, and you can choose a different default audio recording device by selecting it here.



You can also configure each audio input device that appears here by clicking it. When you do a Properties page for that device appears.



What you see can vary by device, but some key settings include:

- **Format**. This option provides a drop-down where you can choose between various device-specific quality options, usually with 1- and 2-channel choices and various quality levels that use terms like "CD quality," "DVD quality," and "Studio quality" to help you make a choice.

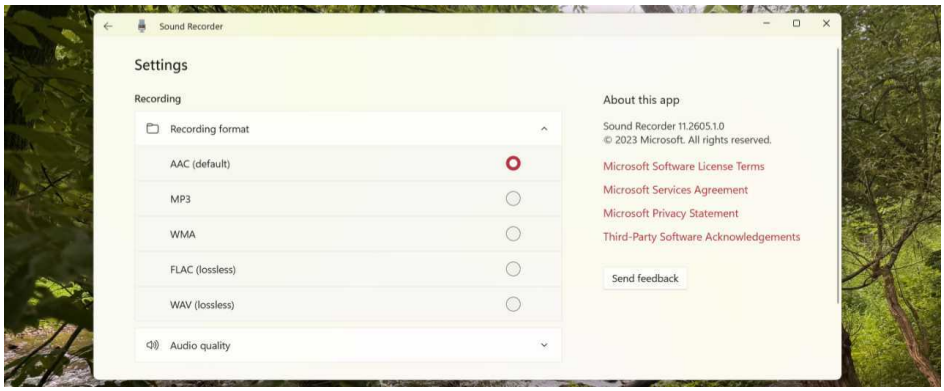
**Tip: ** You can use the "Test" button next to this option to test the quality of your choice.

- **Audio enhancements**. Depending on your PC and the audio input hardware, you may be able to take advantage of software- or hardware-backed audio enhancements. The best of the lot is Windows Studio Effects Voice Clarity, which may also offer a "Voice focus" sub-option.

Learn more: Voice focus

Customize Sound Recorder

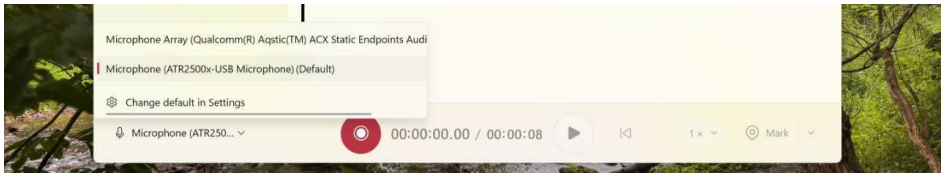
Sound Recorder offers a minimal set of options, and just for the file format used for recordings and the audio quality. To configure Sound Recorder, click "More options for recordings" ("...") in the upper-right of the app, and then "Settings."



Here, you will find:

- **Recording format**. By default, Sound Recorder records its files using the AAC (Advanced Audio Coding) format, which is broadly compatible with audio and video applications. But you can change this to MP3, WMA (Windows Media Audio), FLAC (lossless), or WAV (lossless). Unless you know you need a specific format, most are best served by leaving this one as-is.
- **Audio quality**. Sound Recorder chooses the audio quality of its recordings automatically by default, though it's not clear how it does so. (Presumably, this is based on some combination of the recording hardware capabilities and performance characteristics of your PC.) But you can change this setting to Best, High, or Medium. If your audio recordings are important to you, I recommend changing this to High or Best.

If your PC has multiple microphones or audio input devices, Sound Recorder will use the default choice you configured in the Settings app. But you can change it to use a different device at any time by clicking the drop-down in the lower left corner of the app.

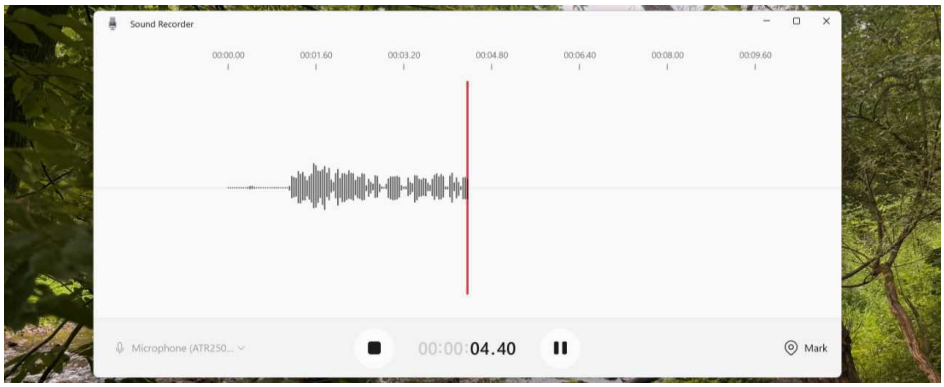


Record your voice or other audio

To start a recording, click the big red "Start recording" button in the Sound Recorder toolbar.

> **Keyboard shortcut**: Or, type Ctrl + R.

When you do, the app changes to a simple recording interface that displays waveforms and a small set of relevant controls.



The following options are available while recording.

- **Stop recording**. Click the "Stop recording" button to stop recording entirely. Doing so creates a new file that is accessible in the navigation pane and in your PC's file system, in a Sound Recordings folder in your Documents folder.

> **Keyboard shortcut**: You can also tap Esc to stop recording.

- **Pause/Resume recording**. To stop recording temporarily, press the "Pause recording" button. Doing so will not create a new recording file. Instead, Sound Recorder will wait for you to click the "Resume recording" button that replaces "Pause recording" in the toolbar.

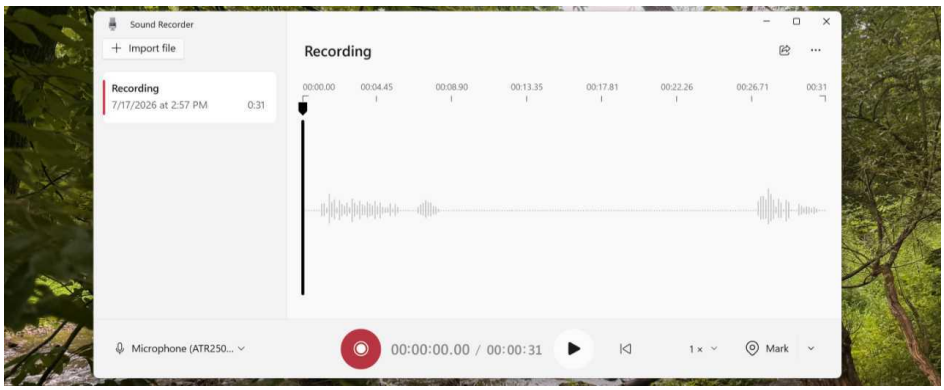
> **Keyboard shortcut**: You can also tap Space to pause or resume a recording.

- **Mark the current spot in the recording**. If you are recording a meeting, lecture, or similar, you may occasionally wish to mark the point at which something important was said so that you can more easily find it later and go back to that point when you are listening to the recording. To do so and create a *marker*, click the "Mark recording" button on the right side of the toolbar.

Keyboard shortcut: You can also type Ctrl + M to mark an important point while recording.

Tip: Yes, you can mark multiple points while recording.

When you are done recording, you will return to the main Sound Recorder view, where you will find a new recording, cunningly named *Recording*, at the top of the Sound Recorder navigation pane, denoted with the time of its creation and its length.



Tip: If you don't rename your recordings as described below, subsequent recordings will be named Recording (2), Recording (3), and so on.

Play a recording

To play a recording, click it in the navigation pane–a waveform representing the recording will appear in the recording/playback area–and then click the Play button. When you do, the recording will play and a *play head* will move across that area in time with the recording.

The following options are available during recording playback.

- **Pause the playback**. When you start playing a recording, the Play button turns into a Pause button so you can pause playback at any time.

> **Keyboard shortcut**: Or, just tap Space.

- **Move to any point in the recording**. You can drag the playhead with your mouse to quickly move to any point in the recording.
- **Zoom in and out of the recording visually**. As with a web browser, you can type Ctrl + + (Plus) and Ctrl + - (Minus) to zoom in and out of the playback waveform. This can help you more easily find a specific point, especially in long recordings.

> **Keyboard shortcut**: You can also type Ctrl + 0 to return to the default view in which the entire recording waveform can be seen in the app without needing to scroll.

- **Jump to the start of the recording**. To jump directly from the current place in the recording to its start, click the "Jump to start" button in the toolbar.

> **Keyboard shortcut**: Or, tap the Home key.

- **Change the playback speed**. By default, Sound Recorder plays recordings at their native ("1X") speed. But you can click the "Playback speed" control in the toolbar to select between several faster and slower playback speeds.
- **Mark an important point in the recording**. As is the case when recording, you can mark an important point in a recording while playing it back by clicking the "Mark recording" button (identified as "Marks") in the toolbar.

> **Keyboard shortcut**: Again, you can also type Ctrl + M to create a marker at a specific point during playback.

- **Jump to a marker**. In this view, the "Mark recording" button is a split button that offers a second function: it also lets you jump to any of the available markers. To do so, click the right side of the split button and then click one of the available markers.

Manage a recording

You can manage each recording you create with Sound Recorder in various ways. To see what's possible, select a recording in the app's navigation bar and then click the "More options for recording" ("…") button, which displays a menu of choices. (You can also see these options by right-clicking a recording in the navigation pane.)

- **Share**. Click this item to invoke Windows 11's rather limited Share pane and share the underlying file with contacts, via other apps, or with Nearby sharing.
- **Rename**. Click this item to give the recording a more descriptive name than *Recording*.

> **Keyboard shortcut**: You can also type F2 to rename a recording.

- **Show in folder**. As noted previously, sound recordings are stored in a Sound Recordings folder in your Documents folder. But you can click this item to go directly to that folder in File Explorer.
- **Delete**. Select this item to delete the sound recording after a confirmation prompt.

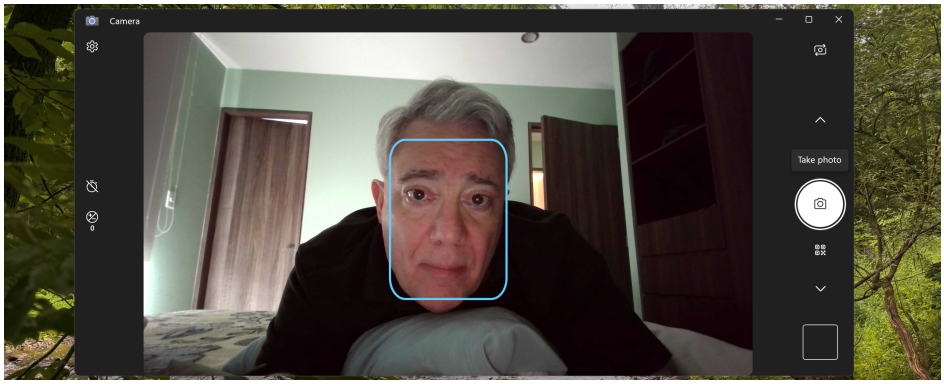
Keyboard shortcut: You can also tap Delete to delete a recording.

Import a recording into Sound Recorder

You can also import compatible audio files that were created outside of Sound Recorder into this app. When you do so, a copy of the file is added to the Sound Recording folder in your Documents folder, and the audio item appears in the Sound Recorder navigation bar alongside the app's recordings.

Camera

You can use the Camera take photos, videos, and scans with your PC's webcam or other cameras. This app looks and works similarly to the camera apps we use on our smartphones, and it's mostly straightforward.



Tip: If your PC has two or more cameras attached to it, a "Change camera" button will appear at the top right of the app. You can click this to toggle between the available cameras if so.

The Camera app interface is dominated by a large camera viewfinder in the center. Depending on your hardware, it also displays buttons on the right for switching between Photo, Video, and other capture modes, plus a Camera roll control. And you may see additional buttons on the left for options like HDR and a timer.

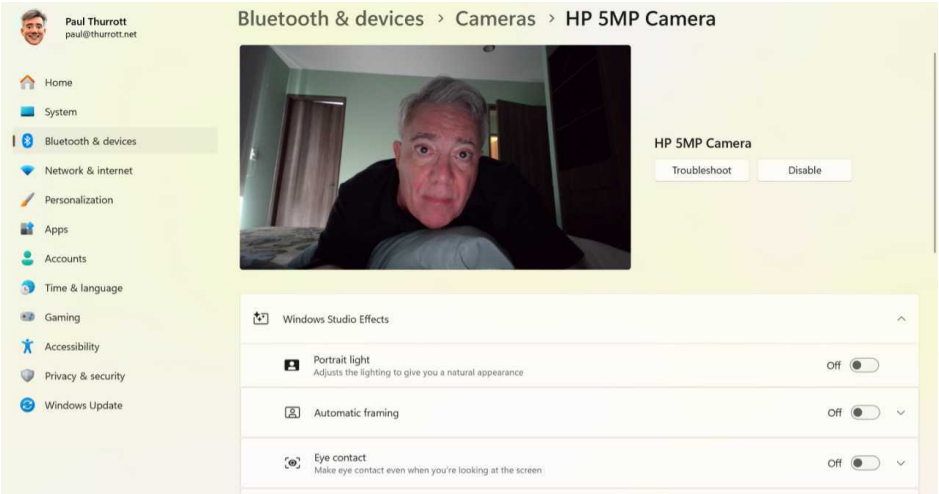
Customize

There are two key places to customize how Camera works: The Settings app, where webcams and other camera settings are configured, and the settings interface in the Camera app itself.

Customize audio input in Windows 11

You configure your PC's webcam and other cameras in the Windows 11 Settings app: Navigate to Bluetooth > Cameras to see which devices are available.

To configure a specific camera, select it in the list. A Properties page for that device appears.

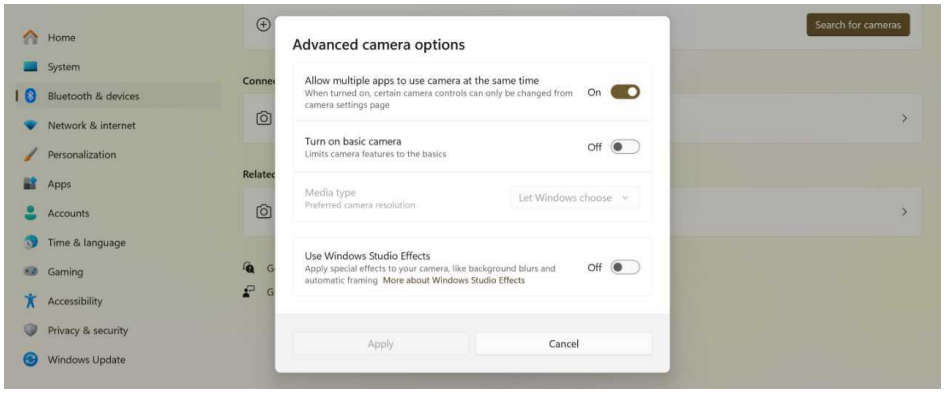


The options you see here can vary by device. But some of the more common include:

- **Windows Studio Effects**. If your computer and camera hardware supports Windows Studio Effects, you can configure the set available features here.

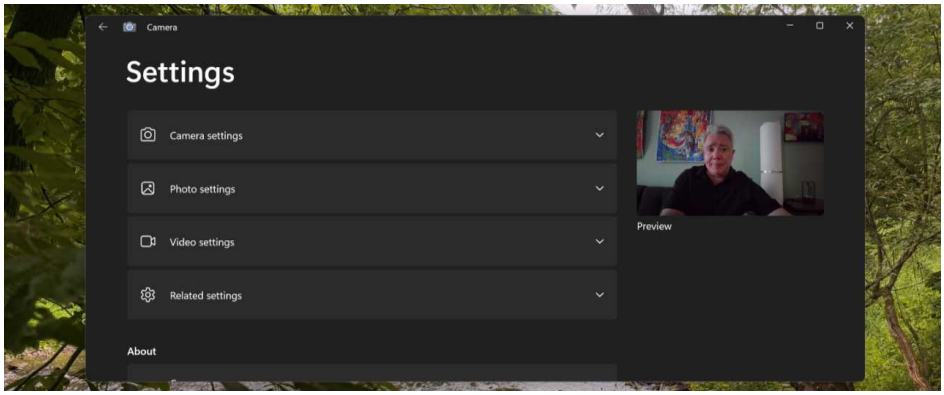
> **Learn more**: Windows Studio Effects

- **Basic settings**. If available, this expandable set of options lets you manually configure camera features like brightness, contrast, sharpness, and saturation.
- **Video rotation**. If your camera supports it, you can use this option to configure the rotation of the hardware in 90 degree increments.
- **Advanced camera options**. If supported by your computer, you may be able to use multiple cameras simultaneously, toggle between basic and advanced camera features, configure the camera resolution, and more using an "Advanced camera options" window.



Customize Camera

To configure the Camera app, click the "Settings" (gear) button in the upper left of the app window. The settings interface has separate expandable sections for Camera settings, Photo settings, and Video settings.



Some key settings to consider include:

- **Camera settings: Show advanced controls for photos and videos**. By default, the Camera app only displays its basic options for photos and videos. But you can enable this feature to display more options to the left of the viewfinder in the main app display, like brightness controls and others. What you see will vary by camera.

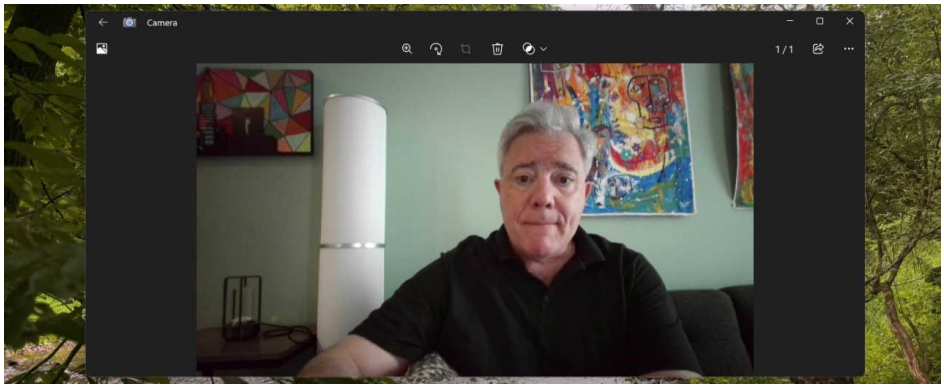
- **Camera settings**: **Default settings**. By default, the Camera app uses the system-wide camera settings as configured in the Settings app, and any changes you make in this app will apply system-wide as well. But you can change this option to "Use custom in-app settings" so that any configuration changes you make here in the app won't impact the global settings.
- **Photo settings**: **Photo quality**. This setting lets you choose from a selection of still photo resolutions that vary by hardware.
- **Video settings**: **Video quality**. This setting lets you choose from a selection of video recording resolutions that vary by hardware.

Take a photo

To take a still photo with the selected camera, make sure the Camera app is in Photo mode–it's the default–and then frame and compose the object you're capturing, and click the "Take photo" button.

As you do, the Camera app will flash and emit a camera shutter-like sound, and a thumbnail of the photo will appear in the Camera roll control in the bottom right. Both serve to indicate that the shot was successful.

Photos taken with the Camera app are stored in a Camera Roll folder in your Pictures folder. (This folder will be created the first time you take a picture or record a video.) You can view photos you've taken with this app by clicking the Camera roll control or by using File Explorer or the Photos app.



Make a video recording

To make a video recording, put the Camera app in Video mode using the buttons on the right, frame and compose the object you are recording, and then click the "Take video" button to begin. When you do, the Camera mode buttons disappear and are replaced by prominent "Pause video recording" and "Stop taking video" buttons. An elapsed time counter in the middle bottom of the viewfinder provides a live view of the recording time.

Click "Stop taking video" when you're done recording. A thumbnail of the video will appear in the Camera roll control in the bottom right.

> **Tip**: The "Pause video recording" button lets you pause the recording and then restart it without having to make a separate video file.

As with photos, videos taken with the Camera app are stored in a Camera Roll folder in your Pictures folder. You can also view these recordings directly in the Camera app and with the Photos app.

Scan a document, whiteboard, or barcode

In addition to taking photos and videos, the Camera app also supports scanning a document, a whiteboard, or a bar code using separate Camera modes for each.

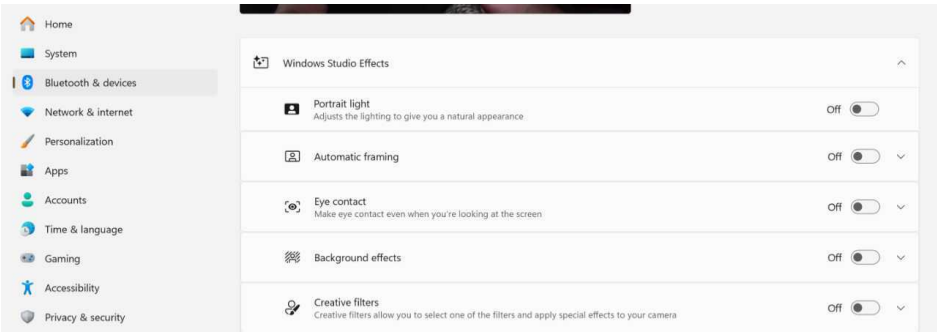
> **Tip**: Some of these capabilities are hardware-dependent, so you may only see a subset of these choices on your own PC.

The Document and Whiteboard modes work similarly: As you frame the subject, the Camera app will highlight the document or whiteboard to indicate that that is the part of the scene that it will scan. Click the "Take document" button to scan the image. Camera will scan the scene, crop it to the document, and straighten it so that it looks correct. Then, it will quickly display a preview of the final image.

Barcode mode works as it does on your smartphone: just point your PC's camera at a QR code or other barcode, and the Camera app will translate it into human-readable text.

Windows Studio Effects

Windows 11 includes a set of AI-based camera and audio enhancements called Windows Studio Effects that can help improve your audio and video calls regardless of which apps you use for that.



> **Tip**: Most of these effects require a *Neural Processing Unit (NPU)*, a special AI processor, and some require a very powerful NPU. Because these processors are only found in the latest PCs, and usually in premium models, it's possible your PC doesn't support at least some of these features.

Available enhancements include:

- **Automatic framing**. This video effect uses a set of hardware-dependent capabilities to zoom and crop the image sent from your webcam as you move around in front of the PC during a call.
- **Background effects**. This set of video effects is used to blur your background during video calls. You can set it to a Standard (heavy) or Portrait (light) blur.

- **Creative filters**. This set of filters applies one of three creative effects–Illustrated, Animated, or Watercolor–to the video image you transmit in real time for a truly unique effect.

- **Eye contact**. This video effect makes it appear that you are looking directly into the webcam even if you're looking at the screen under the webcam. (Or, awkwardly, away from the PC entirely, which can look disturbing.)
- **Portrait light**. This effects adjusts the light on your face dynamically to give you a more natural appearance.

- **Voice focus**. This audio effect mutes background noises so that the other people on a call can hear your voice better. Because it is an audio effect, it is configured for your microphone, not your camera.

> **Tip:** This may not be obvious, but you can enable multiple effects at the same time.

See whether your PC supports Windows Studio Effects

To quickly see whether your PC supports Windows Studio Effects and, if so, which effects, open Quick settings and see whether there is a "Studio effects" quick setting button.

If you see this quick setting button, then your PC supports at least some of these features.

Learn more: Quick Settings

If you don't see this button, there's one more place to look. Open the Settings app, navigate to Bluetooth & devices, Cameras and select a camera under "Connected cameras." Then, select your webcam under "Connected cameras" to display its settings page.

If there is a "Windows Studio Effects" item, you're good to go: Your PC supports at least some (video) effects. If not, locate the "Advanced camera options" item and click its "Edit" button to view the "Advanced camera options" dialog for this camera and see whether you can enable a "Use Windows Studio Effects" option.

You should step through this if necessary for each camera if you have more than one. And if none of that worked, sorry, your hardware doesn't support Windows Studio Effects video effects.

It may, however, support Voice focus, the one audio effect. To find out, open Settings and navigate to System > Sound. There, click on a microphone or other audio input device under "Input" to display its Properties page. Then, scroll down to "Audio enhancements."

Here, you can configure "Audio enhancements" to "Windows Studio Effects Voice Clarity" if available. And on some PCs, you will see a "Voice focus" sub-option that further reduces background noises using your PC's NPU. I recommend enabling both.

Customize

You configure each of the Windows Studio Effects individually and can do so at a system level using the Settings app, impacting all camera-compatible apps (Slack, Teams, Zoom, and so on), or you can do so at any time in supported apps, or by using the Quick settings-based interface or a Taskbar-based button that appears when you're using a camera in any app.

Settings app

As noted above, the video and audio effects settings are found in different locations in Settings. But since Voice focus is just a simple toggle as noted above, let's focus on the video effects. These are configured by navigating to Bluetooth & devices > Cameras and selecting your webcam.

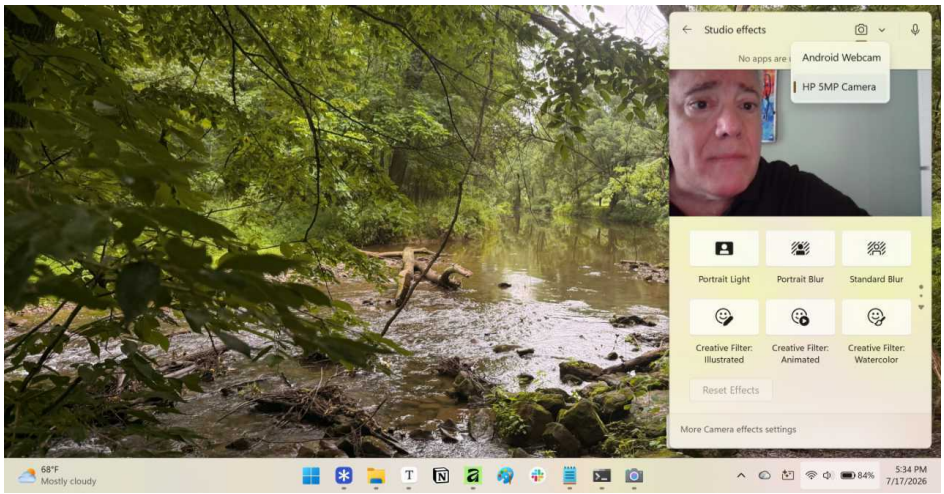
Each effect here has an obvious on/off toggle and most support sub-options so you can select whatever mode. For example, if you expand "Eye contact," you can choose between "Standard" and "Teleprompter."

Supported apps

Some apps, including the Camera app that comes with Windows 11, provide in-app controls for Windows Studio Effects, which can be especially handy. If not, you can use one of the other methods listed here to enable or customize the effects.

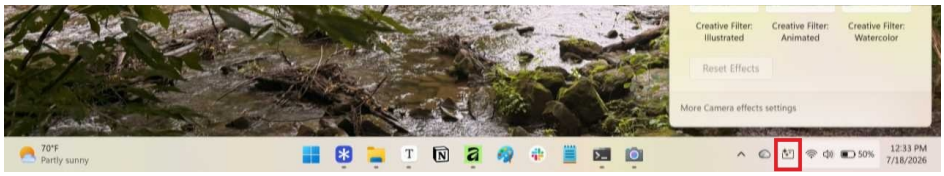
Quick settings

The "Studio effects" quick setting button in Quick settings changes the display to a handy pane with a way to switch the view between video and audio effects (if both are supported), a camera preview, toggles for the available effects, and a very useful "Reset Effects" button for when you go a little too far with the effects. You can make changes here and preview them in the camera preview.



Taskbar button

You can also display the Windows Studio Effects pane triggered by the "Studio effects" quick setting button in Quick settings using a special Taskbar button that appears when you're using any effect.



Clipchamp

Windows 11 includes a free and surprisingly full-featured video editor called Clipchamp that should meet the needs of just about anyone. And while this isn't well-documented, you can also use Clipchamp to create and edit audio files and export a video as audio.

Defaults

Clipchamp is included with Windows 11.

Clipchamp in Windows 11 requires you to sign in with a Microsoft account (MSA) (or Microsoft Work or School account, or MWSA). If you sign in to Windows 11 with an MSA, you will sign in to Clipchamp with that account automatically. If you sign in to Windows 11 with a local account, you will be prompted to sign in with your MSA.

> **Tip**: Clipchamp is a web app and it's also accessible in any modern web browser. The web version supports signing in with an MSA or MWSA like the Windows 11 app, but it also supports signing in with a Google account.

Clipchamp is free and full-featured, but you can get additional premium functionality with a Microsoft 365 Personal, Family, or Premium subscription or by paying for a standalone Clipchamp Premium subscription that costs $11.99 per month. With either subscription, you get:

- Support for up to 4K video resolution, compared to Full HD (1080p) in the free version.
- Free stock assets that expand on the free stock assets offered in the free version.
- Premium filters and effects that expand on the free filters and effects offered in the free version.
- Access to the integrated Brand kit with custom logos, colors, and fonts.

> **Tip**: This chapter covers the Clipchamp features that everyone gets for free.

Clipchamp uses a project-based workflow. Each project consists of some combination of *media assets*–video, image, and audio files–that you provide and must be stored somewhere and Clipchamp-provided assets, text, transitions, branding elements, and more.

Clipchamp works with *local storage*, meaning storage devices attached to your PC, but you can also store projects and assets in your cloud-based OneDrive storage, which explains the MSA (or MWSA) requirement. There are trade-offs to both choices:

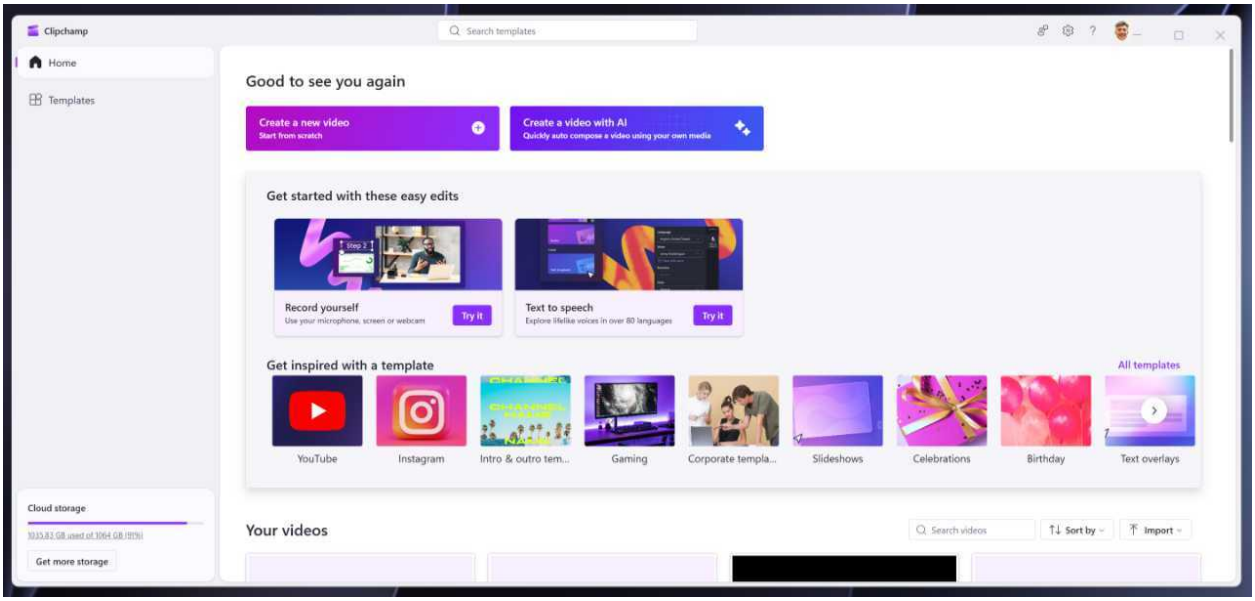
- **Local storage**. You must maintain the files the make up the assets of a Clipchamp project. If you move or delete one of those files, Clipchamp can see or use it.
- **OneDrive**. Your Clipchamp projects–including any assets you provide–take up space in your cloud storage but the content is available from any of your PCs or Macs or other devices on which you've installed a OneDrive client.

> **Tip**: If you use a third-party cloud storage service like Google Drive with Windows 11, you can configure Clipchamp to use local storage and then choose a file system location that's synced with that cloud storage service so that your project assets and other data can be made available on any of your PCs, Macs, or other devices.

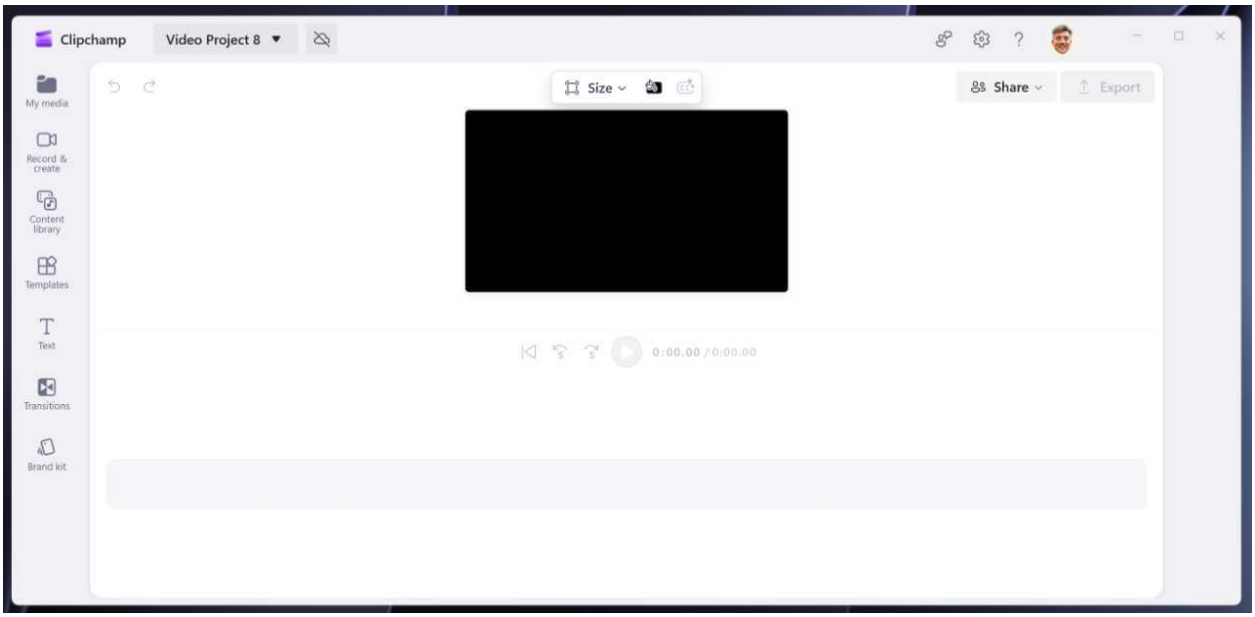
By default, Clipchamp uses local storage only, even if you sign in with an MSA. This occurs in a hidden folder of files that the app needs to function correctly and also contains temporary copies of media assets; You can find this file, named Clipchamp.Clipchamp_yxz26nhyzhsrt, for some reason, in C:Users*username*AppDataLocalPackages. By default, Clipchamp is configured to use up to 10 percent of the space available in the system drive. And whatever space it does use–minus the media assets you provide–is found within this folder.

Clipchamp has two primary interfaces:

- **Home page**. This is the interface you see when you launch the app. It provides choices for starting a new project from scratch, using an AI-based auto compose feature, using a selection of easy edits that start off in one of Clipchamp's secondary interfaces, or using one of the many *templates* that Clipchamp provides. It also displays thumbnails for all the projects you've already created. (This can be on your PC and/or in OneDrive depending on how you configured the app.)



- **Video editor**. This is the primary interface for editing a video project, exporting the completed video, and sharing the project with others.

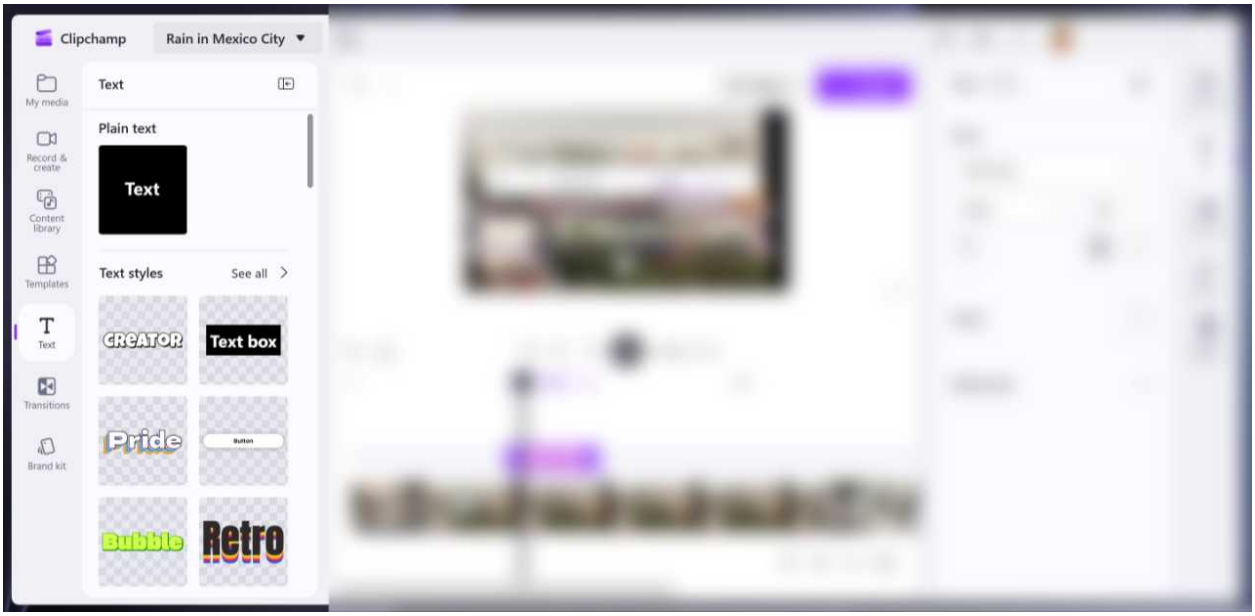


Tip: The Clipchamp video editor also lets you access secondary interfaces for recording audio, the screen, a camera, or the screen and a camera together.

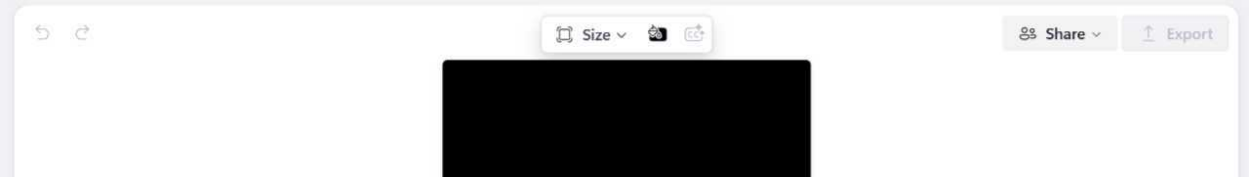
Projects

If you create a new project using the “Create a new video” button or open an existing project, Clipchamp navigates to the video editor interface. This interface contains the following elements:

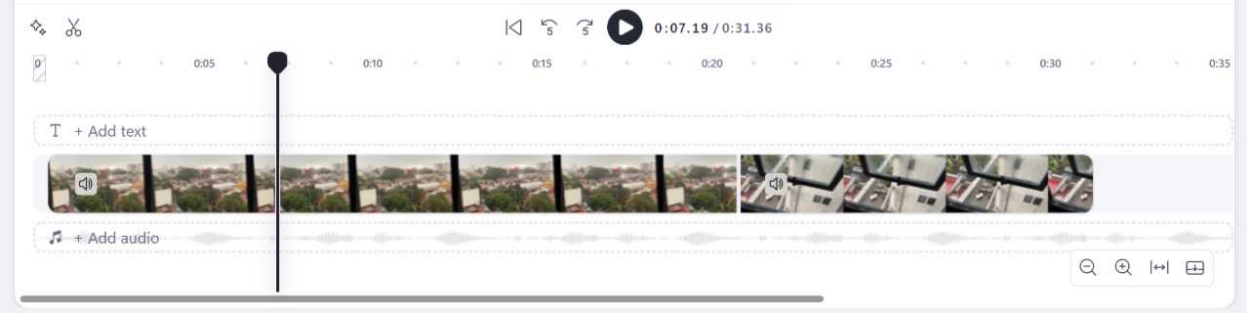
- **Toolbar**. This vertically oriented pane displays icon-based tabs for key video editor features, each of which provides a collapsible panel with options for the selected feature. For example, when you select “Text” in the toolbar, the Text panel appears with plain text, text styles, title, two-line, caption, and other text-based options.



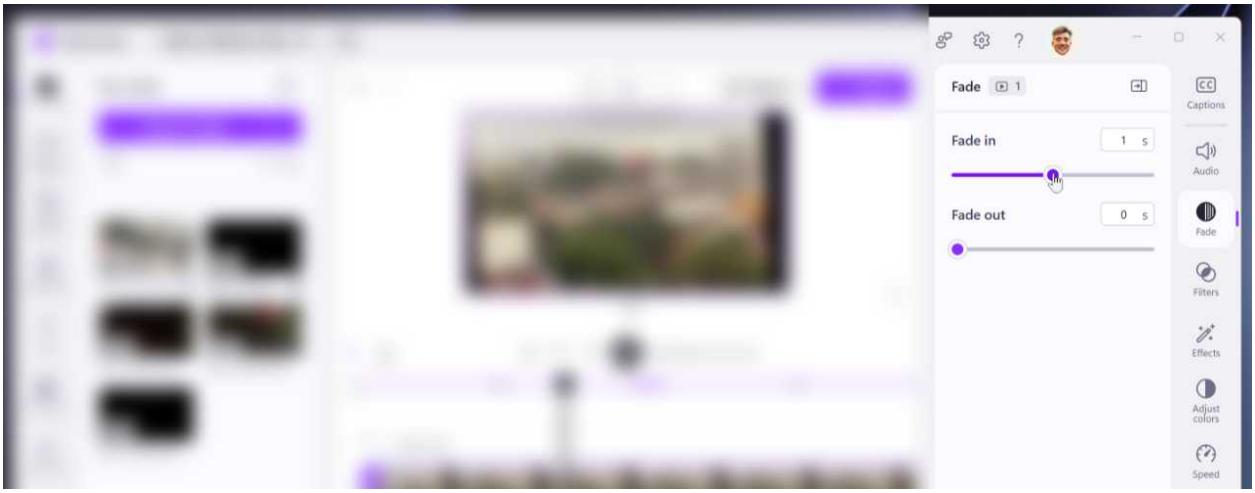
- **Video preview with a floating toolbar**. The video preview area in the top middle of the Clipchamp app also provides “Undo” and “Redo” buttons, a floating toolbar with “Size” (aspect ratio), “Background color” and “Autocaptions” options, a “Full screen preview” button, and large “Share” and “Export” buttons.



- **Timeline**. This interface is where the magic happens. You drag, arrange, and edit video and audio clips and other assets into the Timeline to create a finished video that can include music and sound effects, titles and other text, transitions, filters, effects, and more.

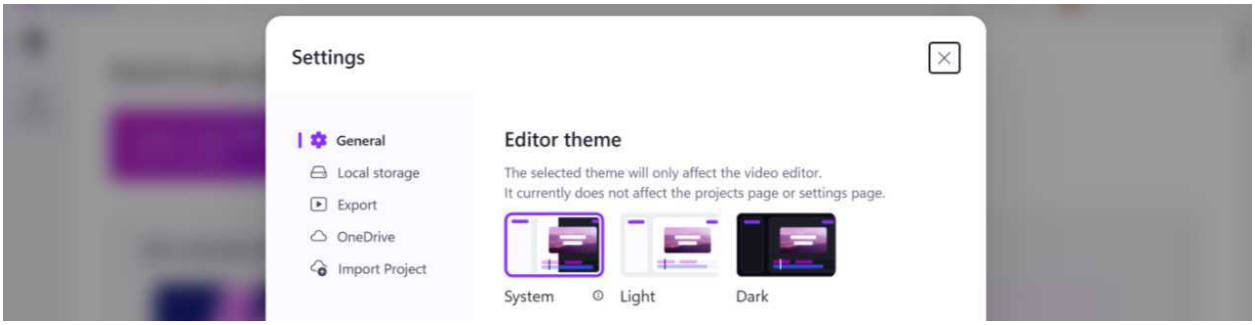


- **Property panel**. Once you add content to the Timeline project, this vertically oriented pane displays icon-based tabs for "Captions" and the features that are available for any selected item(s) in the Timeline. For example, if you select a video clip in the Timeline, icons for "Fade," "Filters," "Effects," "Adjust colors," and "Speed" appear. As with the toolbar, the Property panel expands when you select a tab and provides a collapsible panel with options for the associated feature. For example, The "Fade" panel has controls for configuring video fade-in and fade-out.



Customize

Clipchamp has a simple app settings interface that's accessible via the "Settings" (gear) icon at the top of the app window in either of the primary interfaces.



Key settings include:

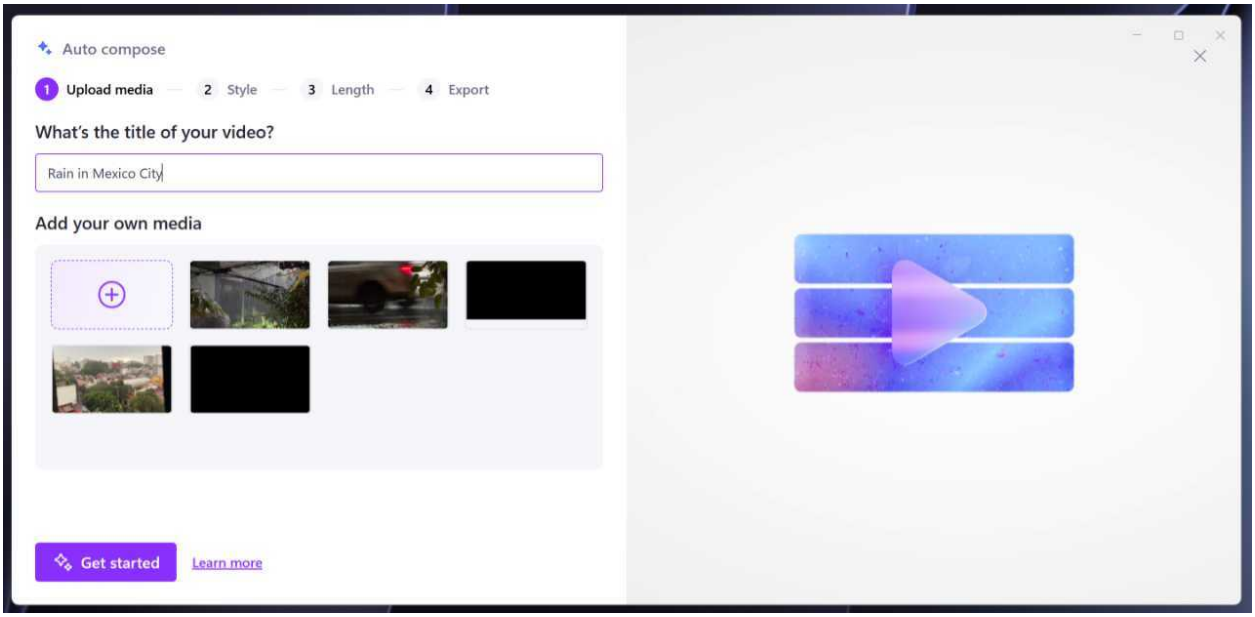
- **Local storage**. Here, you can optionally configure Clipchamp to use up to 20, 40, 60, or 80 percent of the local storage it can use by default.
- **Export**. Clipchamp uses your PC's graphics chips to speed video exports with hardware acceleration. If you have issues exporting, you can disable this feature and exports will be slower but more reliable.

Create a new project

There are several ways to start a new project from the Clipchamp home page. Among them are:

- **Create a new video from scratch**. Click this button and Clipchamp will switch to an empty video editor interface with the "My media" panel open so you can import media assets and start editing the new project.

- **Create a video with AI**. If you have your own media assets ready and want some guided assistance from AI, you can click this button and follow the steps in a short wizard to provide a title for the project, add your media assets, choose a style based on an AI review of your content or let the AI choose for you, choose between landscape and portrait orientations, choose a length, and select music to accompany the video. Then, you can choose to just let AI do its thing and export whatever video it comes up with or you can load the results in the video editor for further editing. I strongly recommend the latter.



- **Get started with an easy edit**. Clipchamp randomly promotes two of its secondary interfaces as a quick starting-off point for creating a new video.
- **Create a video using a template**. Clipchamp lets you jump straight into a new project by choosing a *template*–an often extensive set of bundled assets–that it then lays out in the Timeline so you can start with something attractive and professional. From there, you can view and edit the project created by the template and import media assets to build it out further.

For the most part, I assume you will start with a new project built from scratch.

Open a previous project

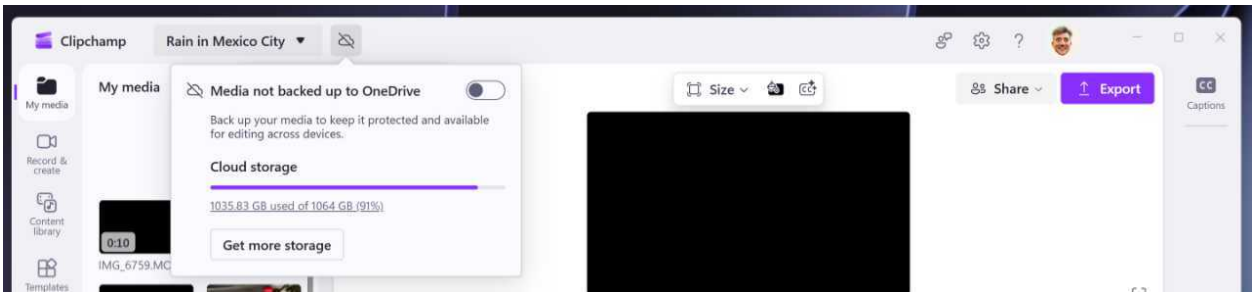
To open a previous project, scroll down to the "Your videos" area in the Clipchamp home page and click the project thumbnail you want. Previous projects appear in reverse chronological order as a grid of thumbnails, but you can also search for a specific project, sort the list differently, or import a previous project stored elsewhere if desired.

Name or rename a project

In the Clipchamp video editor interface, you can name a new project or rename an existing project by clicking the "Name" drop-down in the left of the app's title bar area and choosing "Rename."

Back up the media in a project to OneDrive

Clipchamp works with local files by default, but you can back up any project to OneDrive by clicking the "Media not backed up to OneDrive" button in the title bar area and configuring this feature to "On."

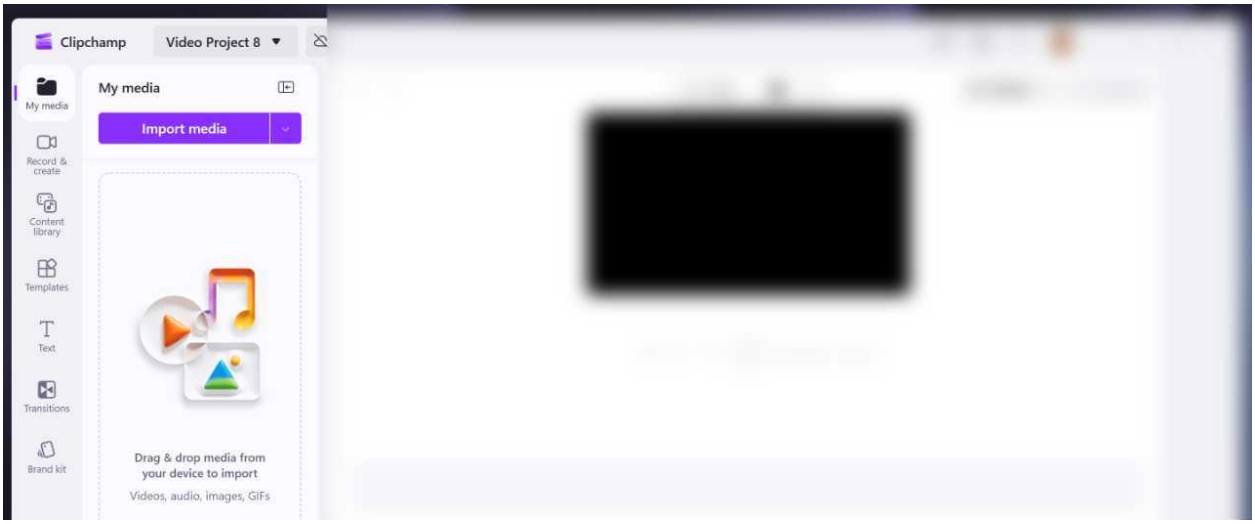


When enabled, Clipchamp backs up your media assets to your cloud storage, making them available to you if you open this project on another PC or device.

> **Tip:** Clipchamp will continually remind you to back up to OneDrive if you don't avail yourself of this option.

Import and manage media assets for a project

Media assets–the video, image, and audio files that you supply–are key to the Clipchamp experience. You use the "My media" panel available in the Clipboard to import and manage a project's media assets.



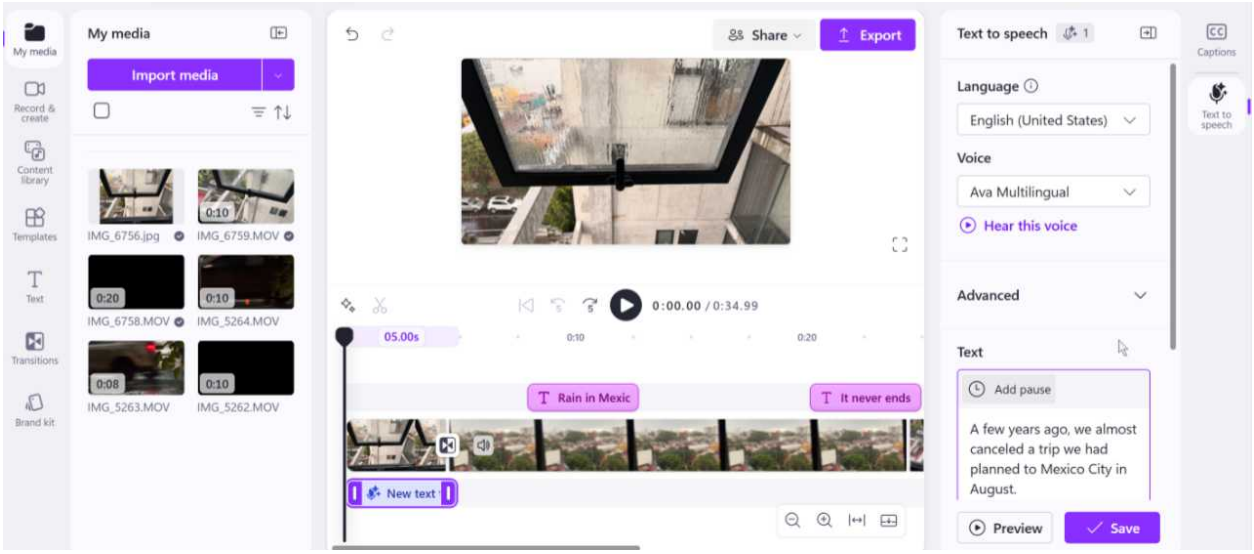
Tip: When you start a new project from scratch, this panel displays by default.

You can import media in several different ways:

- **Browse for files**. Click the "Import media" button at the top of this pane to display a standard "Open file" dialog you can use to navigate to the file system location where your assets are stored and then select the file(s) you wish to import. The imported files will appear as thumbnails in the "My media" panel.
- **Browse the content library**. Click the right side of the "Import media button" (it resembles a caret) and choose "Browse content library" to display the Clipchamp content library and its different asset types.

Learn more: Use the assets provided by the Clipchamp content library

- **Create text to speech**. Click the right side of the "Import media" button and choose "Text to speech" to add a "New text to speech" clip to the Timeline. A "Text to speech" panel appears in the Property panel with a choice of AI-based voices, a text box for importing or typing text and adding pauses, and "Preview" and "Save" buttons. Unlike with most other media associated with a project, Text to speech clips appear in the Timeline only and are not represented in the "My media" panel.



- **Import from OneDrive**. Click the right side of the "Import media button" and choose "OneDrive" to display a file picker interface with a file system-like view of your OneDrive storage in the cloud. As with the "Import media" button and its "Open file" dialog, you can navigate the OneDrive file system and select the file(s) you wish to import. The imported files will download from the cloud and appear as thumbnails in the "My media" panel.
- **Drag and drop from the local file system**. You can also open a File Explorer window, navigate to the file system location containing the files you need, select them, and drag them directly into the "My media" panel in Clipchamp. When you do this, the imported files will appear as thumbnails in the "My media" panel.

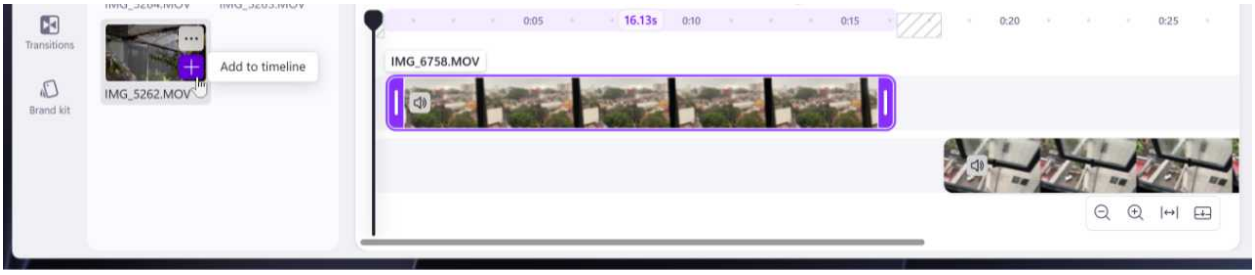
Arrange and edit video clips and other assets on the Timeline

Once you've imported at least some of the media assets you wish to use with a project, you can arrange–and, if needed, edit–them and other assets in the Timeline.

Add a media asset to the Timeline

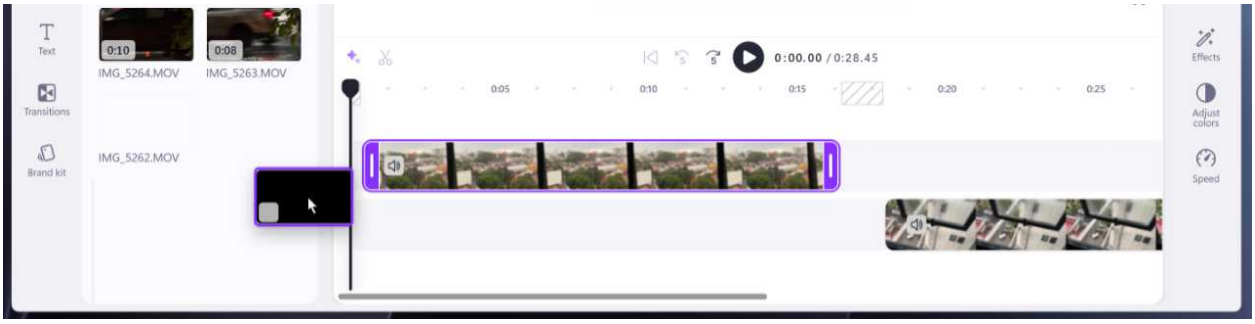
There are two methods for adding media assets in "My media" to the timeline:

- **Add to timeline**. When you mouse over a thumbnail in "My media," a purple "Add to timeline" ("+") button appears. If you click this button, the asset appears in the Timeline varies based on what, if anything, is already displayed in the Timeline. But images and video clips will appear in a single Media *track* in the Timeline by default and audio clips will appear in a single Audio track below the Media track.



> **Tip**: You can also multi-select assets in "My media" using the "Select item" buttons that appear on each thumbnail as you mouse over each and then use the "Add to timeline" button on the final asset to import them all at once.

- **Drag-and-drop**. If you need a bit more precision, you can drag a media asset from the "My media" panel directly onto the Timeline.

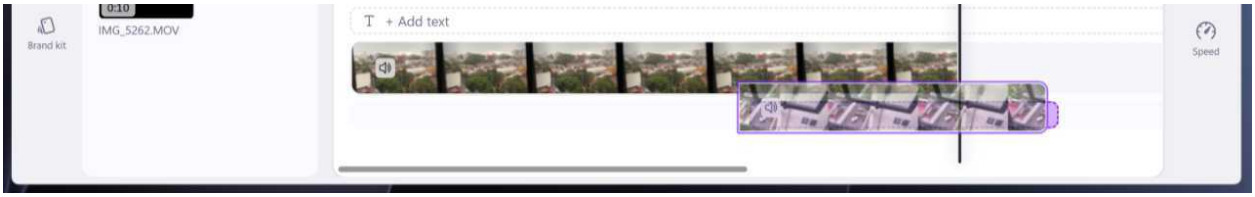


Assets you add to the Timeline take up horizontal space commensurate with their length, which you can measure against the time display at the top of the Timeline. Some assets, like video clips, have specific lengths, of course, but Clipchamp allots 4 seconds for images and 5 seconds for text by default.

Reposition an item in the Timeline

With a simple project, you may have just a single video clip and minimal or no text, filters and effects, and other additions. But as you add more assets to the Timeline, and more types of assets, the view can get more complex and provide you with numerous editing possibilities. The ability to reposition a media is perhaps the most basic.

You reposition items in the Timeline with drag and drop: Just click any item to select it and drag it with the mouse.



How you can reposition an asset depends on what's in the Timeline. For example, if you have just a single image or video clip, there's not much you can do beyond moving it left or right in the one Media track in the Timeline. But if you have two or more images and/or video clips, you can have multiple Media tracks, and you can drag these items up or down to move them into a different track.

> **Tip**: The arrangement of tracks from top to bottom in the Timeline matters because visual items–text, images, video clips, and so on–that appear in a track above other items in other tracks will visually appear in front of those items in other tracks and in the final video. For example, the items in the Text track will always appear above the items in Media tracks.

You can also drag these items between, above, or below existing Media tracks to place them in a new track.

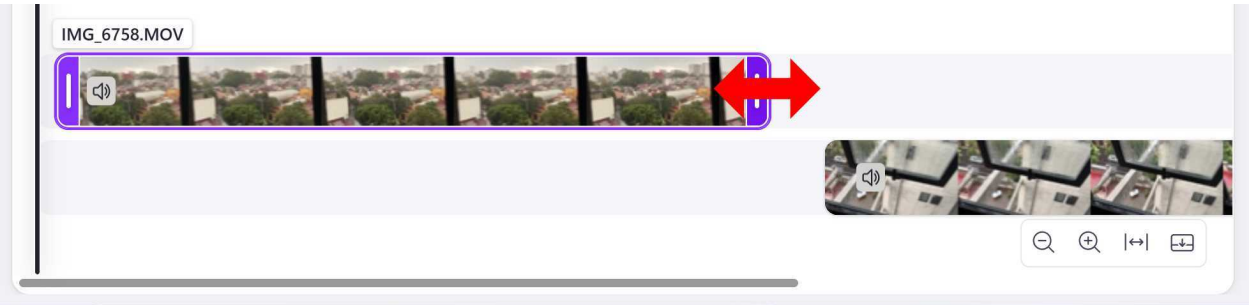
Other asset types work similarly but they're constrained to the track types they support. And there are rules for *where* certain track types can appear. Audio tracks can only appear below video tracks, for example, and Text tracks can only appear above Media tracks.

Change the length of an item in the Timeline

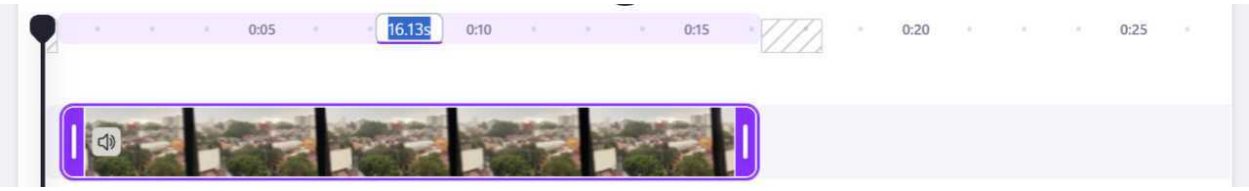
You can resize some assets to determine the length of time they appear or play. Images, as noted above, appear in a video for four seconds by default, but you can resize an image item in the timeline to lengthen or shorten the amount of time it appears.

There are two ways to do this:

- **Drag with the mouse cursor**. You can grab the left or right side of a compatible item in the Timeline with the mouse cursor and drag it left or right to increase or decrease its length. As you do, a purple indicator appears in the time display at the top of the Timeline so you can resize it accurately.



- **Edit duration**. You can right-click an item in the Timeline and choose “Edit duration” from the context menu that appears to specify its duration exactly.



This works a bit differently for different types of items. If you have a video clip that’s two minutes long, for example, you can grab its right side and drag it left to lessen the amount of time the clip plays without actually splitting the clip and deleting the bit(s) you don’t want.

Split a media asset

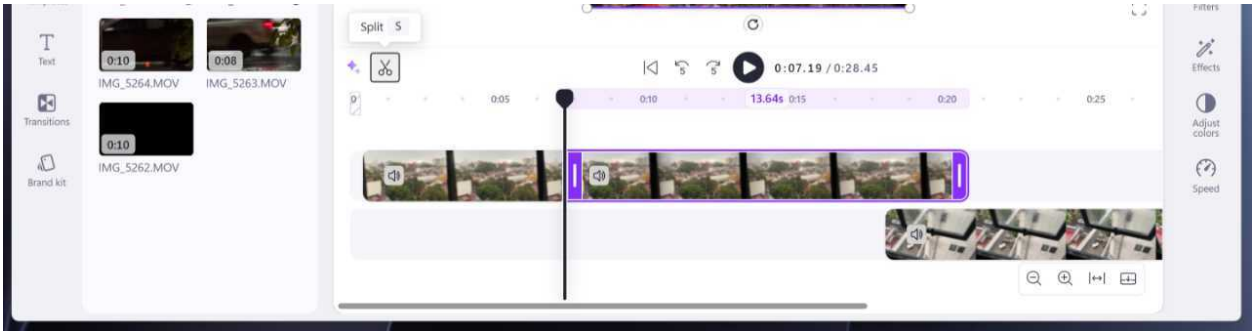
There are different ways to edit images and video clips, but one of the key actions you can take is to *split* an item so you can delete one of them and, in effect, trim the beginning or end of the item.

To do so:

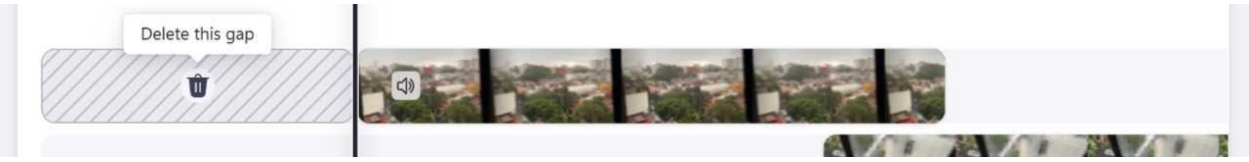
- Click the item you want to split to select it.
- Using the mouse cursor to reposition the *playhead indicator*–a vertical white line that extends from the top of the Timeline to the bottom–to the location you want to split the selected item. As you do so, the Video review updates to display that point in the project.
- Click the “Split” (scissors) button in the top left of the Timeline.

> **Keyboard shortcut**: You can also just tap the S key to split the selected item at the location marked by the playhead indicator.

Now, the item is split into two separate items with no gap between them.



From here, you can delete one of the clips by selecting it and tapping the Delete key, reposition one or both items, or perform any other edits. If you delete or move one of the clips, there will likely be a gap–empty space–where it was in its original track in the Timeline. You can manually position other items to remove that space or you can mouse over it and click the "Delete this gap" (trashcan) icon that appears.



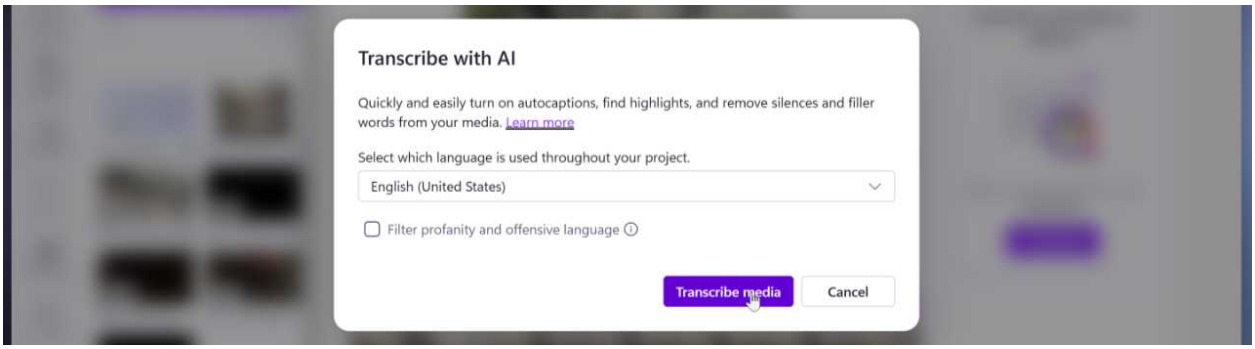
Add captions to your project

Adding captions to a video project is normally tedious, but Clipchamp has an *Autocaptions* capability that uses AI to detect and transcribe spoken words in audio and video clips and generate a captions transcript you can then edit as needed.

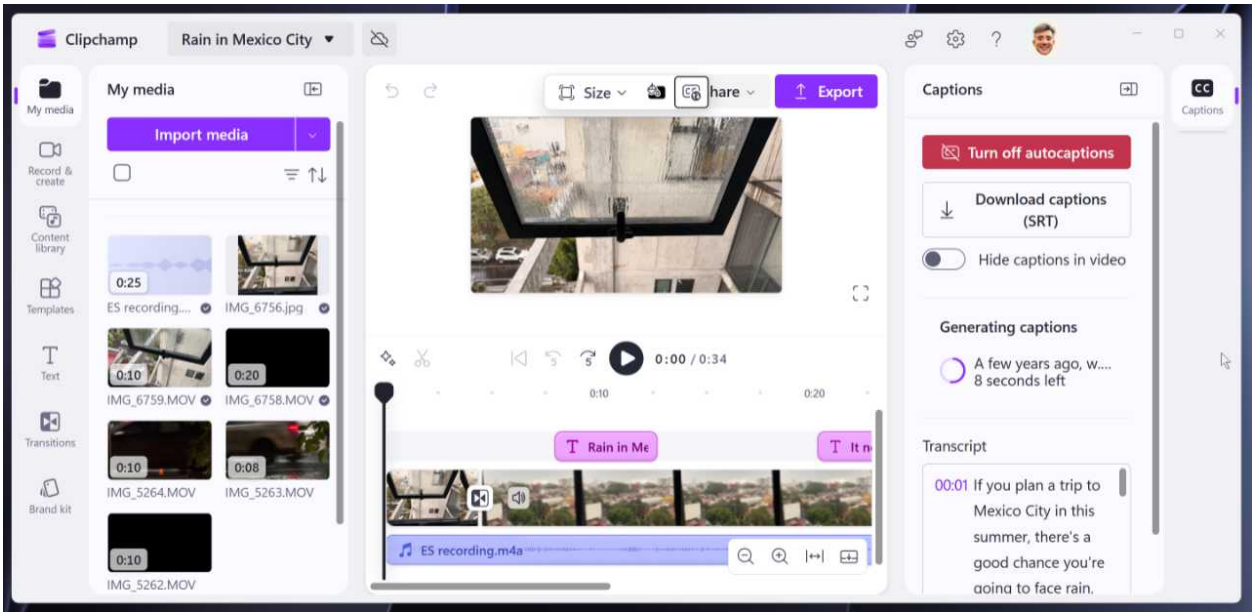
You can start with this feature in two ways:

- **Turn on autocaptions**. This button is available in the floating toolbar associated with the Video preview area.
- **Captions**. The tab is always available at the top of the Property panel.

When you select either choice, the "Transcribe with AI" window appears.



Select the language as prompted and click “Transcribe audio.” The “Captions” panel on the right will display Clipchamp’s progress as it detects and transcribes any spoken words. When it’s done, this panel will display the transcript with time stamps.



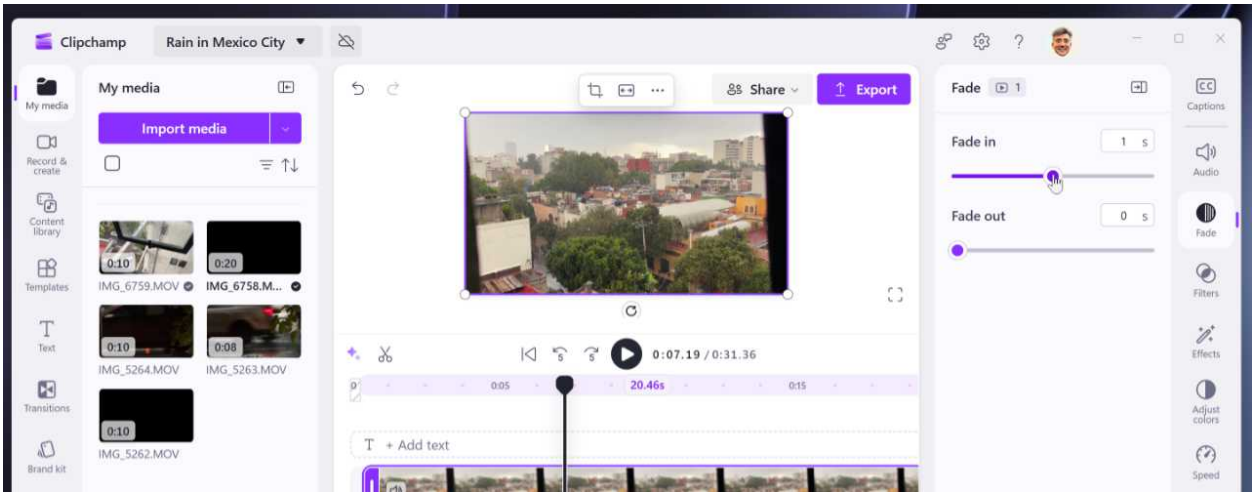
You can click anywhere in the transcript to see those captions in the Video preview. You can also edit the text of the transcript directly in the transcript.

This panel also lets you download the captions in .SRT format, which is widely compatible with video player apps, including Media Player, or hide the captions in the video.

> **Tip**: Captions are added to the video using standard Text items, and they can be edited like any other Text items.

Use Fade to fade a clip in and out

Images and audio and video clips you add to the Timeline support configurable *fade* effects so that they don’t begin or end in a way that is visually or audibly jarring. To configure this for one or more items, select them in the Timeline and then click the “Fade” tab that appears in the Property panel.

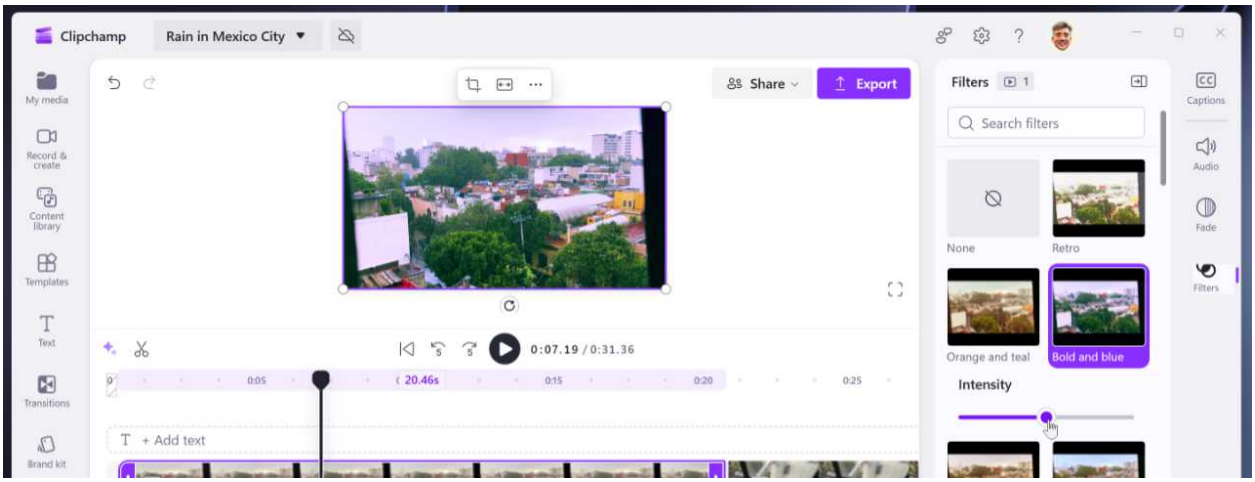


There are “Fade in” and “Fade out” sliders, each of which can be set to 0 to 2 seconds in increments of 0.1 seconds.

Enhance a clip with filters

Clipchamp supports a wide range of *filters*, visual effects that you can add to images and/or video clips in the Timeline. You can apply one filter to any of these items and configure its intensity.

To do so, select one or more images and/or video clips in the Timeline, position the playhead indicator so you can see the selected item(s) in the Video preview, and then click the “Filters” tab that appears in the Property panel.



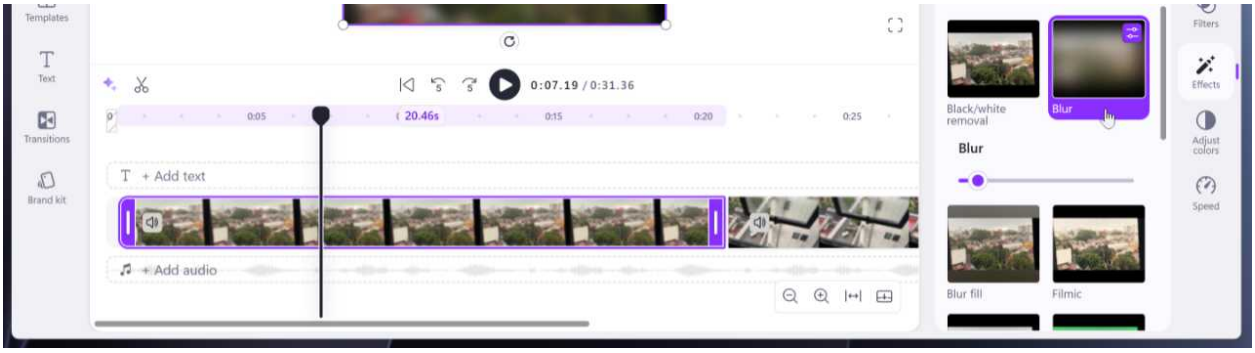
Select the filter you wish to apply. Then, optionally use the “Intensity” slider that appears under the filter thumbnail to change the intensity as desired.

Add an effect to a clip

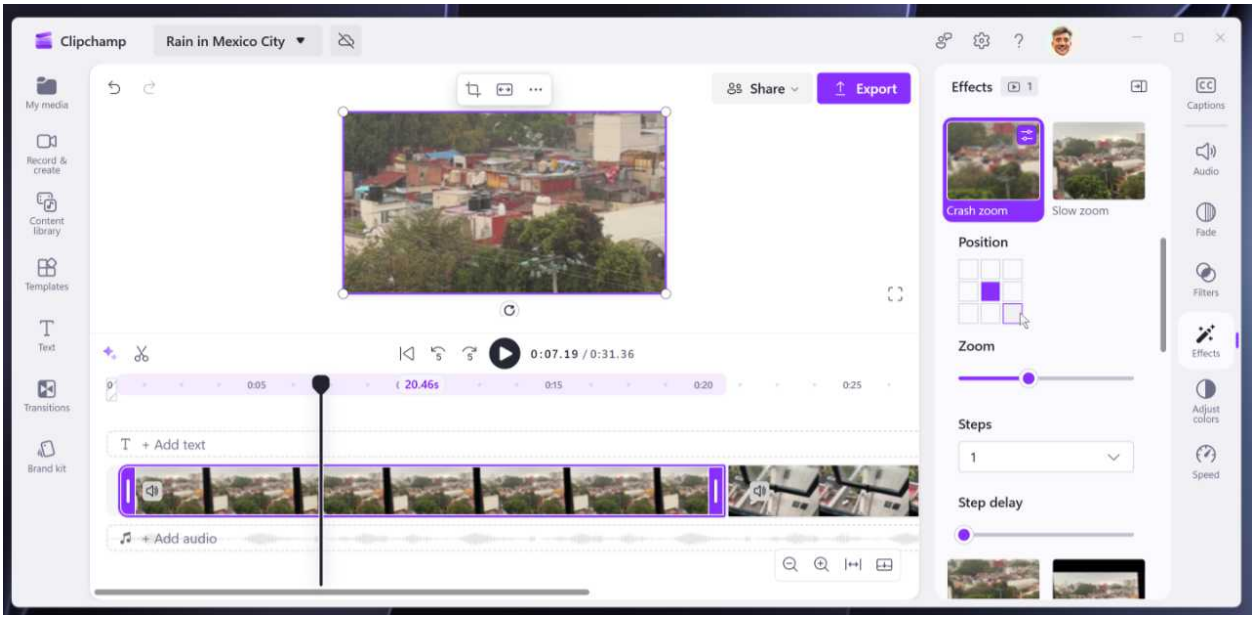
Similarly to filters, Clipchamp also supports a wide range of *effects* you can apply to images and/or video clips in the Timeline. Effects typically offer multiple options and, unlike filters, you can apply more than one effect to items in the Timeline.

To add an effect to one or more items, select the item(s) you wish to use in the Timeline, position the playhead indicator so you can see the selected item(s) in the Video preview, and then click the "Effects" tab that appears in the Property panel.

Select an effect you wish to apply. When you do, one or more options will appear below the effect thumbnail. For example, the "Blur" effect supports just a single option, a slider that you can use to configure the intensity of the blur effect.



The "Crash zoom" effect has options for positioning the starting point of the zoom, how much the item will zoom, the number of steps it will take, and the delay for each step.



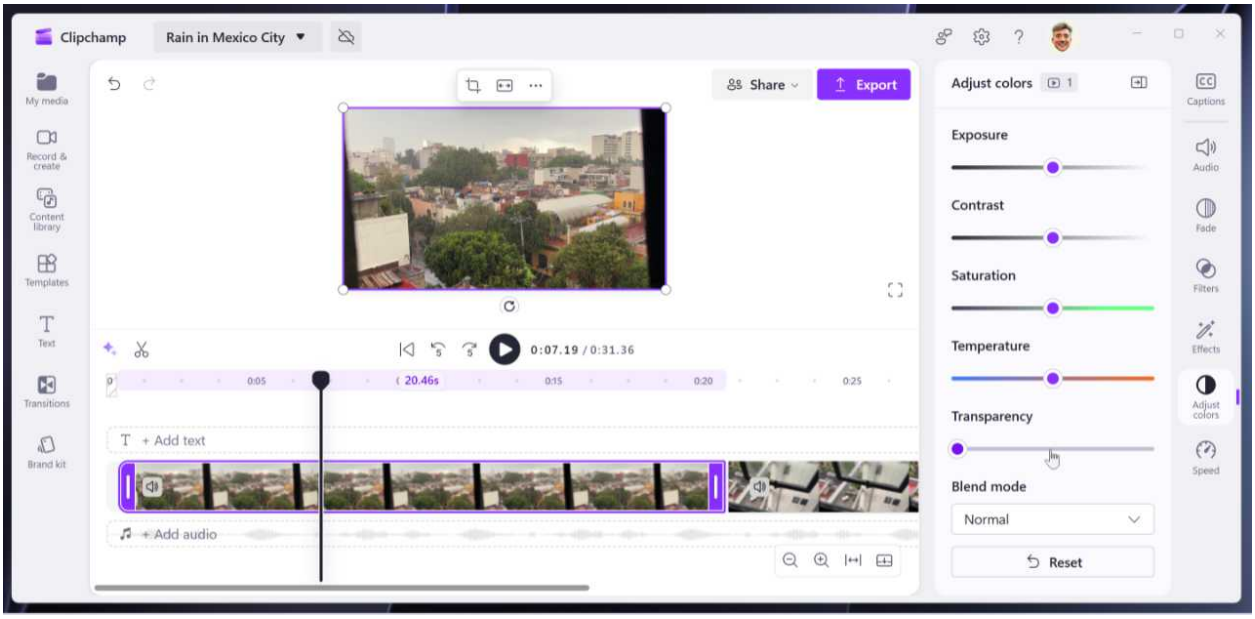
You will need to experiment with the available effects to find the ones you like, and remember

that you can add multiple effects to any compatible item in the Timeline.

Adjust the colors of a video clip or image

The “Adjust colors” tab in the Property panel lets you adjust the exposure, contrast, saturation, temperature, transparency, and, optionally, the blend mode used by any image or video clip in the Timeline. (The blend mode impacts how this item displays when you use transparency and there is another item visually below it in the Timeline.) As with filters and effects, you can edit these attributes for multiple items at the same time.

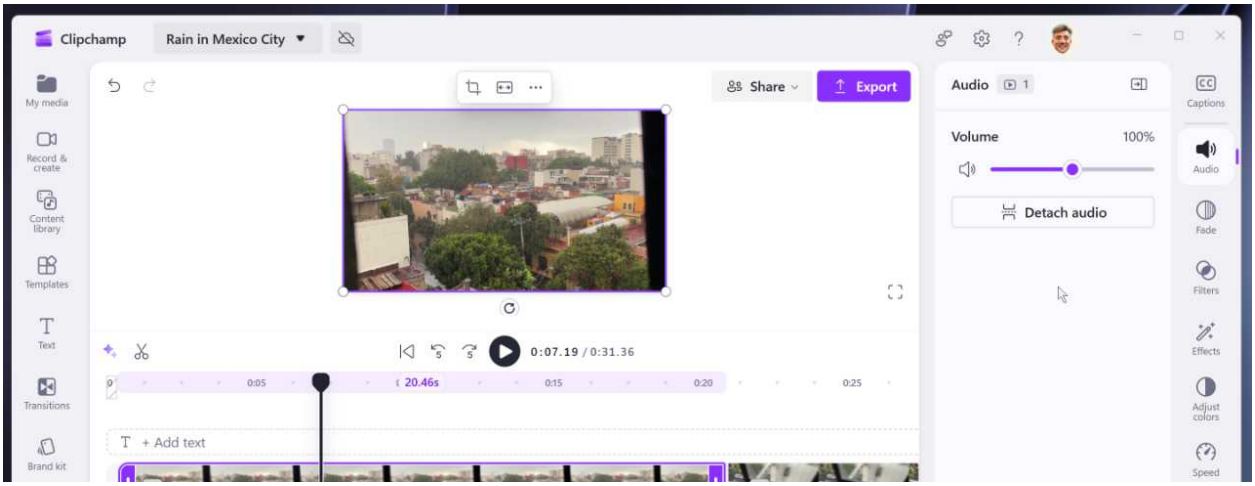
To do so, select the item(s) you wish to use in the Timeline, position the playhead indicator so you can see the selected item(s) in the Video preview, and then click the “Adjust colors” tab that appears in the Property panel.



Adjust the volume of an audio clip

You can configure the relative volume of audio and video clips in your projects and, with audio clips, optionally enable a “Noise suppression” option that uses AI to remove background sounds and echos.

To do so, select one or more audio and/or video clips in the Timeline, position the playhead indicator so it’s just before the beginning of the first item you’re editing, and then click the “Audio” tab that appears in the Property panel.

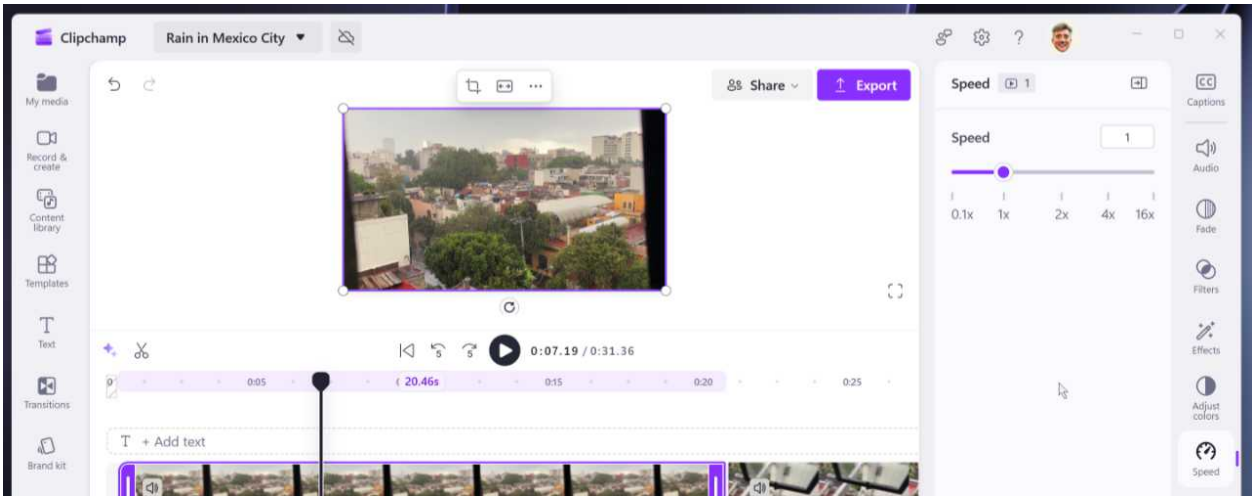


The “Volume” slider is set to 100 percent by default, but you can configure it to be softer or louder in 1 percent increments. Note that the “Noise suppression” only appears when an audio clip–and not a video clip–is selected.

Adjust the speed of an audio or video clip

Audio and video clips you add to a project normally play at their normal recorded speed, but you can use the “Speed” tab in the Property panel to speed them or slow them down.

To do so, select one or more audio and/or video clips in the Timeline, position the playhead indicator so it’s just before the beginning of the first item you’re editing, then click the “Speed” tab that appears in the Property panel.



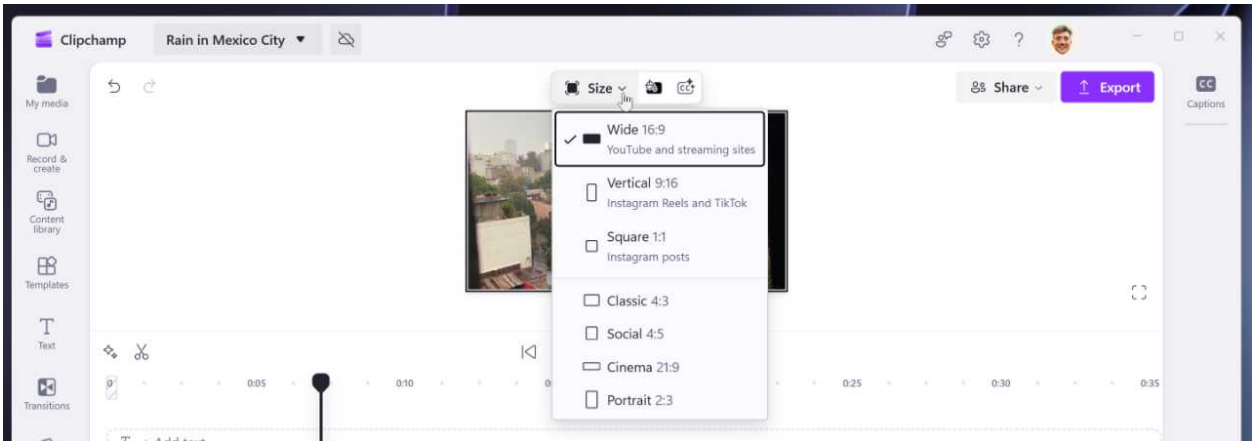
Here, you can slow the playback as low as 0.1x or as high as 16x in 0.lx increments.

Preview your video

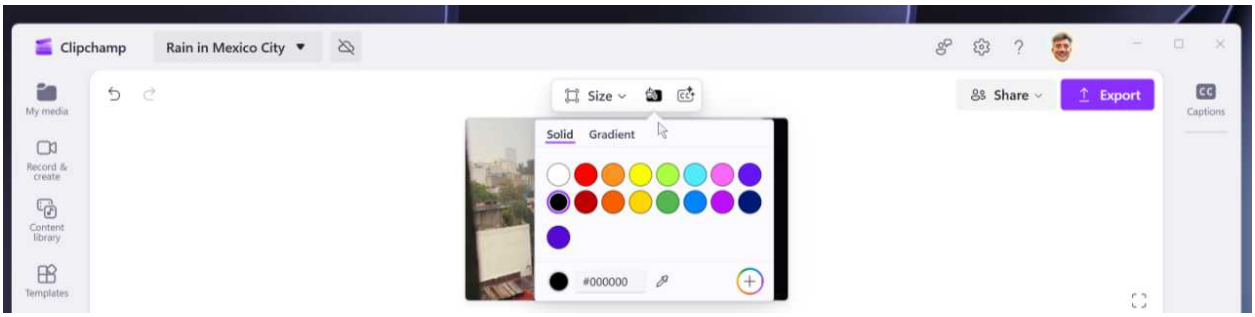
You will use the Video preview extensively as you edit videos with Clipchamp. It works in concert with the Timeline, with both interfaces kept aligned as you preview a video in progress or if you manually move the playhead indicator to go an exact point in the Timeline.

The floating toolbar in the Video preview provides the following capabilities when no items in the Timeline are selected:

- **Size**. Clipchamp will automatically select an aspect ratio for your project based on the media assets you add. But you can configure this explicitly by clicking the "Size" button. You can also mouse over each option you see to preview its impact on the project.



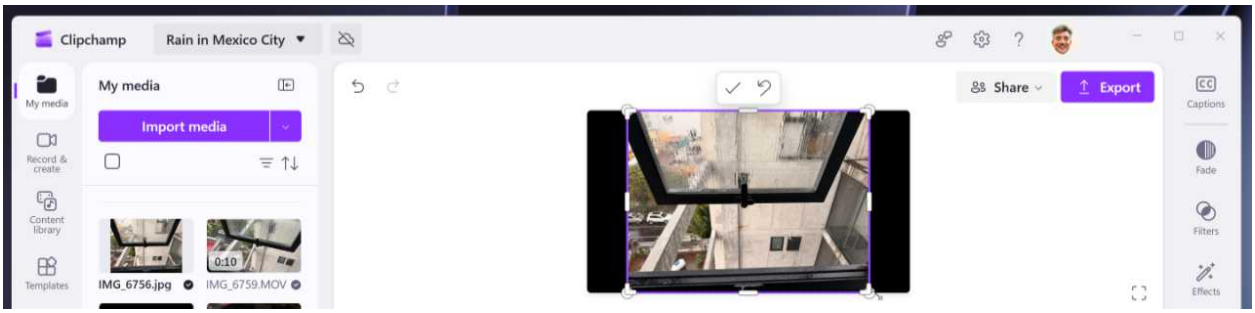
- **Background color**. If you use images, video clips, or other visual items with different aspect ratios, it's possible that what would otherwise by empty space below all the items in the Timeline will peek through. To prevent that, Clipchamp will display a solid black color for the background by default, but you can use this option to configure a different solid color or the gradient of your choice.



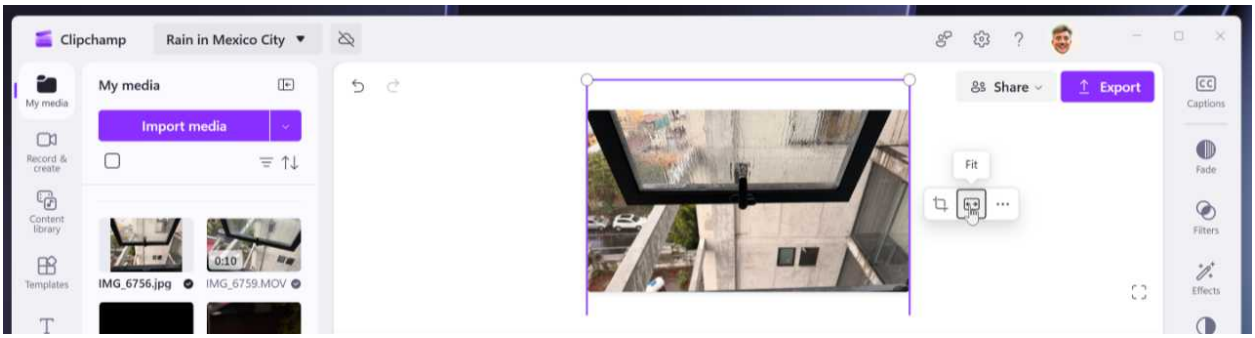
- **Caption options**. As described elsewhere in the chapter, Clipchamp has an *Autocaptions* capability that uses AI to detect and transcribe spoken words in audio and video clips and generate a captions transcript you can then edit as needed.

When you select an image or video clip in the Timeline and position the playhead indicator over it, the floating toolbar in the Video preview provides the following options:

- **Crop**. This lets you drag handles on the sides and/or corners of the selected item to resize it to fit better with other items that may have different aspect ratios. For example, if your project is sized to a 16:9 aspect ratio but a selected image or video clip is a different aspect ratio, it will display with black (or another background color) bars; you can use crop to manually fill that space better.

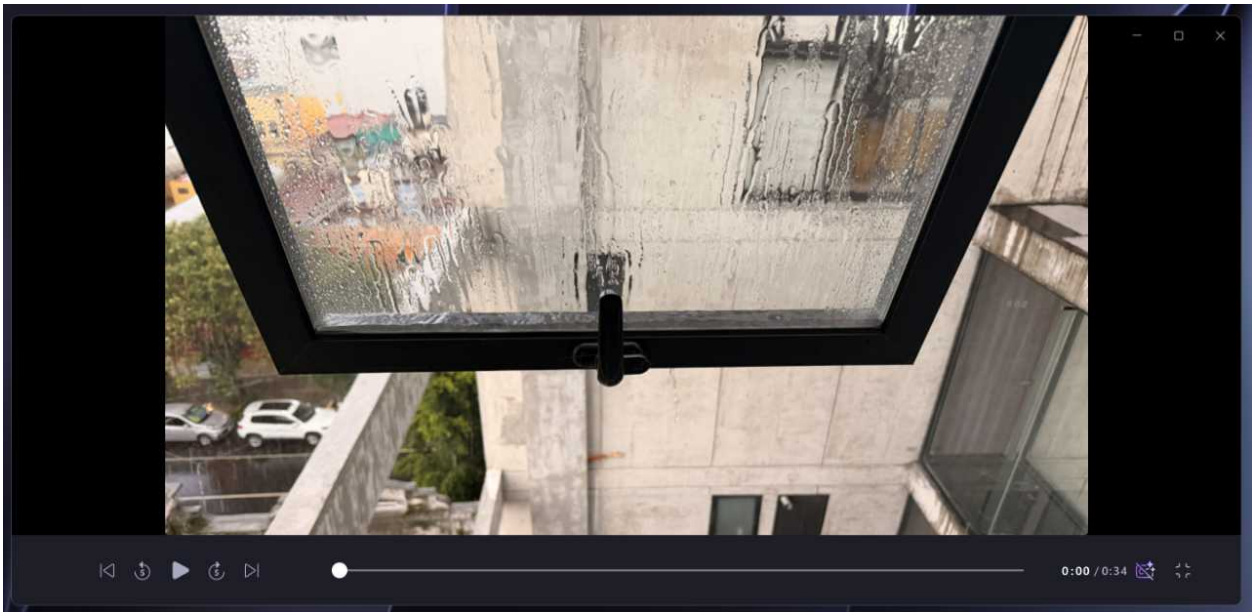


- **Fit/Fill**. This button acts as a toggle for a selected image or video clip that's a different aspect ratio than the configured size (aspect ratio). With "Fit," the item will display centered in its native aspect ratio, and with "Fill," it will fill the entire space, cropping from the top and bottom or sides as needed. You can then use the mouse cursor to drag the selected item in the Video preview to position it as you wish.



- **More. **This button provides access to a wide range of additional options, including Order (which lets you position the selected item visually towards the front or backward), Rotate by 90 degrees, Flip (horizontal or vertical), Picture in picture (Top left, Top right, Bottom left, or Bottom right), and Remove background, which uses AI to remove the background from the selected image only.

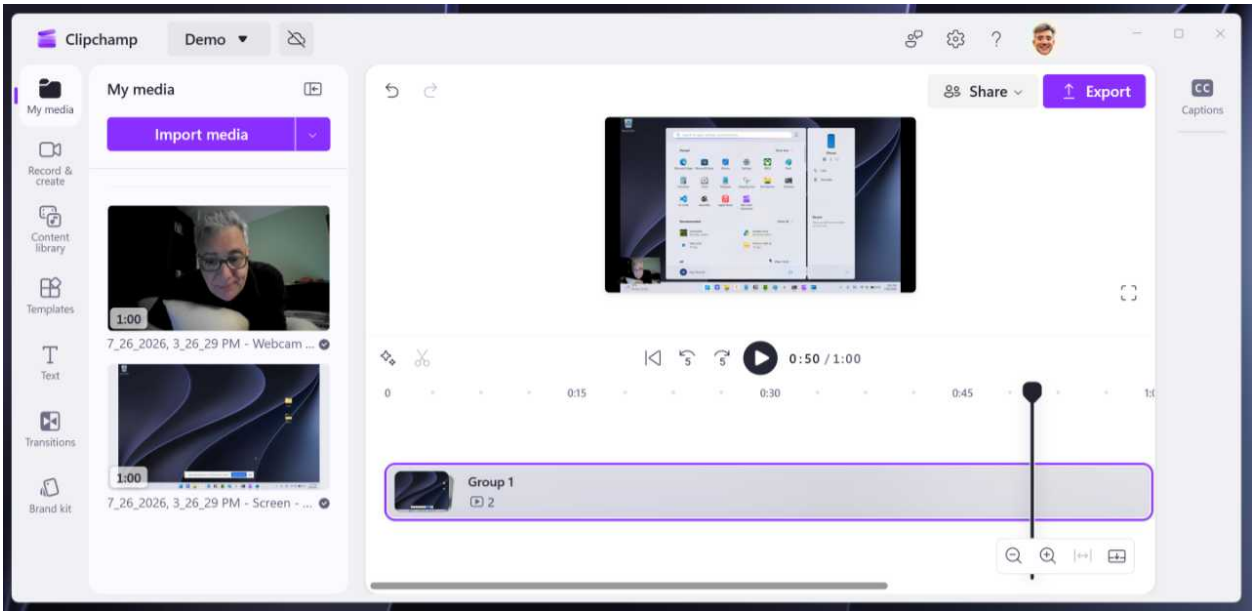
Note that you can also preview your project in a full-screen display, which can be helpful. Just click the “Full screen preview button” in the lower right of the Video preview area to start.



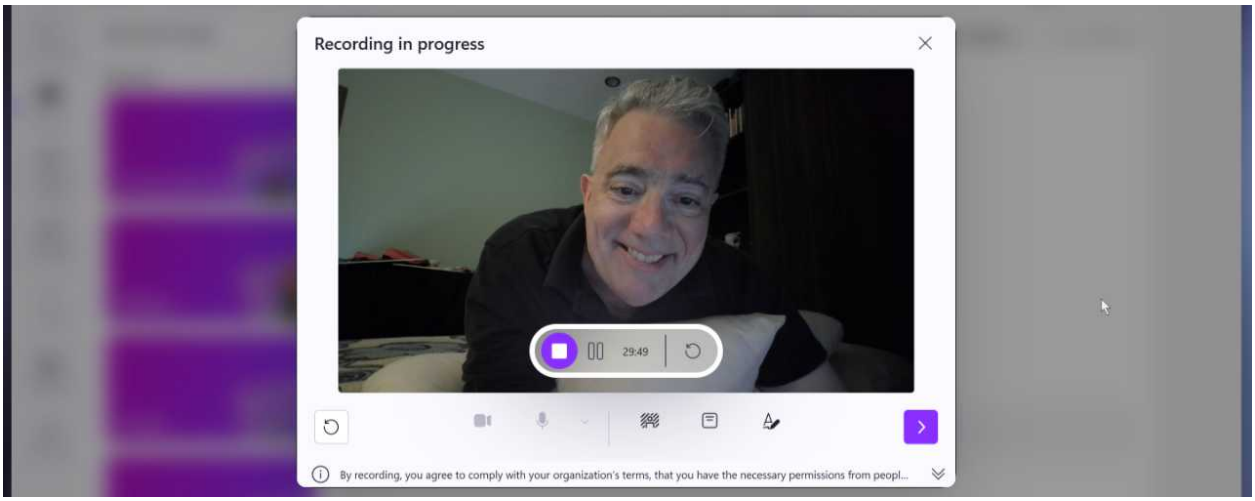
Record your camera, screen, audio, or screen and camera

The “Record & create” tab in the Clipchamp tool provides four useful tools to speed the creation of specific types of assets you can use in your projects, each within its own secondary interface. They are:

- **Screen and camera**. This lets you record the screen, a window, or a browser tab along with the view from one of your PC’s cameras in a picture-in-picture display you can resize and position arbitrarily over the screen recording. The “Camera” and “Mic” buttons let you choose the recording hardware to use, and the “Script” button lets you paste a script you wrote in a translucent overlay over the recording so you can read it as you go. You select the screen, window, or tab to record after clicking “Start screen recording,” and you can optionally enable system audio. The video clip you create plays back as soon as you’re done, and then you can retake the recording or save it to add it as a standard media asset in the “My media” tab and to the Timeline.

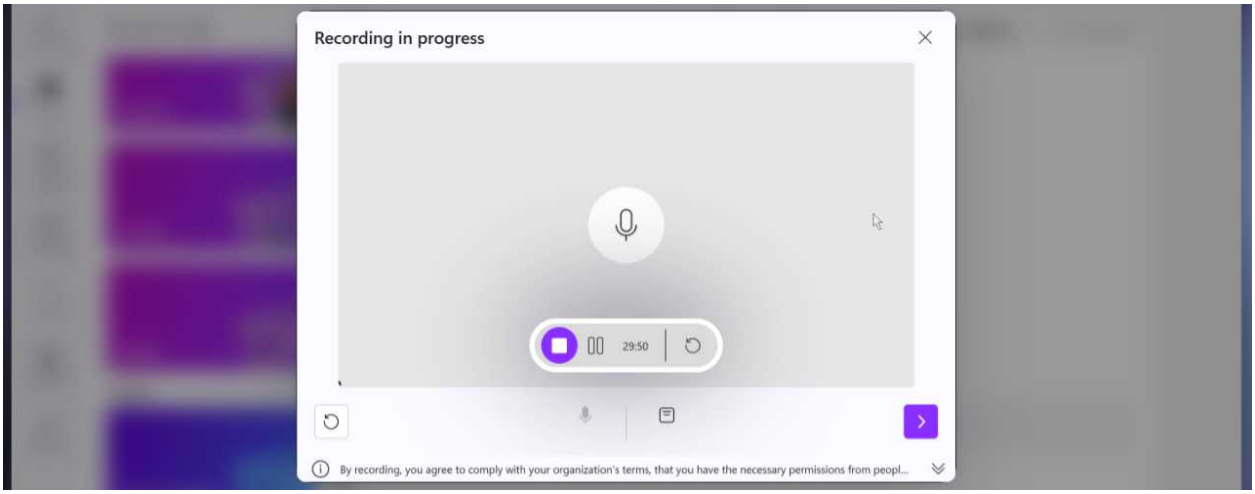


- **Camera**. This lets you record the output from one of your PC's cameras with hardware selection options, optional backdrop blur or image background replacements, an optional translucent script overlay, and optional Draw, Filter, Frame, and Board effects you can use in real-time. As with the above tool, you can retake or save and import the finished recording.



- **Screen**. This lets you record the screen or any window or browser tab while optionally recording a voice-over. You can select the microphone hardware to use and optionally enable a translucent script overlay. As with the above tools, you can retake or save and import the finished recording.
- **Audio**. This tool lets you record audio–typically your voice–for up to 30 minutes using a microphone connected to your PC with an optional translucent script overlay. When you're

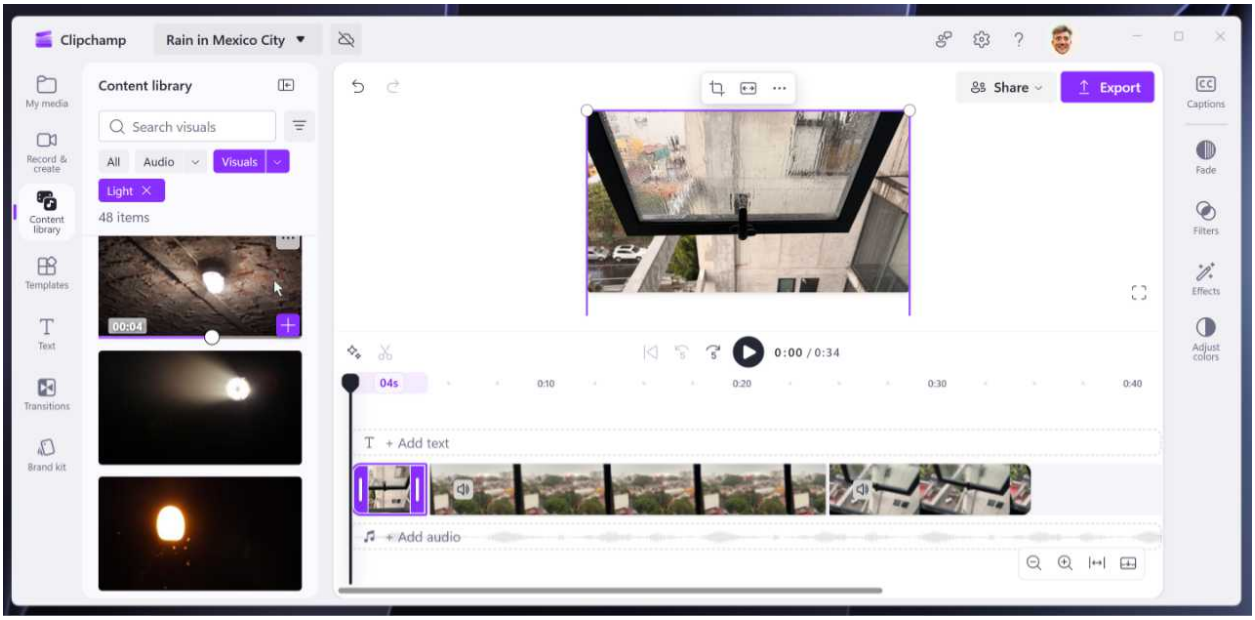
done, you can preview the recording, retake it, or save it to the project where you can edit it in the Timeline.



- **Text to speech**. This tool works differently than the above tools and is described earlier in the chapter.

Use the assets provided by the Clipchamp content library

In addition to the media assets–video, image, and audio files–you can add to a project, Clipchamp provides a nice collection of its own freely usable assets. You can see what's available in the "Content library" tab in the toolbar.

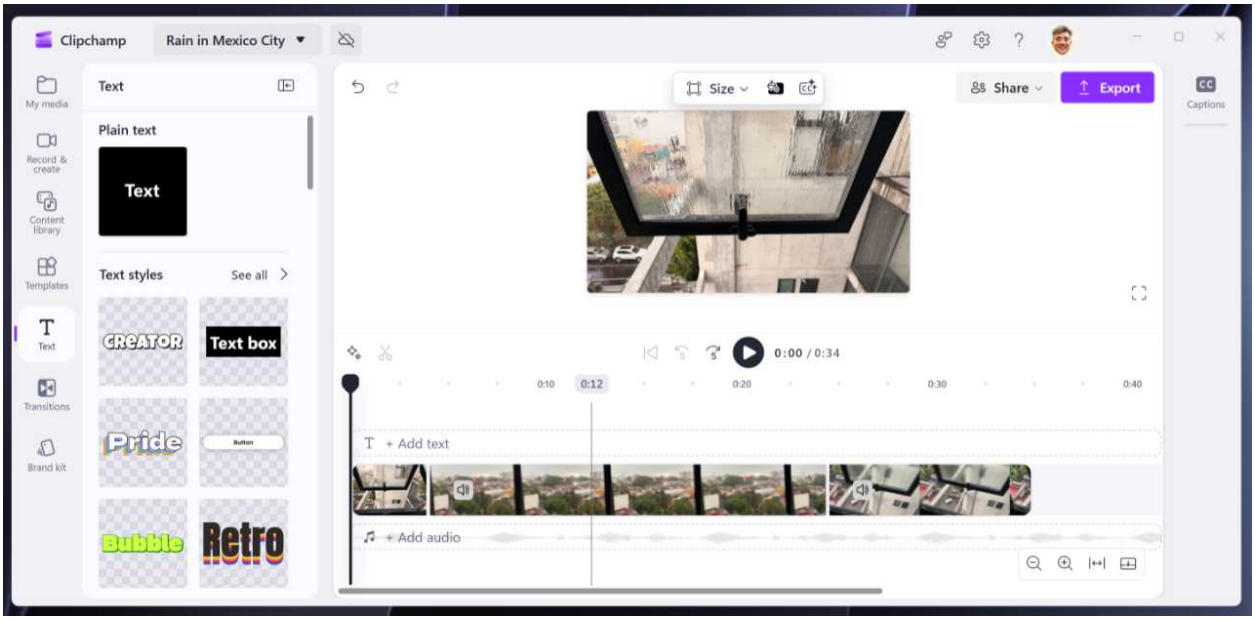


Here, you will find shapes, music, annotations (graphical objects in different shapes and sizes), images, frames and borders, sound effects, overlays, animated GIFs from GIPHY, and other items you can add to your projects. When you find one you like, you can click the "Add to timeline" ("+") button that appears on its thumbnail when you mouse over it.

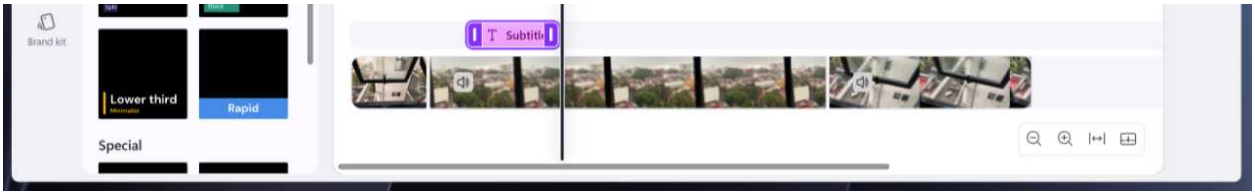
> **Tip**: Some items in the content library, like audio only items, are added to the Timeline, while others are added to both "My media" and the Timeline.

Add text to a project

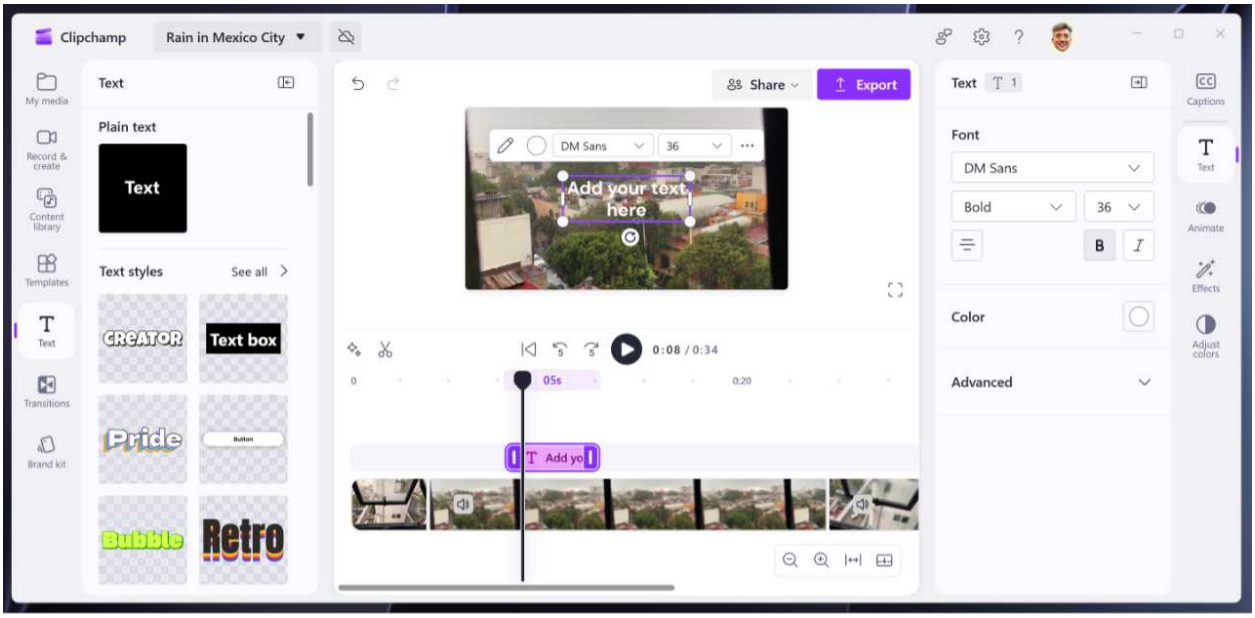
You can add one or more *Text items*–titles and other text-based overlays–to your project using the "Text" tab in the Clipchamp toolbar. There are multiple Text styles from which to choose, and each has a range of configurable options.



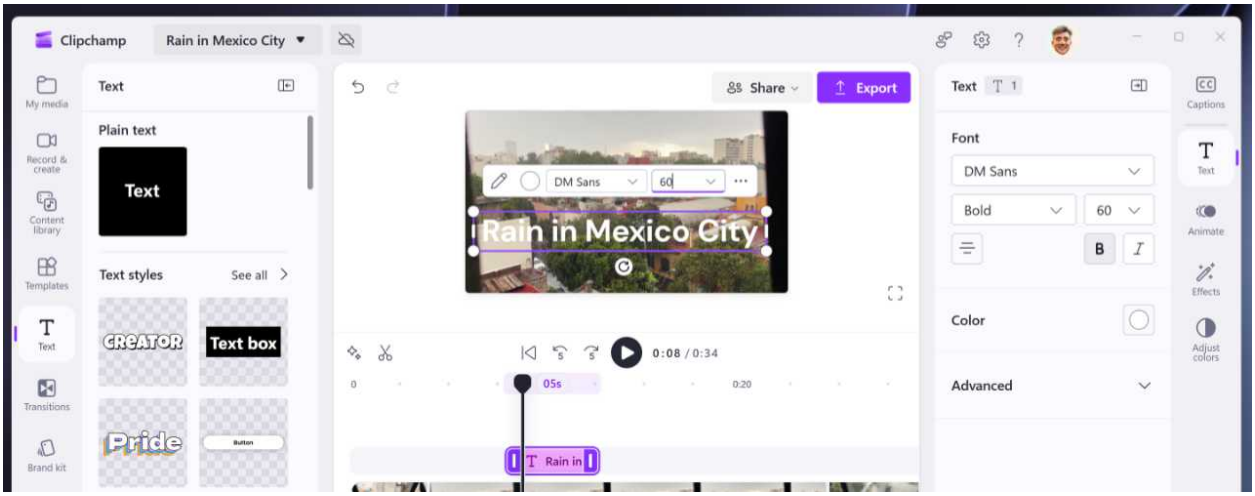
To add a Text item to a project, position the playhead indicator at the point in the Timeline where you would like to add the Text. Then, find the Text item you like and click its "Add to timeline" ("+") button to add the item; Clipchamp will typically add it to a new track above any other text tracks in the Timeline, but you can of course reposition it as needed.



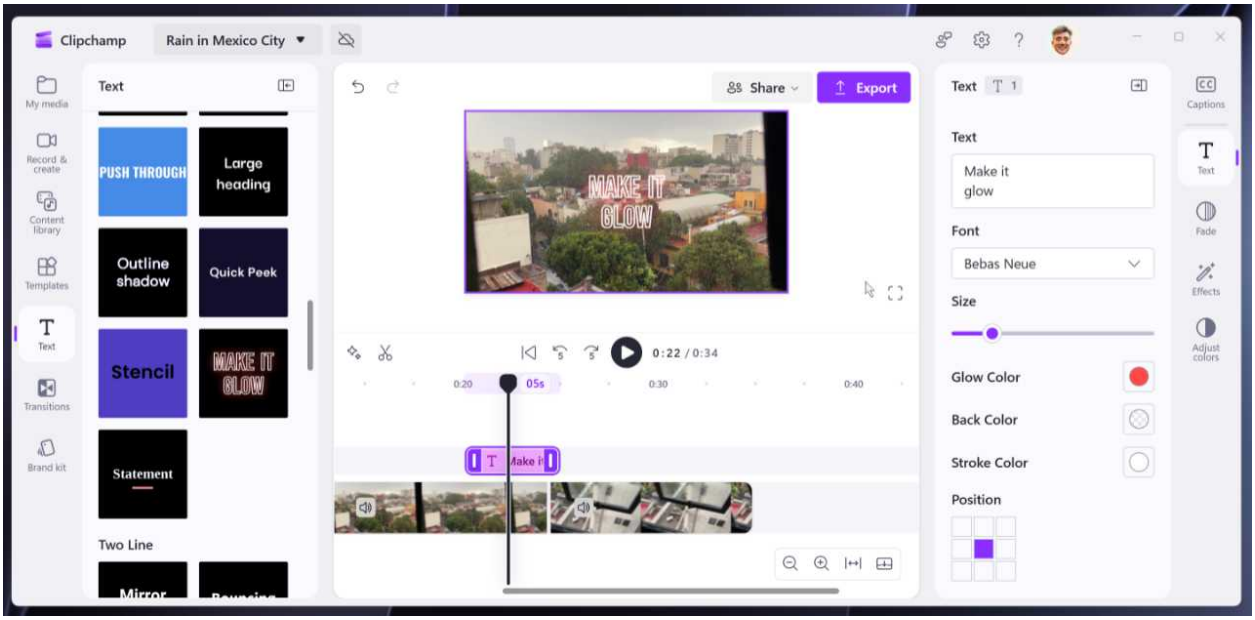
To edit the Text item, position the playhead indicator so that it's over the new (and selected) item. This will display the Text item in the Video preview and open its "Text" tab in the Property panel, where you can see and edit its available options.



The options you see vary by Text item. The “Plain text” style provides options for the font, alignment, and color, plus more advanced options like line height, letter spacing, outline, and shadow, for example.



And the “Make it glow” style provides text, font, size, glow color, back color, stroke color, and positioning options.

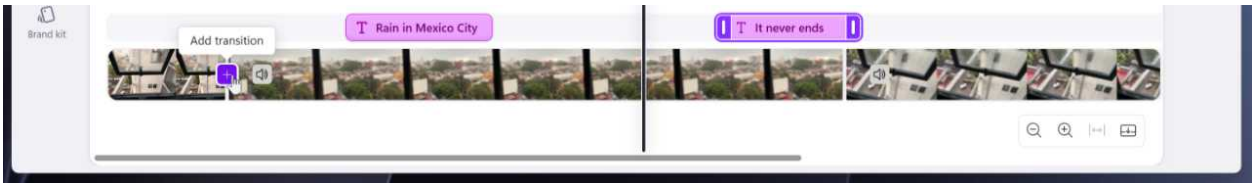


Add a transition to a project

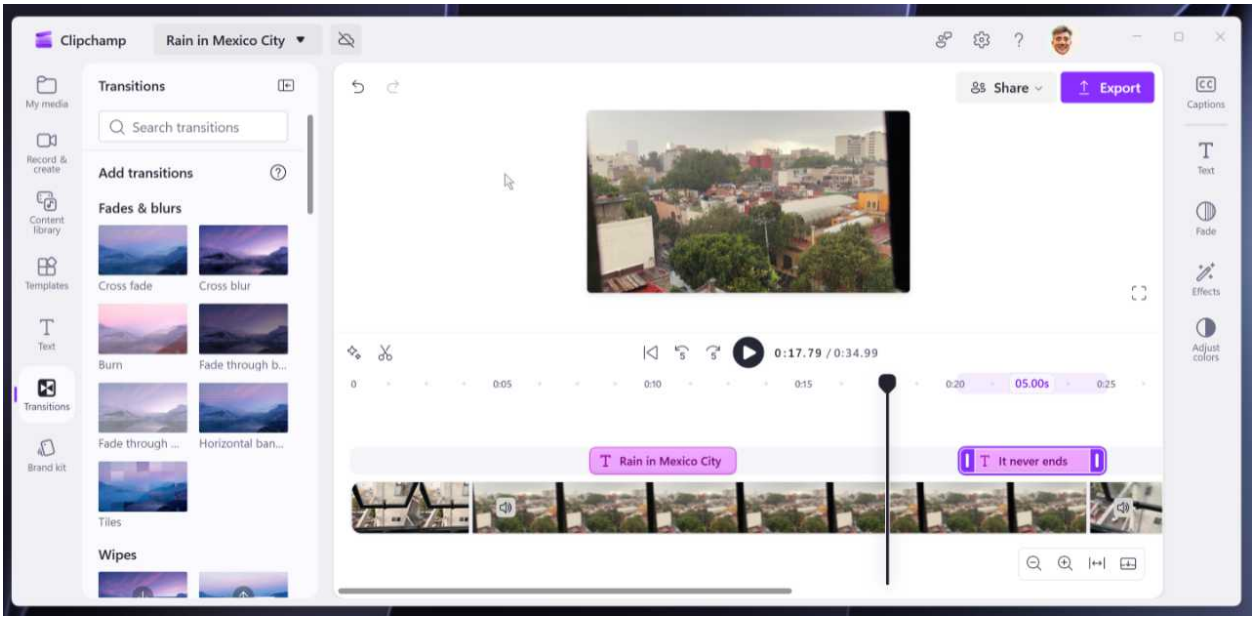
Clipchamp supports a wide range of *transitions*, visual effects you can use to ease the movement between one image or video clip and another. Without a transition, these movements can be visually jarring.

There are two ways to add a transition between two items in the Timeline:

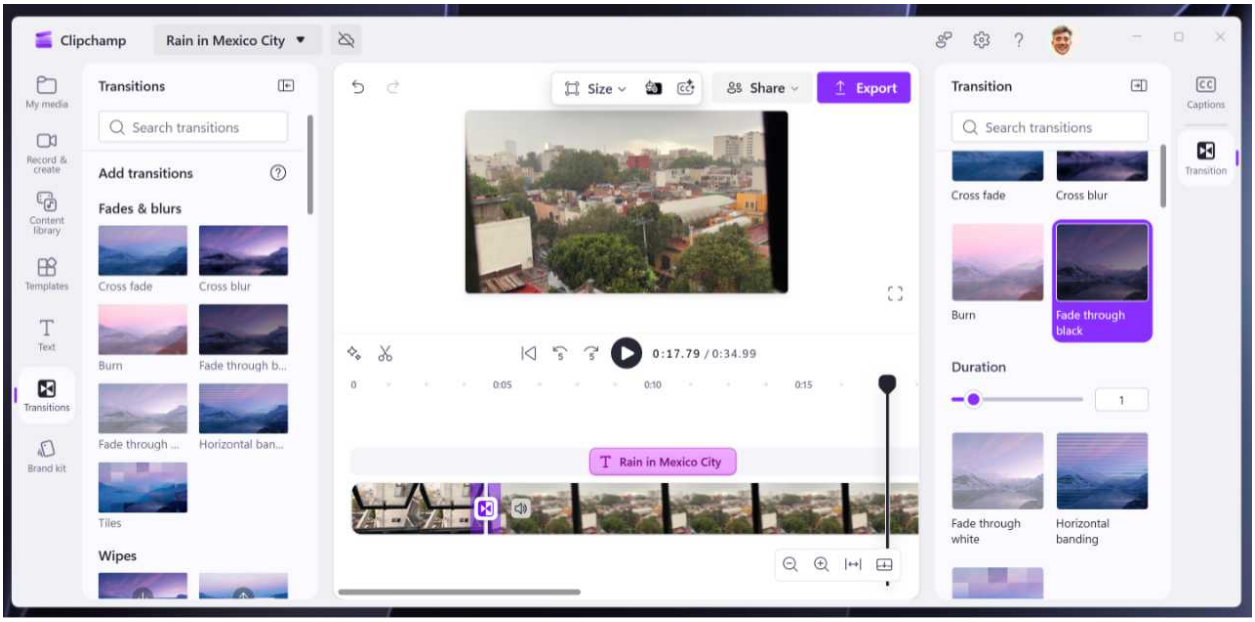
- **Add transition**. You can add the most commonly used transition, called a cross-fade, to any contiguous images and/or video clips in the Timeline by mousing over the gap between them and clicking the "Add transition" button that appears.



- **Transitions tab**. If you want a specific transition, you can click the "Transitions" tab in the toolbar to browse the available transitions. You can preview any of them by mousing over its thumbnail. And when you're ready to add a transition to the project, you just drag the thumbnail between any contiguous images and/or video clips in the Timeline; an "Add transition" button will appear when you do so.



Either way, the "Transition" tab will appear in the Property panel when you add a transition.



From here you can:

- **Select a different transition**. The selected transition appears at the top of the tab, but you can select any other transition instead.
- **Configure the duration of the transition**. Transitions are 2 seconds long by default, but you can use the "Duration slider" to configure a transition to be up to 5 seconds long in 0.1-second increments.

> **Tip**: You can also create a cross-fade transition by positioning two images and/or video clips in different tracks, ideally right on top of each other, and positioning one of them so that it slightly overlaps the other.

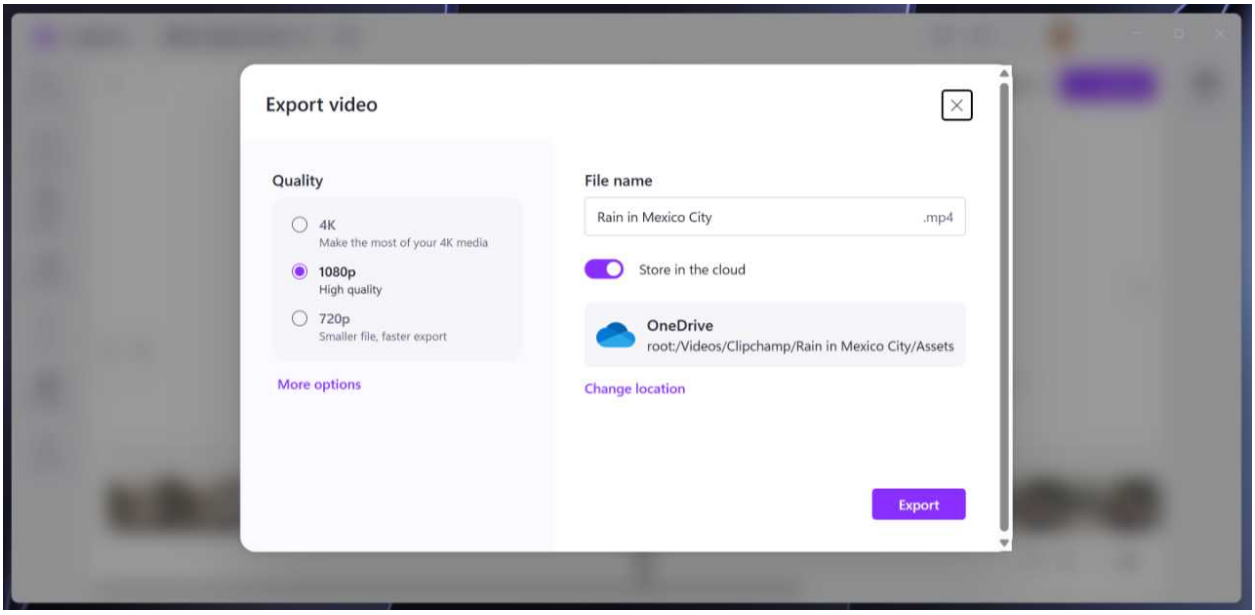
Share a project with others

You can share a Clipchamp project you're working on with others, but you have to back it up to OneDrive first. Once you do, you can click the "Share" button to do the following:

- **Share**. This displays a OneDrive share sheet that you can use to begin sharing the project with others.
- **Copy link**. This option copies a link for the shared project to your Clipboard so you can share it manually with others.
- **Manage access**. This option lets you configure the rights other people get when they access your shared project.

Export your video

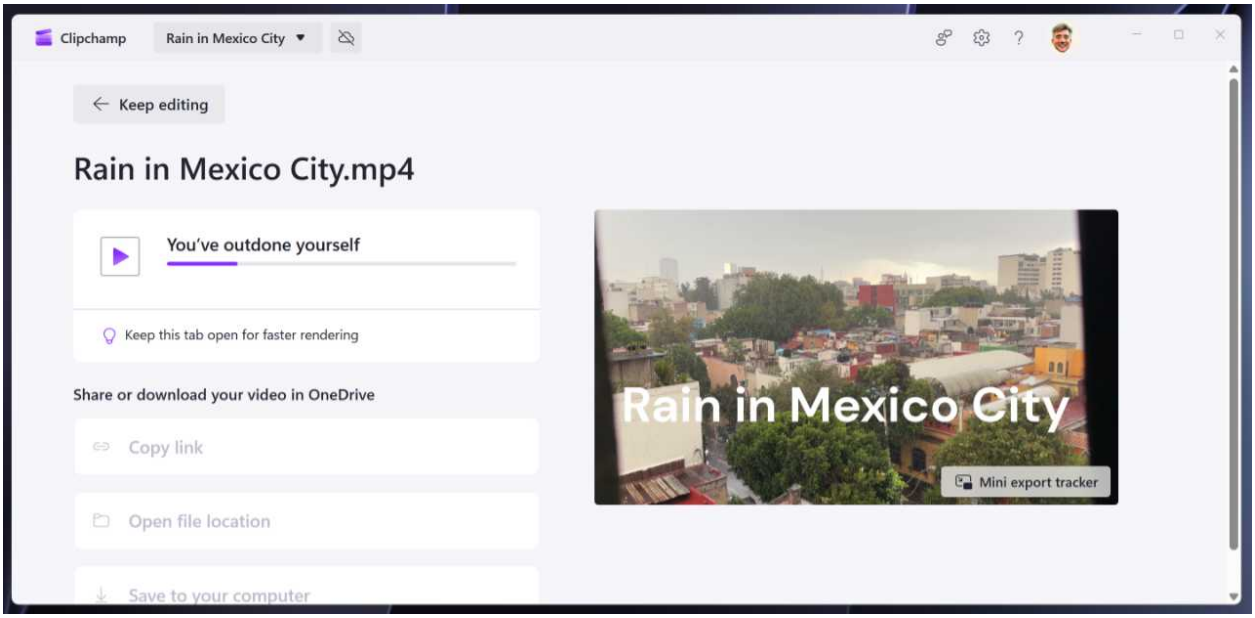
Once you've edited a project to the point where you want to publish a finished version of the video, you can click the "Export" button to view the available options in an "Export video" window. Most Clipchamp projects will have at least one visual asset, and in this case, it will assume you want to export the project in video form.



You can choose between 4K, 1080p, 720p, and 480p quality video formats, optionally rename the project (as the exported video will use the same name), optionally store the project in the cloud, and, if that latter option is enabled, determine where you wish to save the exported video in OneDrive.

If the project contains only audio items, then you can export to an M4A audio file. You can also do this with a video file if desired.

When the settings are correct, click "Export."



When the video (or audio) is done exporting, you can open it or its containing folder (your

Downloads folder by default) via the Downloads pane in the top right. You can also use the “Share or download video” options to save the export to other services if desired, though it’s a good idea to at least preview the final output first.

To return to the video editor, click “Keep editing.” To return to the Clipchamp home page, click “Clipchamp” in the upper-left.

XBOX PC and Games

The PC is an excellent choice for gamers, especially those who want the best performance and graphics fidelity. And Windows 11 is the best option for PC gamers, whether you're a hardcore gamer or just someone who occasionally engages in more casual gaming pursuits.

Windows 11 comes with an XBOX app that integrates with popular third-party game stores like Steam and the Epic Games Store and Microsoft's vast videogame ecosystem, and a Game Bar that helps you capture screenshots and video clips, interact with your friends on XBOX Live, and more. There's even a controller-optimized XBOX Mode that dramatically reduces background resource usage, freeing up your PC's CPU, GPU, and RAM for gaming.

Defaults

Windows 11 is configured to meet the needs of casual and mainstream gamers by default.

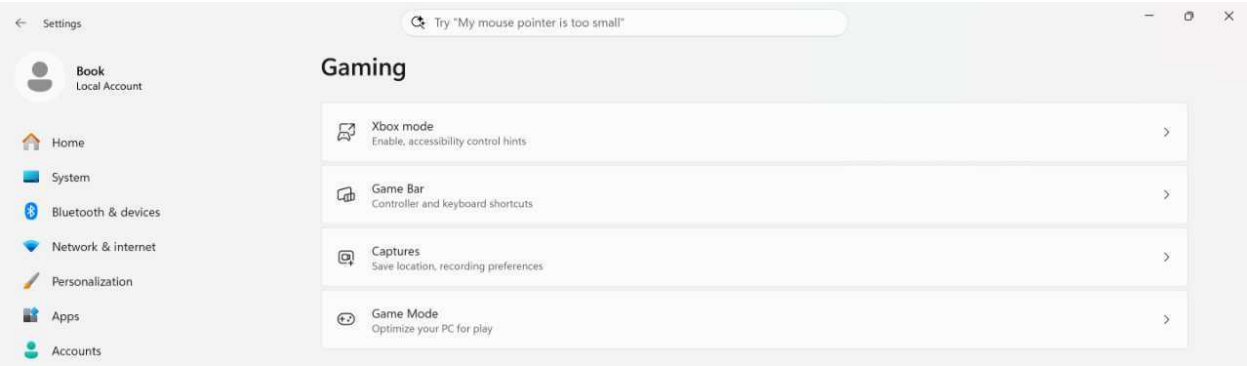
- The XBOX app is bundled with Windows 11 and integrates with your Microsoft account, allowing you to find and install XBOX PC games, including, if you're a subscriber those on Game Pass, access your game libraries across XBOX PC and popular third-party stores, and more.
- The Game Bar is also bundled with Windows 11 and can be toggled on at any time so you can access gaming-related utilities without leaving the game you're playing.
- Screen captures and video clip recordings are saved to your Videos folder in a Captures subfolder with reasonable default settings for most.
- Windows 11 automatically configures an XBOX Wireless Controller so you can begin playing immediately.
- The new XBOX Mode is available but not enabled by default.

Customize

Before getting started with gaming on Windows 11, you should review and, if needed, configure any gaming-related settings to your needs.

Customize Windows 11 gaming features

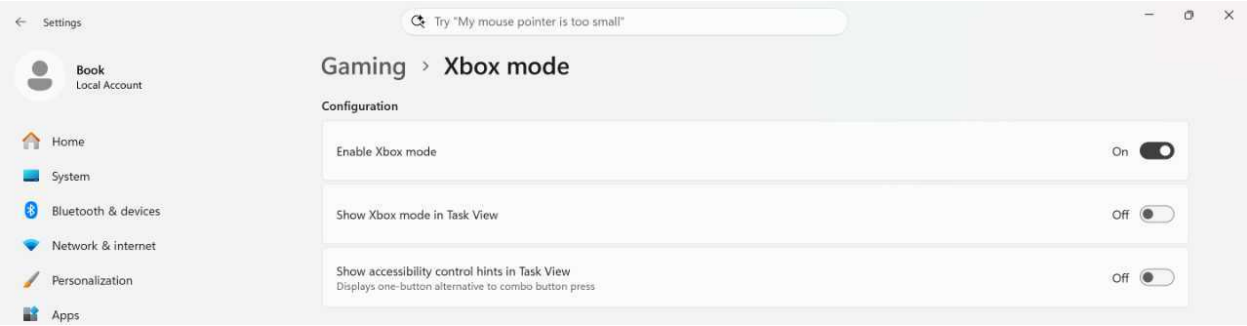
To get started, open the Settings app and navigate to Gaming.



The following settings are available here:

XBOX mode

New to 2026, XBOX Mode in Windows 11 provides a console-like, controller-optimized, full-screen experience for gamers.



Windows 11 reports that this feature is "enabled" by default, but really it's just "available" by default: You enable this mode, which replaces the Windows 11 Desktop experience with a full-screen XBOX app experience, in the XBOX app.

Most people should leave these settings as-is. But if you use XBOX Mode regularly, you might consider configuring "Show XBOX mode in Task View" to "On" to make that easier; otherwise, you will need to toggle XBOX Mode in the XBOX app.

If you have an XBOX gaming handheld, you can use XBOX Mode full-time: These PCs have two unique options, "Enter XBOX mode on startup" and "Choose home app"–which has XBOX and Desktop choices–to make that happen.

Learn more: XBOX Mode

Game Bar

You can enable a special overlay called Game Bar while in a game to capture screenshots and video clips, chat with friends, and more.

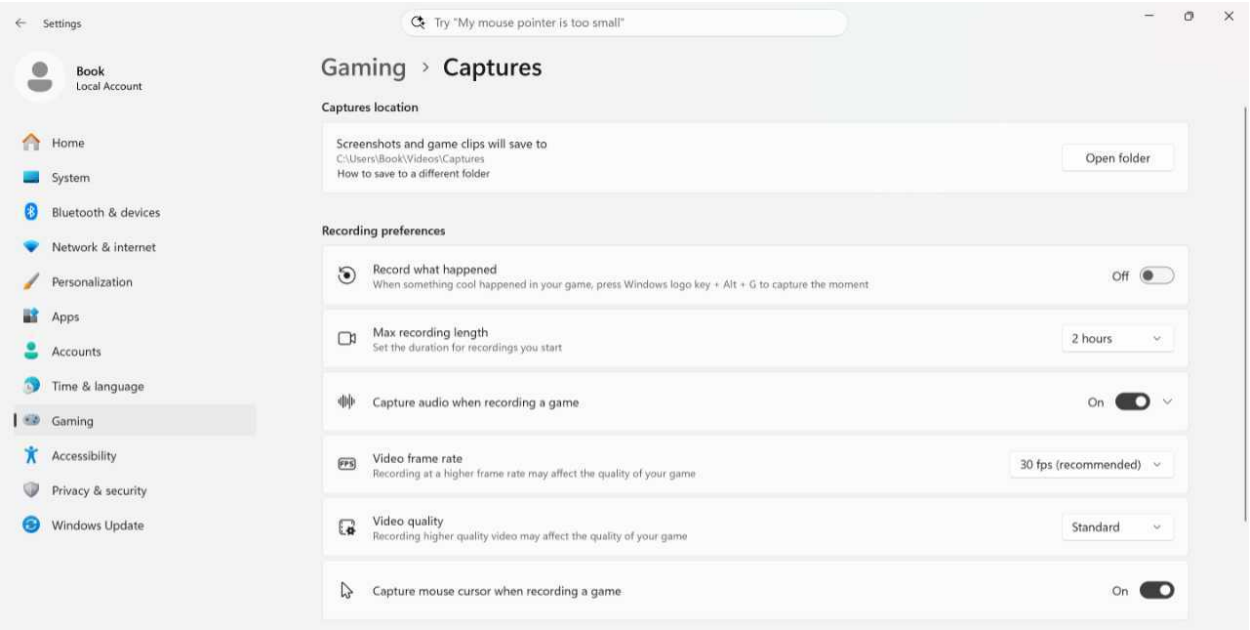
> **Keyboard shortcut**: You can quickly toggle the Game Bar by typing Windows key + G at any time. It works with the Desktop and any app, not just games.

If you're going to use Game Bar, and I do recommend it, even for those gamers who play outside the XBOX PC ecosystem, then the default settings here are appropriate for most: Game Bar is enabled and the "View" and "Menu" buttons on an XBOX Wireless Controller are configured to work similarly to how they work when used with an XBOX console.

> **Learn more**: Game Bar

Captures

This settings page is used to configure how Windows captures screenshots and video clips while you play games. There are options for determining the location for saved screenshots and clips, whether Windows should automatically record all gameplay sessions in the background, and the like.



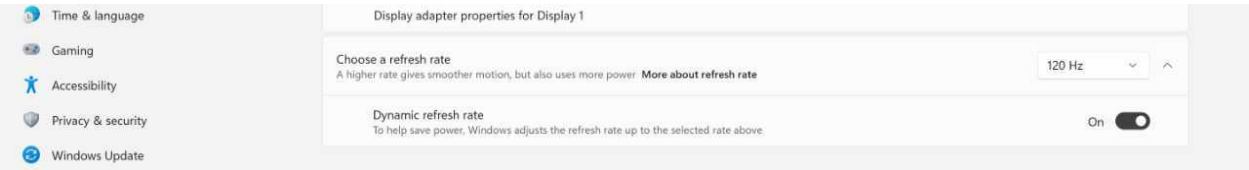
Game Mode. Windows 11 supports a now-vestigial feature from the pre-XBOX Mode days called *Game Mode* that improves performance and minimize distractions outside the game while you are playing. There's little in the way of configuration here. If your PC supports this feature, you can simply toggle Game Mode on or off. (It's on by default.)

Customize your display and graphics for gaming

This is a complex topic that's further complicated by the variety of third-party utilities that accompany dedicated graphics cards and other hardware that hardcore gamers prefer. But thanks to the miracle of personal technology, even mainstream PCs and laptops today are capable of playing impressive, modern games with high-quality graphics and performance. As such, Windows 11 has some useful settings you can configure to optimize the gaming experience, even if the PC you're has integrated graphics.

These options are available in the Settings app.

- **Refresh rate**. In System > Display > Advanced display, enable a 90, 120 Hz, or higher refresh rate and "Dynamic refresh rate" if available. Then, in System > Display > Graphics, expand "Advanced graphics settings" and make sure "Hardware-accelerated GPU scheduling" and "Variable refresh rate" are both enabled.



- **HDR**. In System > Display > HDR, enable “HDR” if available. Then, enable “Auto HDR.”

- **Automatic super resolution (Auto SR)**. Available only on Windows 11 on Arm PCs in System > Display > Graphics, ensure this option is enabled. Note that you cannot enable Auto SR and HDR at the same time; you want Auto SR enabled.
- **Custom settings for applications**. Though this option is available on all PCs, it’s only useful for gaming on Windows 11 on Arm PCs. In System > Display > Graphics, locate the “Custom settings for applications” and then inside that, any installed games. For each, expand the game and make sure “GPU preference” is configured to the highest performance option.

> **Tip**: Gaming on a Windows 11 on Arm-based PC with Qualcomm Snapdragon X or X2 chipset isn’t ideal because almost all modern titles will run in emulation, not natively. But you may be surprised how well many games do work, and you can use Qualcomm’s Snapdragon Control Panel to optimize games further than is possible with the built-in Windows 11 Settings.

Connect and configure an XBOX Wireless Controller

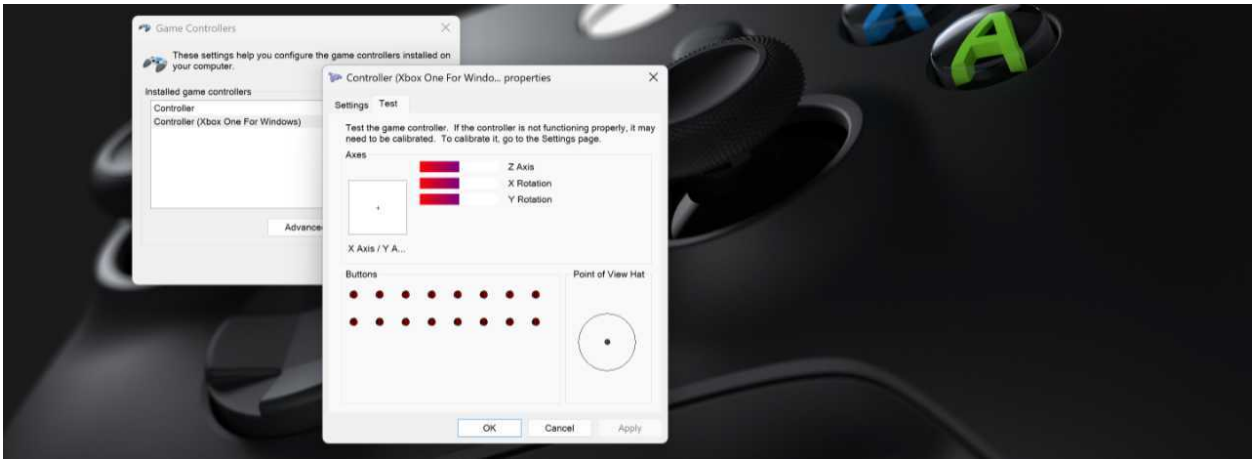
While many traditional gamers still use a keyboard and mouse to play games on their PCs, you can also use an XBOX Wireless Controller for a simpler, more console-like experience.

Configuration is automatic: When you connect an XBOX Wireless Controller to your PC wirelessly using Bluetooth or via a USB cable, Windows 11 will immediately configure it for use. But you can further customize how the controller works–and download and install firmware updates–by using the the XBOX Accessories app, which is available for free from the Microsoft Store.

Here, you can perform the following actions:

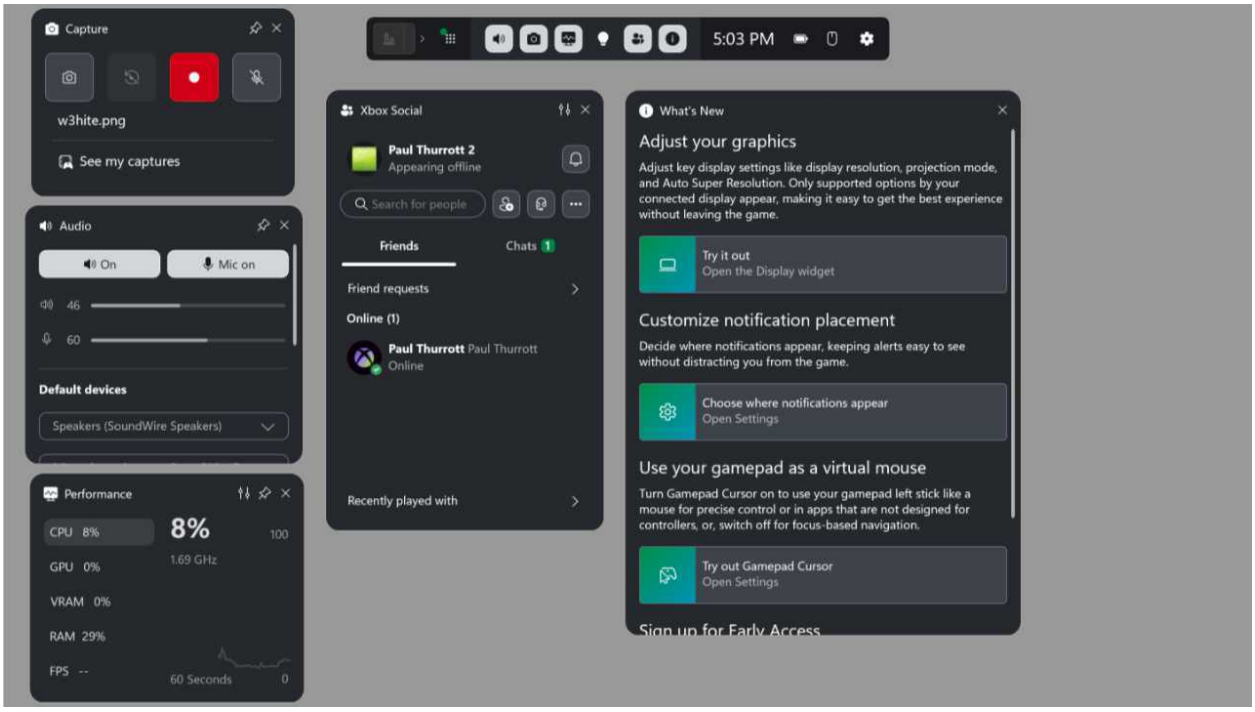
- **Update the controller firmware**. Before doing anything else, ensure that your controller's firmware is up-to-date. To do so, navigate to "More options" ("...") > Update and then update the controller if needed.
- **Configure**. Click this button to access the controller configuration page, where you can create custom profiles, map buttons, swap the thumb esticks, and perform other customizations.

Windows also includes a legacy Game Controllers control panel that can be used to test and calibrate the buttons and controls on XBOX and third-party game controllers.



Game Bar

The *Game Bar* is an overlay that appears over whichever game you're playing and provides various game-related features–capturing screenshots and video clips, adjusting hardware configurations, chatting with friends, and so on–via a collection of on-screen widgets. These widgets appear as individual windows in the default Game Bar view, and you can configure which appear on-screen and where.

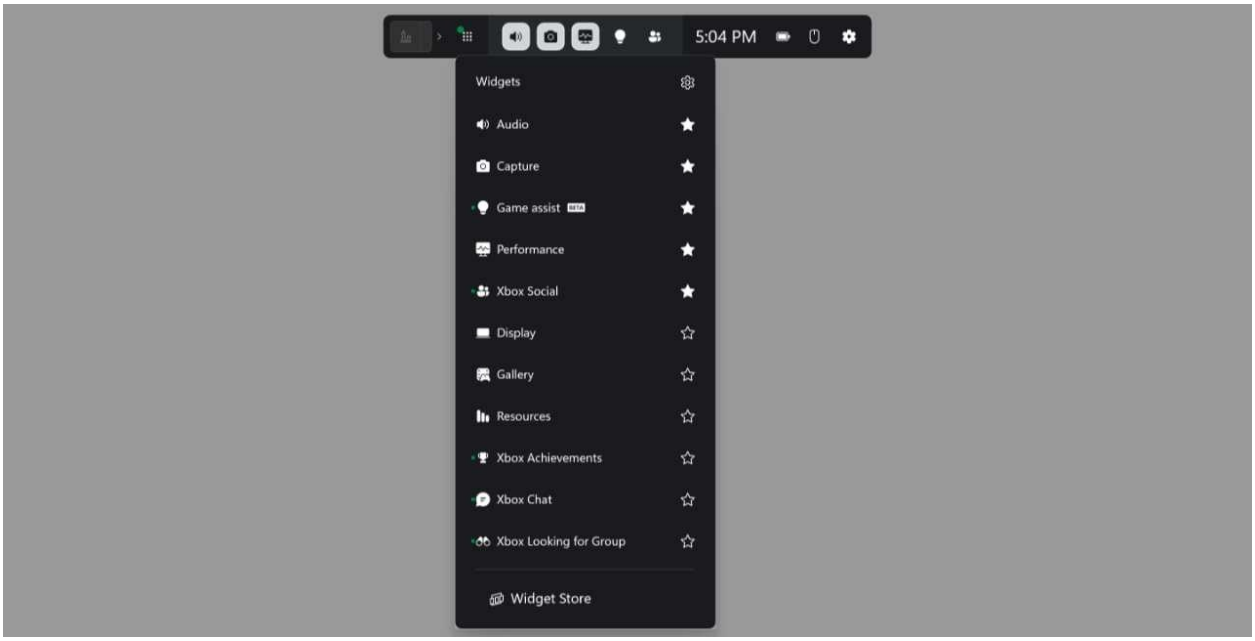


To display the Game Bar, type Windows key + G or press the "XBOX" button on your XBOX Wireless Controller. (This is the middle, white, and lit-up button with the XBOX logo.) The

interface consists of the Home Bar–a toolbar-like main window, centered at the top of the screen and several widgets. And it works like a toggle: If you type Windows key + G, click anywhere else on-screen, or press the "XBOX" button, the Game Bar disappears. You can also press the "B" button on your controller to hide the Game Bar.

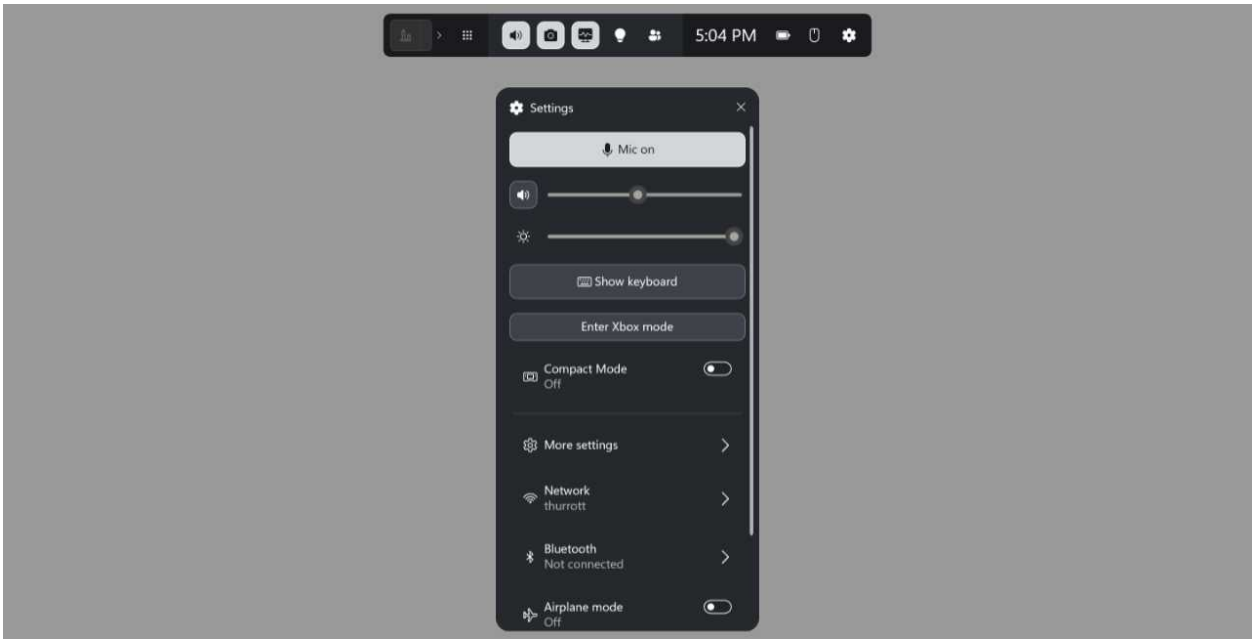
The Home Bar is the only non-movable window in Game Bar. It's a floating toolbar that offers several buttons and a few non-interactive icons in a single row in the top middle of the screen. Among the items here are:

- **Controller Bar/Home Bar**. This button toggles Game Bar between its normal display mode and a more minimal view called *Controller Bar* that's easier to navigate using an XBOX Wireless Controller.
- **Widget Menu**. Click this button to display the list of widgets you can display with the Game Bar, along with a "Customize menu" (gear) icon. You can also use the "Favorite"/"Unfavorite" (star) icon next to a widget to toggle the display of that widget sub-window on or off.



- **Widgets**. The center of the Game Bar displays a Taskbar-like set of icons representing your *favorite* widgets–a configurable selection of widgets you want to see each time the Game Bar appears–an any other open widgets. If needed, it will display "Show preview widget" and "Show next widget" buttons on either side to aid navigation.
- **Clock**. Because many PC games are played full-screen, it's likely that the clock in the Windows 11 Taskbar will be hidden during game play. So this non-interactive icon provides a quick way to check the time in-game.
- **Battery status**. As with the Clock icon, Battery status appears so you can see whether your laptop is plugged into power and charging, and, if not, what the remaining battery life is.

- **Enable/disable click-through**. This interactive button–it resembles a computer mouse–toggles *click-through*, an esoteric feature that determines how mouse button clicks work when the Game Bar is displayed. This feature is implemented on a per-widget basis and only makes sense to enable for certain types of games, like strategy titles with many on-screen controls. For this reason, it's disabled by default, meaning that mouse clicks do not pass through compatible widgets to the underlying game. When enabled, mouse clicks will pass through to the game without closing Game Bar.
- **Settings**. This button, which resembles a gear, displays Game Bar setting when clicked.



Customize Game Bar

If you're going to use Game Bar at all, you should take a few minutes and configure it to your preferences. There are several main areas of customization:

- **Which widgets**. You can choose which widgets appear when you open Game Bar by favoriting the ones you like in the Widgets menu and then toggling each on/off in the Home Bar.
- **Where those widgets are on-screen**. By default, each widget appears as a unique sub-window when Game Bar is displayed. You can't arbitrarily resize any of them, but you *can* reposition each on-screen by dragging and dropping with your mouse, and Game Bar will remember those placements each time it appears.
- **Mode**. In addition to its normal display, the Game Bar supports two other display modes: The controller-friendly Controller Bar and a Compact Mode, also controller-friendly, that displays just one widget on-screen at a time, reducing clutter.

- **Game Bar settings**. Click the "Settings" (gear) icon on the Home Bar to display Game Bar settings and its rather impressive set of configurable options, many hidden behind the "More settings" link.

Widgets

Widgets are central to the Game Bar experience. You can configure which widgets–your favorites–appear on-screen and where. And you can optionally *pin* widgets so that they always appear on-screen–over games–even when Game Bar is not displayed.

Key widgets included with Game Bar include:

- **Capture**. This handy overlay is the front-end for all of your game screenshot and video recording endeavors.
- **Audio**. This overlay lets you configure the devices Windows uses for audio input–typically a microphone–and output, which is typically speakers or headphones. These capabilities may seem superfluous since you configure these devices globally in Windows. But the Audio widget can be handy if you want to use a different device while gaming. And it also lets you configure the volume level for that device globally or per app/game.
- **Game assist**.
- **Performance**. This widget provides a real-time peek at your PC's CPU, GPU (graphics), VRAM (video RAM), and RAM utilization, and it displays the frequency at which games animate in FPS (frames-per-second). Those who like to tinker with specific in-game settings can pin this widget so they can always see the real-world impact of those changes as they playt.
- **XBOX Achievements**. When you're playing an XBOX PC game–that is, a game you've installed through the XBOX app–this overlay displays information about your progress obtaining in-game *Achievements*. You can filter the view to show only those Achievements that are rare and/or not yet obtained, and to display the Achievements by progress, Gamerscore, rarity, or commonality.
- **XBOX Chat**. This overlay provides a lightweight way to chat with one or more friends on XBOX Live while you play. This chat is text-based by default, but you can also use this widget to start an XBOX *party chat* that supports text and voice.

Add a widget to favorites

The Game Bar is configured with a set of *favorites*–Widgets like Audio, Capture, Performance, and others–by default. But you can configure any widget as a favorite–or remove a widget from favorites–at any time. These favorites appear as icons in the Home Bar and, if enabled, on-screen as well.

To do so, display Game Bar and click "Widget Menu." Then, click the "Favorite"/"Unfavorite" (star) icon to the right of any widget you wish to favorite or unfavorite.

Pin a widget so it's always visible

Most widgets can also be *pinned* so that they appear over any game you're playing, even when Game Bar is hidden.

To pin a widget, open Game Bar and then locate the "Pin" button–it resembles a pushpin–to the left of its "Close" ("X") button. Click "Pin" to toggle it on (or off).

When you do so, the widget remains on-screen until you unpin it.

Controller Bar and Compact Mode

By default, Game Bar displays with a fix Home Bar and floating widget sub-windows. But you can optionally configure it to appear differently using two modes, Controller Bar and Compact Mode, each of which is optimized for specific use cases.

> **Tip**: Controller Bar and Compact Mode are similar experiences, and either is a better choice than the default Game Bar if you game using a controller. You should experiment with both before choosing one over the other.

Controller Bar

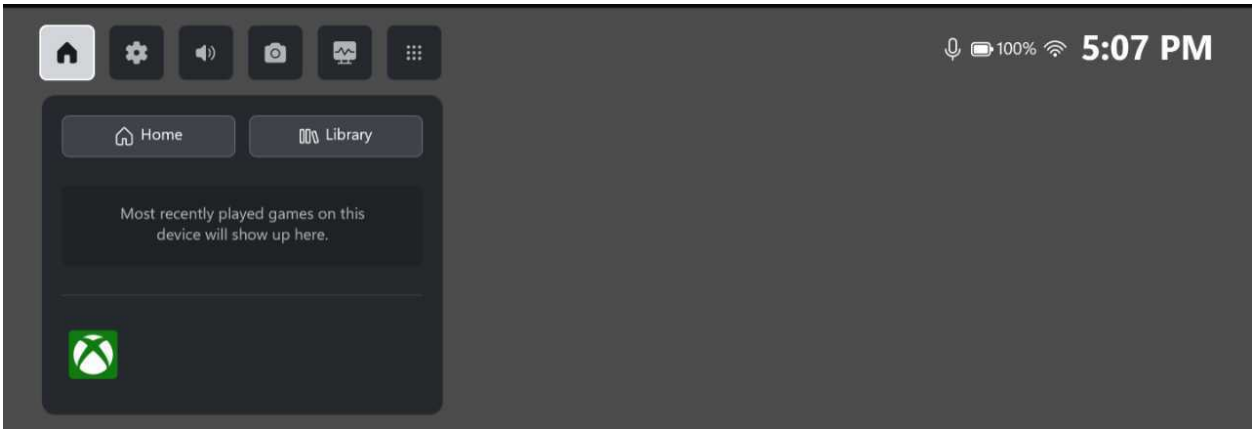
If you play games on your PC with an XBOX Wireless Controller on a laptop or desktop PC, you may be interested in using Controller Bar. In this mode, Game Bar retains the default multi-window layout but also displays your three most recently played games and installed game launchers in the Home Bar.

You can toggle Controller Bar on from the default Game Bar: Just click the left-most button in the Home Bar, called "Controller Bar." When you do, there's a new "Home Bar" button on the far left that lets you get back to the default Game Bar.

You can also use Controller Bar by default: Open Game Bar settings, navigate to Shortcuts, and enable the option "Open Controller Bar automatically when a controller is connected" in the Controller section.

Compact Mode

Like Controller Bar, Compact Mode is optimized for use with a controller. But it's also simpler than the default Game Bar experience, as it displays only a single widget at a time, and the interface uses larger, more easily seen on-screen elements that take on more of a full-screen look, with interactive buttons on the top-left and non-interactive displays on the top-right.



To enable Compact Mode, open Game Bar, click "Settings," and then enable the "Compact Mode" toggle under General. In this mode, you can continue navigating with a keyboard or mouse, but it's simple enough for the controller: You use the Left Bumper and Right Bumper to navigate left and right, respectively, through the available widgets–as determined by those you favorited earlier–and then press Up or Down on the controller's d-pad (direction pad) to move through the available controls on the selected widget.

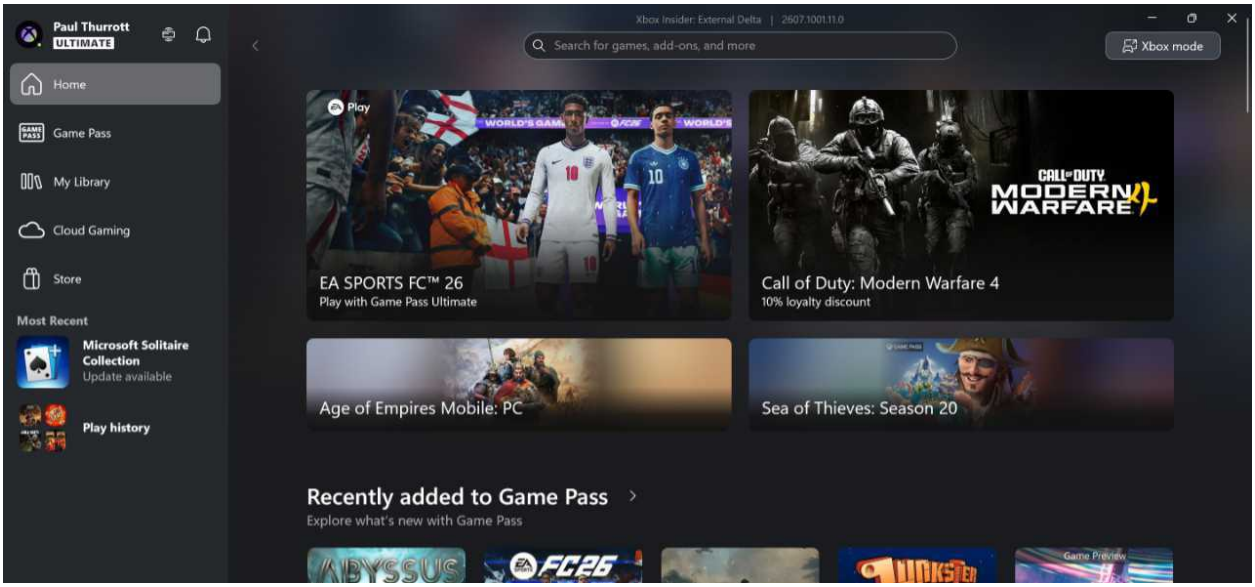
To select a control, just click the "(A)" button on the controller. To exit Game Bar in Compact Mode, click "(B)".

The unique "Home" widget in Compact Mode provides quick access to recently played games and to game launchers like XBOX (which is, of course, configured by default), Battle.net, EA Play, Riot Games, Steam, and others.

> **Tip**: Most Game Bar functions work normally while its in Compact Mode. But there are a few missing features: You can't pin a widget in this mode or favorite/unfavorite widgets, for example.

XBOX App

The XBOX app looks and works similarly to the Dashboard user interface on XBOX videogame console. It lets you install and play PC games you've purchased from XBOX and third-party game stores like Steam and Epic Games Store, install and play PC games provided with a Game Pass subscription, and *stream* XBOX console games from the XBOX Cloud Gaming service (which requires a Game Pass subscription).

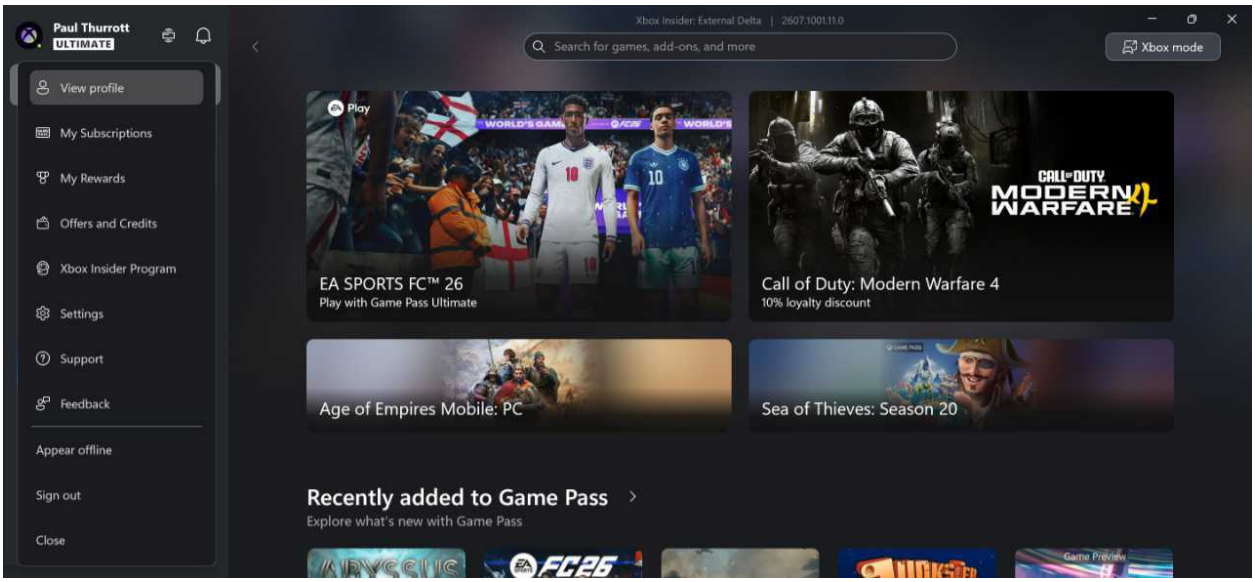


> **Tip**: The XBOX app replaces the Windows 11 Desktop as the core user interface when you enable XBOX Mode.

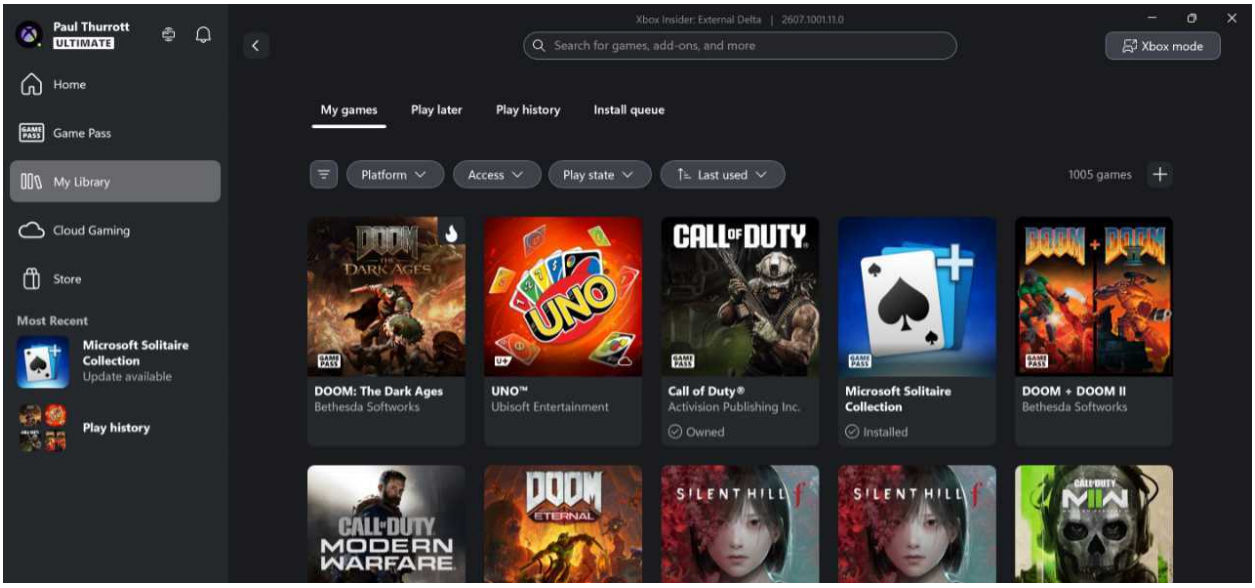
The XBOX app is straightforward and easily understood. It's a modern Windows 11-style app with a non-collapsible navigation bar on the left and a larger content area on the right. It provides the following experiences:

- **Profile & settings**. The top entry in the navigation bar represents your XBOX profile, and it displays a short menu when selected with options related to that profile, the app settings

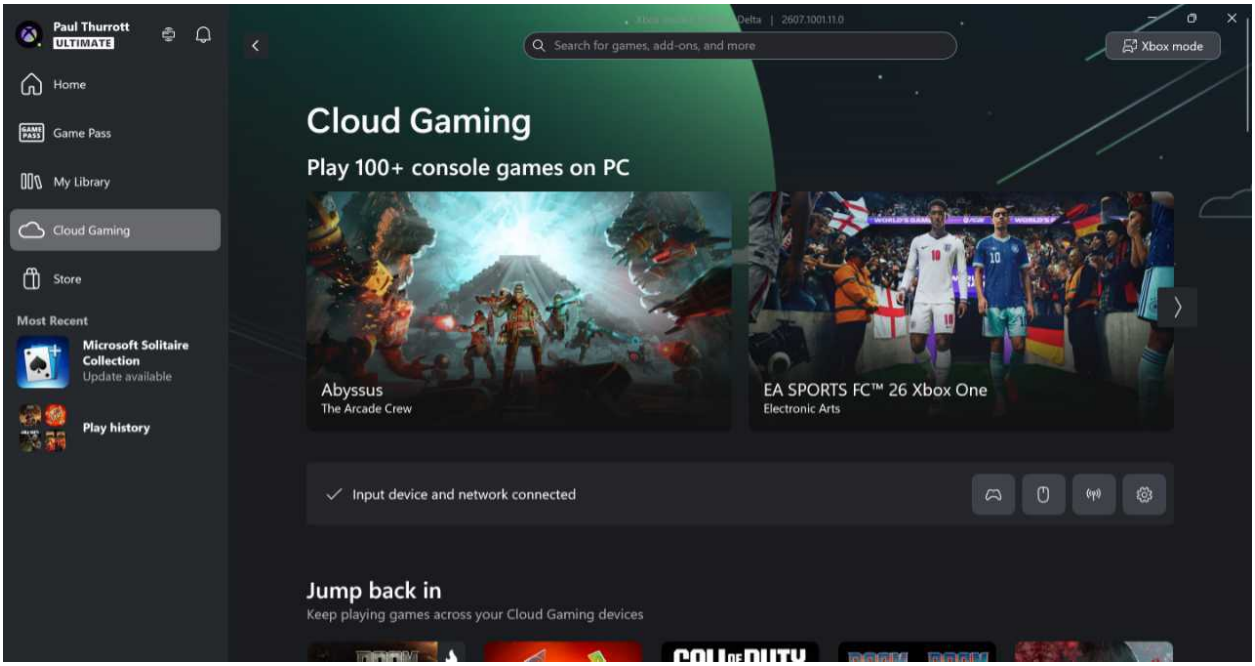
interface, and more. You can display and customize your XBOX profile by selecting “View profile” from the menu.



- **Notifications**. You can toggle the Notifications icon (which looks like a bell) next to the XBOX profiles entry in the navigation bar to display a Notifications pane that displays recent XBOX notifications in reverse chronological order.
- **Home**. This is the default view in the Xbox app.
- **Game Pass**. Here, PC Game Pass and XBOX Game Pass Ultimate subscribers can find games associated with their membership and download them to their PCs.
- **My Library**. Here, you can find links to the XBOX-compatible games you’ve marked to play later, the XBOX PC-compatible games that are installed on your PC, the games you’ve installed from compatible third-party stores like Steam and the Epic Games Store, and the games that you’ve purchased in the past from XBOX.

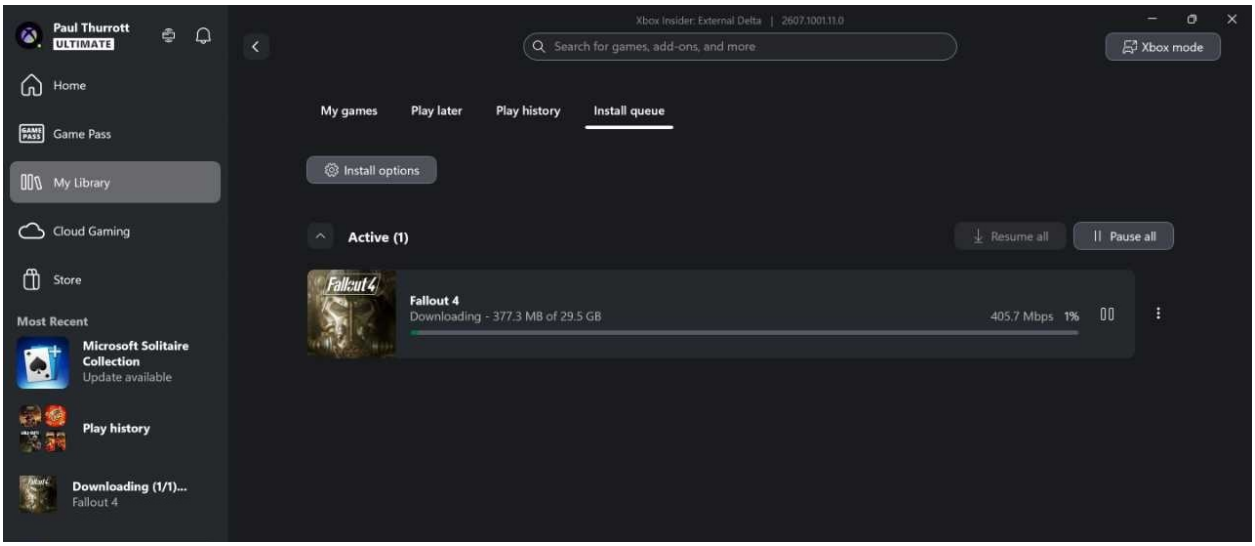


- **Cloud Gaming**. XBOX Game Pass Ultimate subscribers can stream a selection of XBOX console games to their PCs using a service called XBOX Cloud Gaming. If you are such a member, you can access this service here.



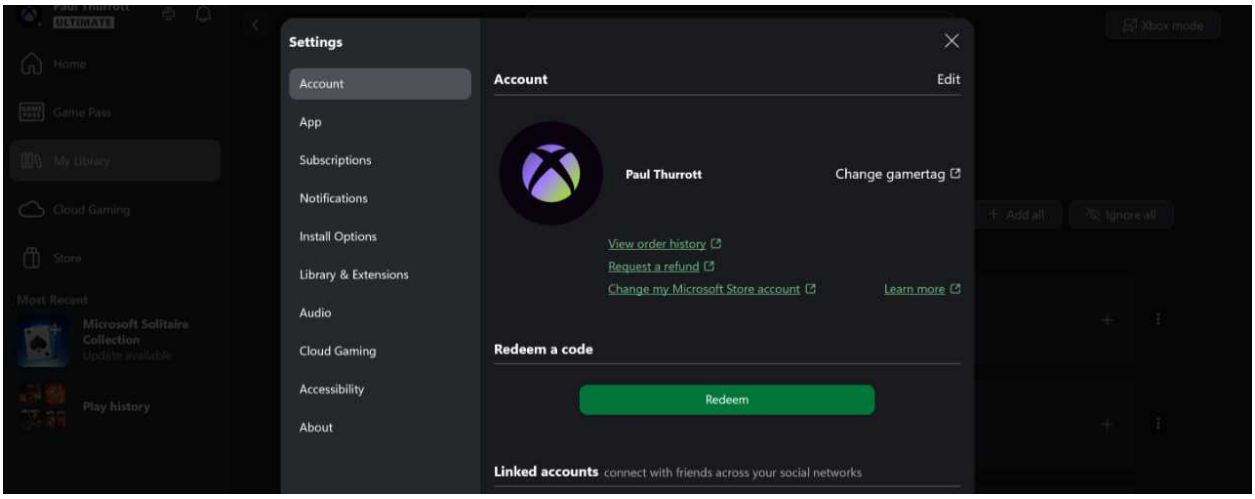
- **Store**. Here, you can find XBOX-compatible PC games to purchase and download.
- **Most Recent**. Games that are installed on your PC will appear in an Installed section in the navigation bar for quick access.

- **Install queue**. This entry displays the Manage installs screen, which lets you manage your installed games and follow the progress of any games that are downloading now to your PC.



Customize the XBOX app

You should take a few minutes to examine the XBOX app's settings interface. Among other things, the app has an annoying behavior where it will auto-launch every time you sign in to Windows 11 after you run it the first time. You can access the interface by clicking "Profile & settings" and then "Settings."



A few options to consider:

- **App**. Here, you can configure whether the XBOX app runs in a Compact mode, launches every time you sign in, and minimizes to the system tray instead of quitting like a good app

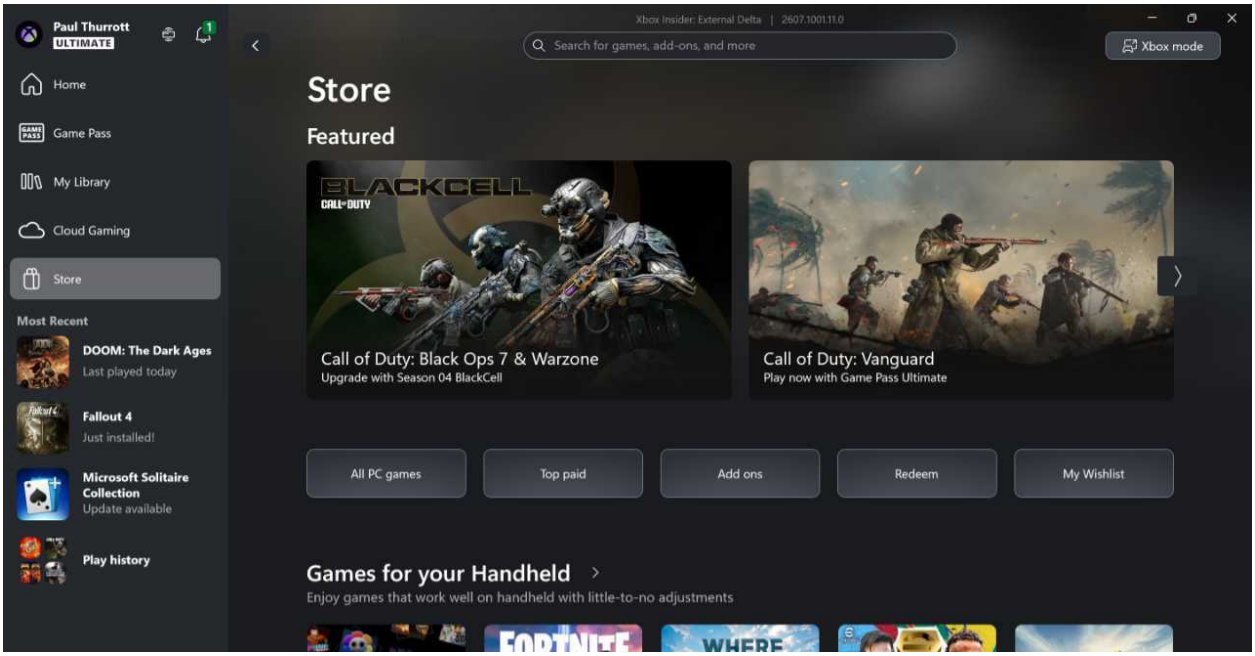
when you close it. This settings page also has an “Offline permissions enabled” toggle, off by default, that you can enable if this is the PC you wish to use when playing XBOX PC games offline.

- **Install Options**. Here, you can determine where games are installed by default and two settings tied to game updates.
- **Library & Extensions**. If you install compatible third-party game stores like Steam and the Epic Game Store, they will be listed here and the games you installed from those stores will appear in the My Library view.
- **Cloud Gaming**. If you have an XBOX Game Pass subscription, you can use this settings page to configure the streaming quality and other related options.
- **XBOX mode**. This button in the upper-right of the app lets you enable XBOX Mode, as described later in the chapter.

Store: Find XBOX-compatible games for your PC

As you probably know, you can use the Microsoft Store app in Windows 11 to find, download, and purchase games, and some of those games are XBOX-compatible. Unfortunately, there is no Store view that will only show you XBOX-compatible games. Instead, you can use the Store view in the XBOX app to do so.

This is straightforward: Simply browse the Store area in the XBOX app and find a game you wish to download or buy.



Then, select the appropriate “Get” (for free games), “Install” (for games available via a Game Pass subscription), or “Buy” button. When you do so, the title is added to the library associated with

your XBOX account (which is your Microsoft account) and you are prompted to download the game.

You can view this game and the other titles in your library by navigating to My Library, which is discussed in the next section.

My Library: Manage your games

The My Library view in the XBOX app displays all the XBOX-compatible PC games that you have added to your library, by purchasing paid titles, downloading free titles, or via an XBOX Game Pass subscription (which is described later in the chapter).

There are several main sections here.

- **My games**. If you have purchased or downloaded XBOX PC games in the past, they will appear in this section so that you can install them on this PC. From here, you can select any game in your library, install it or add it to Play later.
- **Play later**. When viewing a game in your library, you can click "More options" ("...") and then "Add to Play later" to add a shortcut to that title to a Play later playlist. These shortcuts appear at the top of My Library.
- **Play history**. Here, you can view the games you've played recently, whether they were on this PC or another PC.
- **Install queue**. This view is empty unless you are installing a new game or a game update.

XBOX Game Pass: Subscribe to unlock a library of games

Microsoft offers several different XBOX Game Pass subscription services. Each offers a library of games you can download and install to your PC or XBOX console and other perks. But there are

different price points, and as you might expect, the more expensive offerings provide additional advantages.

The Game Pass versions that you can consider as a PC gamer include:

XBOX Game Pass Essential

- **Monthly cost**: $9.99
- **Library size**: 50+ games
- **Day One access to most XBOX studio games**: No
- **Cloud Gaming**: Yes

PC Game Pass

- **Monthly cost**: $13.99
- **Library size**: 300+ PC games
- **Day One access to most XBOX studio games**: Yes
- **Cloud Gaming**: No

XBOX Game Pass Premium

- **Monthly cost**: $14.99
- **Library size**: 200+ games
- **Day One access to most XBOX studio games**: No
- **Cloud Gaming**: Unlimited, shorter wait times

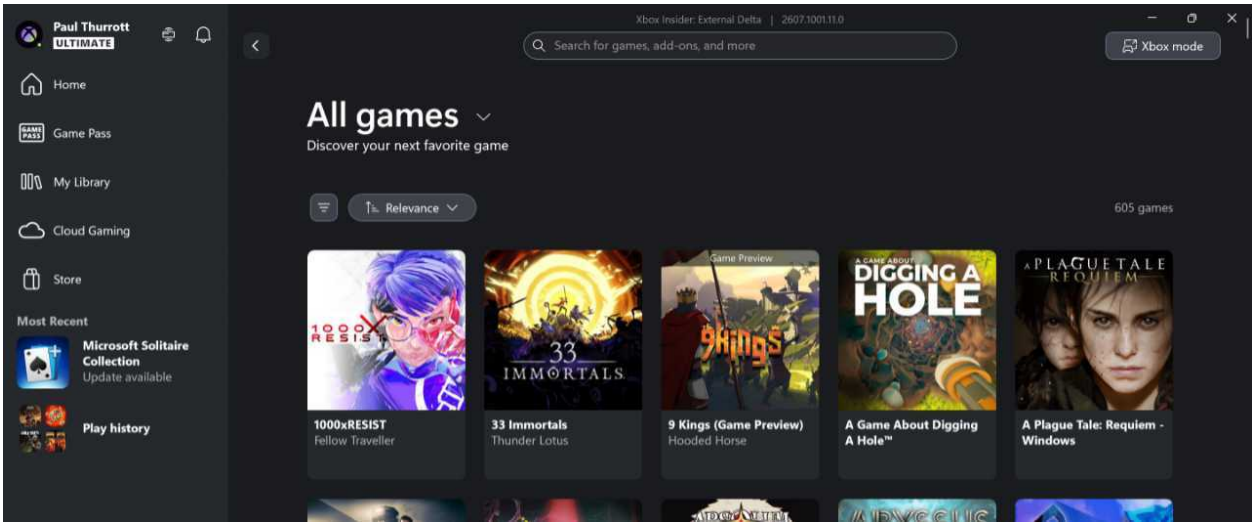
XBOX Game Pass Ultimate

- **Monthly cost**: $22.99
- **Library size**: 400+ PC games
- **Day One access to most XBOX studio games**: Yes
- **Cloud Gaming**: Unlimited, shorter wait time, best quality

> **But wait, there's more**: Compare XBOX Game Pass subscriptions on Xbox.com and Join XBOX Game Pass on Xbox.com.

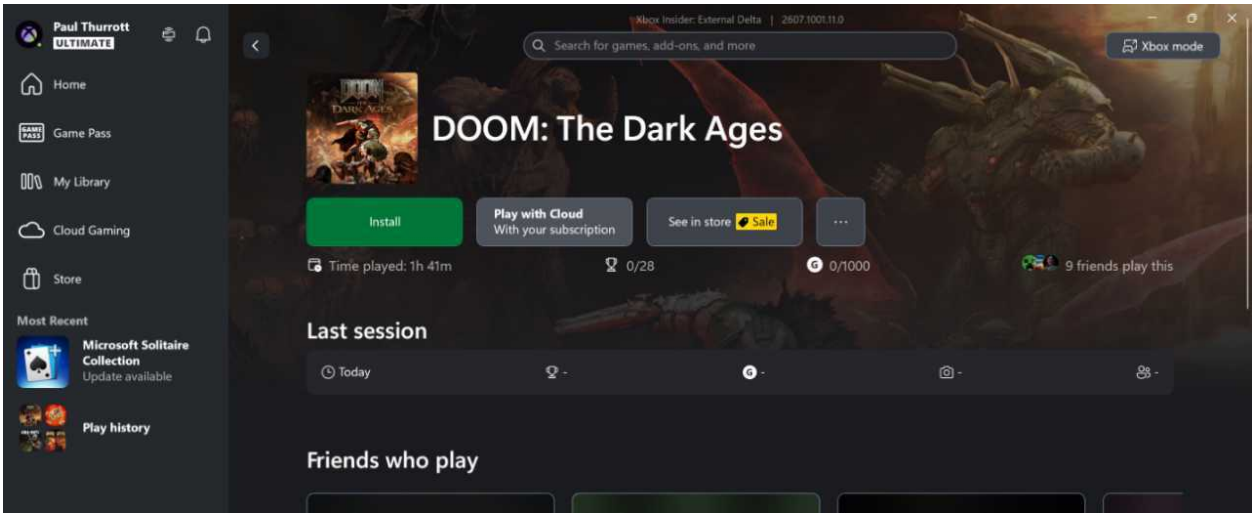
Find and play games from PC Game Pass or XBOX Game Pass Ultimate

If you subscribe to an XBOX Game Pass subscription, the Game Pass view in the XBOX app delivers an app store-like experience for browsing the game titles that are available to you. It highlights recently added games, personalized picks, and ways to browse by game publisher, franchise, indie games, and much more. You can also view the entire available library, pin a genre so it's always available in this view, and bookmark games you want to play later.



> **Tip**: When you use the search box in the XBOX app, the results fly-down highlights the titles that are available to you through XBOX Game Pass.

To view a game landing page, just select it from any view in Game Pass or in search results. Games you get through XBOX Game Pass will have a prominent "Install" button with "Included with GAME PASS" text above it, plus a "Play with Cloud" button if it's available for streaming through Cloud Gaming.

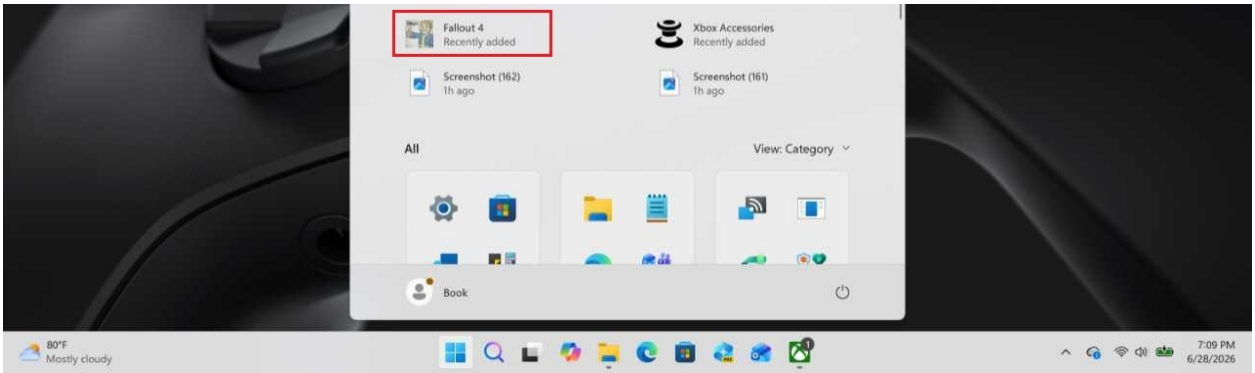


To install the game, click "Install."

Some complex games will display a "Choose what to install dialog" so you can pick which parts of the game you want. Otherwise, a "Choose a drive" dialog will appear even if your PC has only a single drive. When you click through that, you can optionally have it create a Desktop shortcut and then install the game.

You can view the download progress here or navigate to Install queue to get a more detailed look.

Once the game downloads and installs, it will be available in Most Recent and My Library. Installed games also appear in Start so you can launch and play them without first opening the XBOX app.

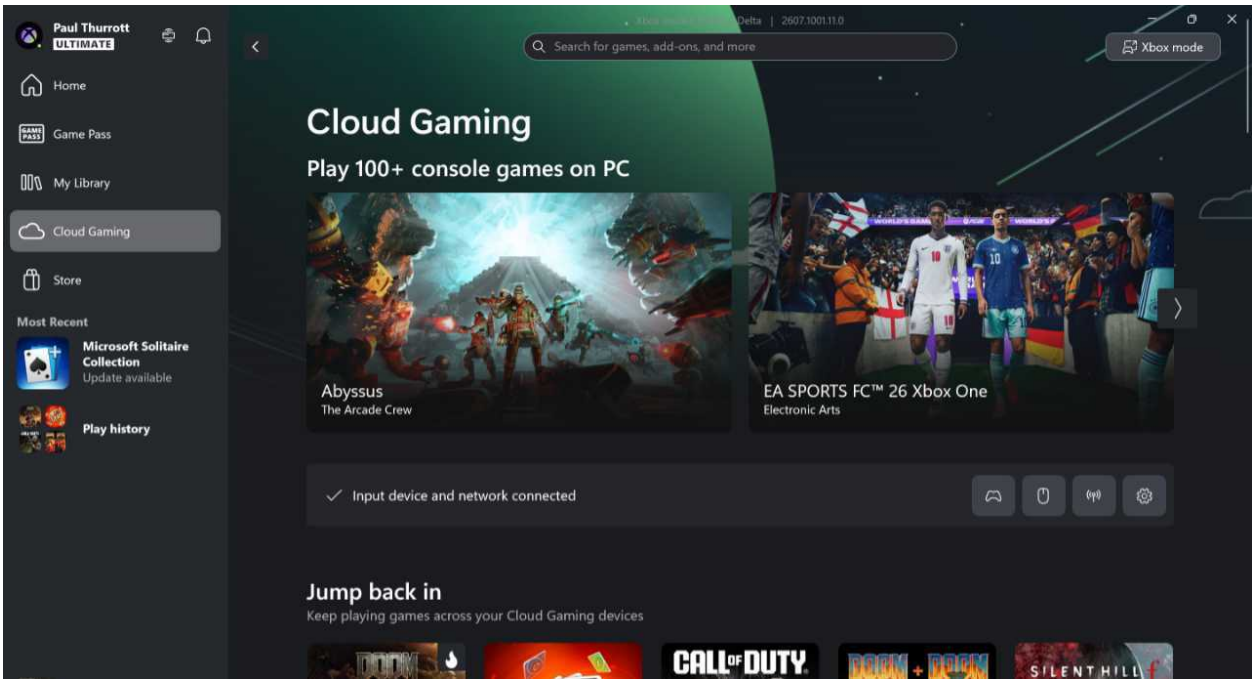


Cloud Gaming: Stream console games to your PC

Most videogames are installed and played locally on devices like smartphones, PCs, and videogame consoles. But Microsoft provides a Cloud Gaming service through XBOX Game Pass that also lets you *stream* games from the cloud–Internet datacenters–to devices of any kind. These games are not installed locally on your devices; instead, they rely on a constant Internet

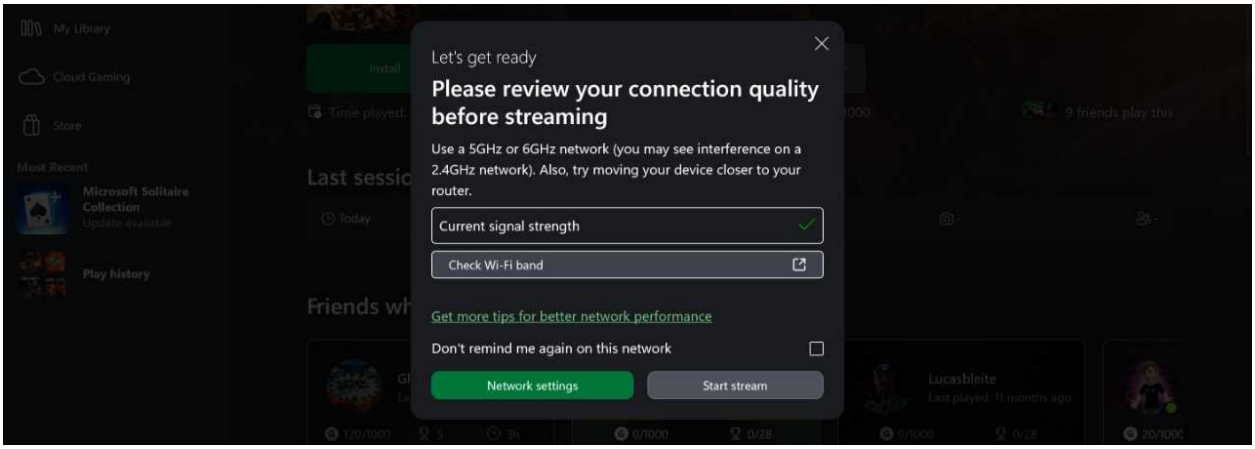
connection, as when you stream movies from services like Netflix or music from services like Spotify.

If you have an XBOX Game Pass subscription, you can see the games you can stream by navigating to the Cloud Gaming view. This view is similar to the Game Pass view, in that it provides an app store-like experience for browsing the game titles that are available to you and highlights games in different ways.

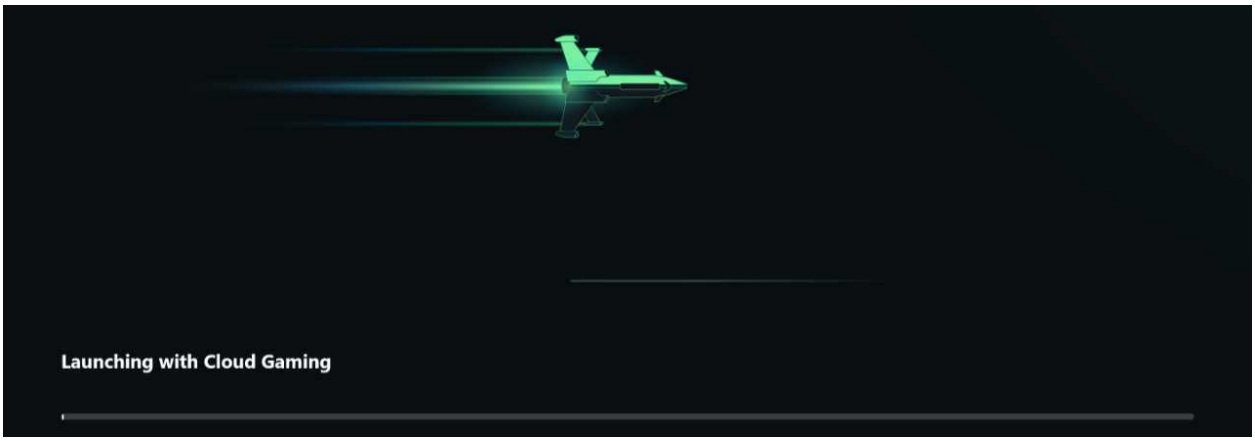


When you view a game landing page, it now displays a prominent “Play with Cloud” button. (Depending on the game, you may also see a similar “Install” button.)

When you click “Play with Cloud,” the XBOX app will warn you if the game works best with a controller and there isn’t one connected to your PC. Otherwise, a dialog appears so you can review your network settings–Ethernet will provide the best experience, but if you’re playing over Wi-Fi, a 5 or 6 GHz network is better than 2.4 GHz–and then click “Start stream” to jump right in.



Well, not *right* in: First, a "Launching with Cloud Gaming" animation appears to distract you from the wait that occurs while you're connected to the cloud. Then, an XBOX logo screen animates as well before the game is ready to play.



Games streamed via Cloud Gaming work like any other games–the Game Bar is available, of course–though they run within the XBOX app and can perform more slowly than locally installed games, especially for more complex titles. Unique to Cloud Gaming titles is a Quick Actions Toggle that becomes visible when you mouse over the top left of the display.

This toggle provides a full-screen stream menu (via "…"), a way to trigger the XBOX Guide button without using a controller, and a little thumb control so you can drag the toggle to another position along the left screen edge. You can also click this thumb control to hide the Quick Actions

Toggle.

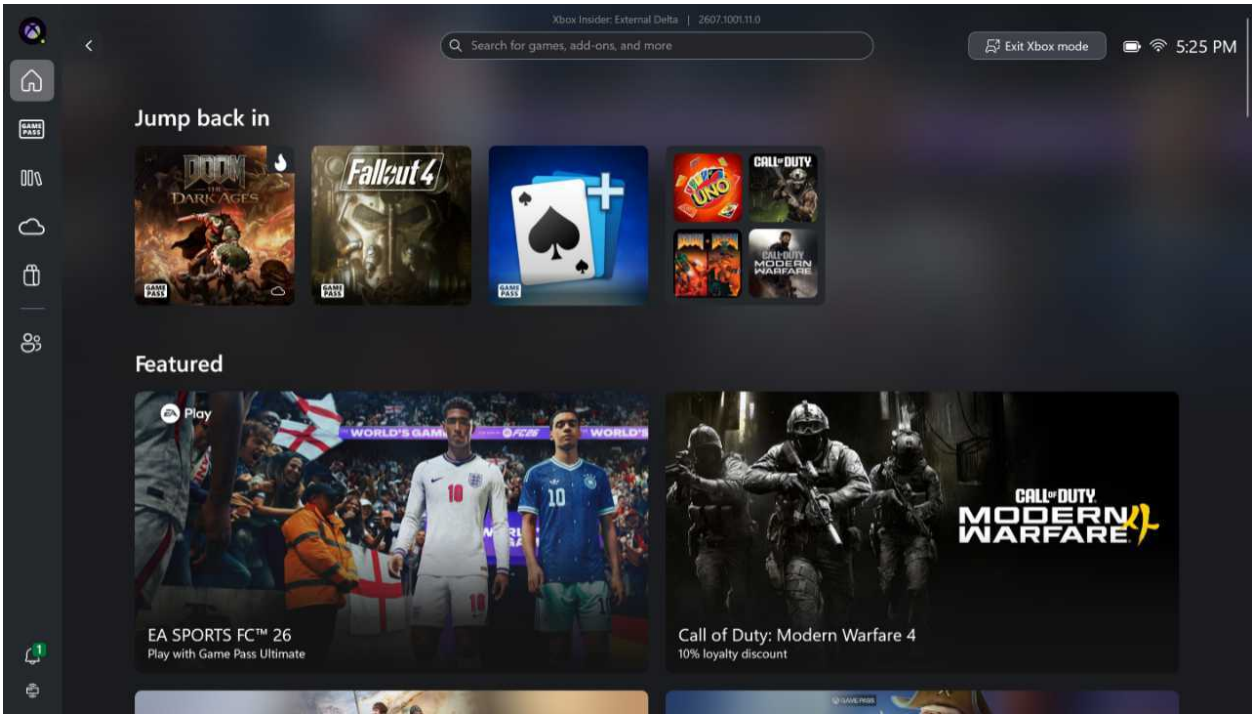
To quit the game, click “Show stream menu” in the Quick Actions Toggle, then click “Exit,” and then confirm when prompted.

XBOX Mode

XBOX Mode is a full-screen, controller-optimized experience for gamers who want to wring the best-possible performance from their PC. When enabled, it replaces the traditional Windows 11 Desktop interface with a full-screen version of the XBOX app while aggressively reducing background processes and other system resource usage to give the PC’s processor and RAM more headroom. You can toggle between the traditional Desktop and XBOX Mode on the fly or use XBOX Mode exclusively if your PC is a gaming handheld or a gaming PC. And the Game Bar still works in XBOX Mode, using its controller-friendly Compact mode.

Enable XBOX Mode

To enable XBOX Mode, open the XBOX app and click the “XBOX mode” button in its upper-right. You will be prompted to connect a controller if it’s not already connected. You will also be told how to get back to the Desktop, which is useful information that’s also described below. Once you get past that, the XBOX app transforms into its Compact view, which only hints at the changes it has made to Windows 11 under the covers.



There are other ways to enter XBOX Mode, too:

XBOX button. You can also toggle XBOX Mode on by pressing and holding the "XBOX" button on your XBOX Wireless Controller if you configured the option "Show XBOX mode in Task View" to "On" in XBOX mode settings as described earlier in this chapter. This displays Task view, from which you can now access an "XBOX mode" thumbnail next to the virtual desktops.

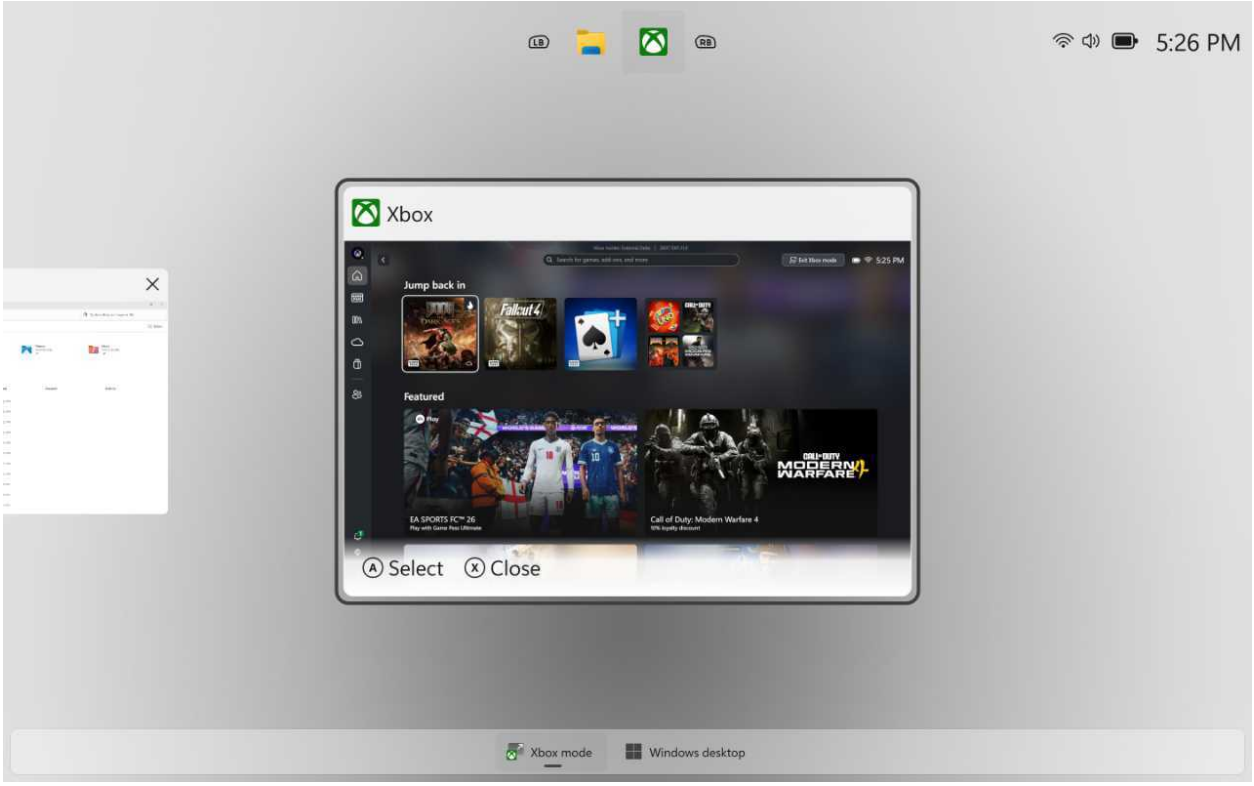
Game Bar. The Game Bar has an "Enter XBOX Mode" button you can use to toggle XBOX mode on.

Keyboard shortcut. You can also type Windows key + F11 to enter XBOX Mode.

In XBOX Mode, the XBOX app user interface can be used entirely via the XBOX Wireless Controller, though you can, of course, continue using your keyboard and mouse too. You can navigate left, right, up, and down using the D-pad or Left stick, select an item by pressing "A," navigate back to the previous view by pressing "B," select the search box by pressing "Y," and so on. If you've ever used an XBOX console, this will be very familiar, and selected items have an obvious selection rectangle around them to make that obvious.

Less obvious interactions include:

- **Game Bar**. You access the Game Bar by pressing the "XBOX" button on your controller. It works normally but appears in its controller-friendly Compact view.
- **Task view**. You can display a controller-friendly version of Task view by pressing and holding the "XBOX" button on your controller. This Task view doesn't display additional Desktops, but you can select a "Windows desktop" item on the bottom of the display to return to the normal Windows 11 user interface. And you can also access any other running apps, each of which now runs in a unique full-screen mode that's not broadly available with the Windows 11 Desktop.



> **Tip**: You can also close apps in Task view using your controller: Just select the app and press the "X" button.

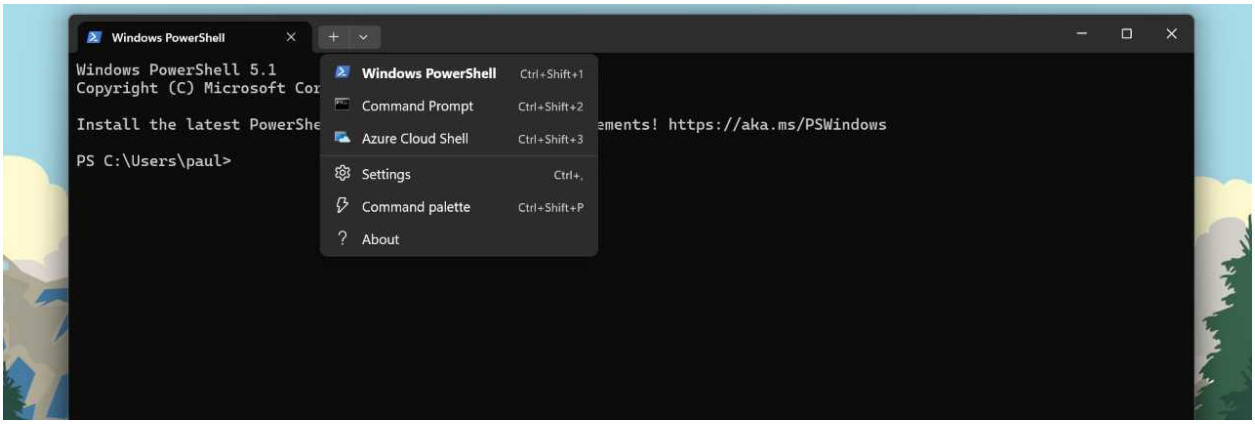
Exit XBOX Mode

You can exit XBOX Mode using the same methods you use to enable it: The "Exit XBOX mode" button in the XBOX app and Game Bar, or by opening Task view and selecting "Windows desktop."

If you're using an XBOX gaming handheld instead of a more traditional PC or laptop, there's just one wrinkle: When you configure these devices to enter XBOX Mode on startup and then exit XBOX Mode, you'll be asked to choose between rebooting the PC and just exiting XBOX Mode.

Command Line Interfaces

Windows 11 provides a rich graphical user interface (GUI), but it also supports a variety of *command line interfaces* (*CLIs*) through a modern Terminal app. Some of these CLIs come with Windows 11 and some are enabled by default, while others can be installed later.



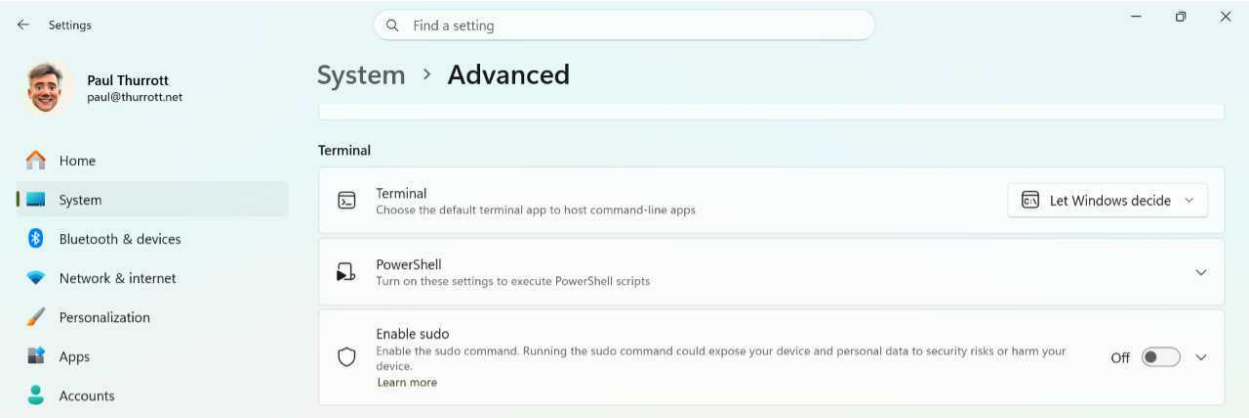
Defaults

The CLI features in Windows 11 are aimed at system administrators, developers, and other power users, and so the default configuration is minimalist.

- Windows 11 includes a rich and modern Terminal app that acts as the *host* for any number of CLIs.
- Windows 11 still supports the legacy *Windows Console Host* for backward compatibility reasons, and it decides which host to use by default.
- Windows 11 includes Command Prompt and *Windows PowerShell* CLIs that can be accessed via Terminal or as standalone apps that use the old Windows Console Host.
- Windows PowerShell is the default CLI in Terminal.
- Windows 11 includes the Windows Subsystem for Linux (WSL), which supports multiple *GNU/Linux* environments with both CLI and graphical Linux apps. This feature is not enabled by default.
- Windows 11 now includes a *sudo* command line app, new to 2026, that is not enabled by default but works similarly to the Unix utility of the same name and lets you elevate individual CLI commands with administrator privileges.

Customize

Windows 11 provides a handful of CLI settings in the Settings app, in System > Advanced, under the "Terminal" section. None are critical for casual users.



They are:

Terminal. Instead of letting Windows 11 decide which terminal host to use, as it does by default, you can configure this setting to "Windows Terminal," which I recommend, or "Windows Console Host."

PowerShell. This item expands to reveal a single setting, "Change execution policy to allow local PowerShell scripts to run without signing," that's tied to security and should not be enabled.

Enable sudo. If you're a power user with a Unix background, you may want to enable *sudo*. Otherwise, leave this disabled.

In this chapter, I will focus almost exclusively on Terminal and CLIs running within it, and that app has an astonishing range of settings and customization capabilities, some of which are described later in the chapter. Additionally, you can also add external CLIs to Terminal to Windows via standalone downloads or other apps. Two notable examples include:

PowerShell. This is the modern successor to Windows PowerShell that's built on the latest .NET stack and works in Linux and macOS in addition to Windows. It's available as a standalone download and runs alongside Windows PowerShell rather than replacing it.

Visual Studio 2026. The lates version of Visual Studio ships with multiple CLIs that are installed along with this integrated development environment (IDE) and enabled depending on which workloads you configure.

Terminal

The Terminal app is the default command-line host in Windows 11. Command line interfaces (CLIs)–sometimes called command-line apps or *console applications*–provide text-based interfaces,

or *text user interfaces* (TUIs), that harken back to the earliest days of personal computing.

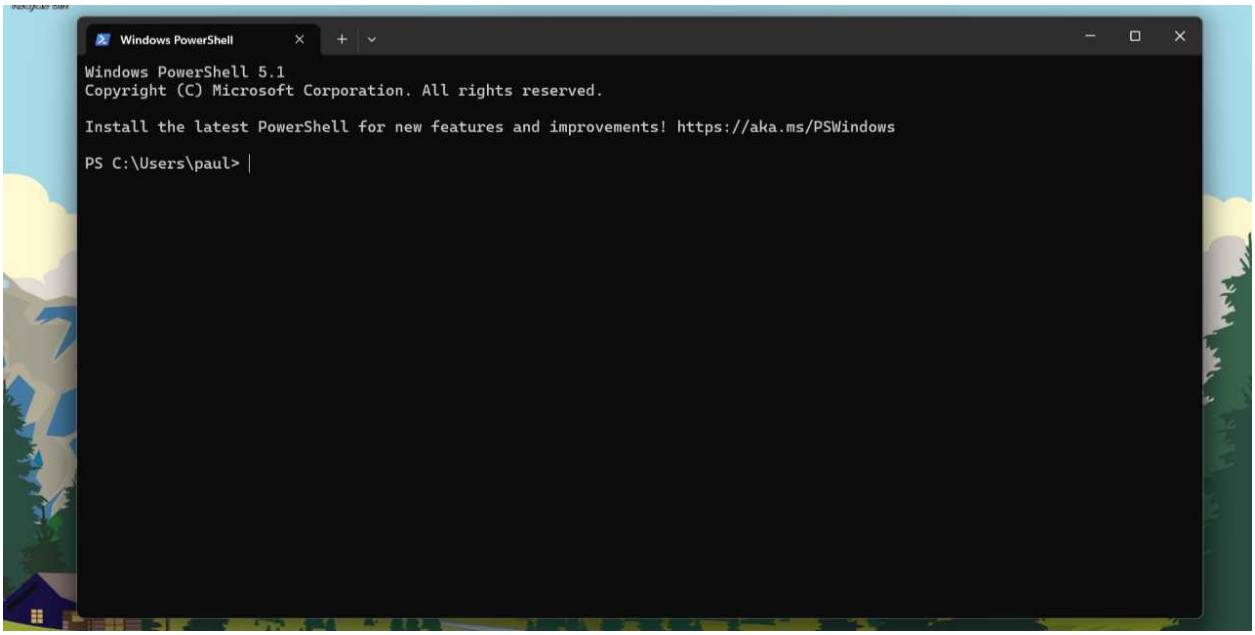
Terminal is even more powerful than its predecessor in part because it can host multiple CLIs, each with its own set of *commands*–text-based apps and utilities that perform specific tasks and return text-based results–and syntax. You can run multiple CLIs simultaneously in Terminal, each in its own web browser-like tab. Or you can do so in multiple Terminal windows, of course.

Defaults

Though it is used to access CLIs, Terminal is a standard graphical app, so it can easily be launched via Start or Windows Search.

> **Tip**: There's a less obvious way to launch Terminal that's even faster than using Start: Type Windows key + R to open the Run utility, then type *wt* and tap Enter.

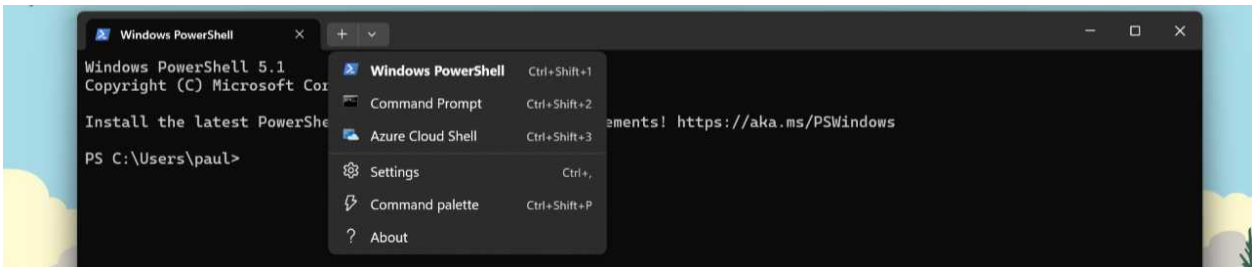
Terminal opens with a single tab by default, and that tab hosts a Windows PowerShell CLI by default.



The Terminal window opens in a size that can accommodate a text-based display measuring 120 characters horizontally (columns) and 30 characters vertically (rows). Windows 11 determines where to place this window on-screen at launch.

Terminal maintains a separate *profile*–a massive collection of settings–for each CLI it hosts and it specifies specific defaults for each.

You can open a new tab with the "Open a new tab" ("+/v") button to the right of the tabs. This is a split button. If you click the left ("+") side, Terminal will open a new tab using the default (Windows PowerShell) profile. If you click the right ("v") side, Terminal displays a menu of the available CLIs, plus items for Terminal settings and its Command palette feature.



> **Keyboard shortcut**: You can also use the appropriate keyboard shortcut to open a specific CLI profile, as hinted at in the menu. For example, type Ctrl + Shift + 1 to open a new tab using the default (Windows PowerShell) profile, or Ctrl + Shift + 2 to open a new tab using the Command Prompt profile.

Tab navigation works as it does in a web browser and other tab-based apps. You select a tab to display its content and click its "Close tab" ("x") button to close it.

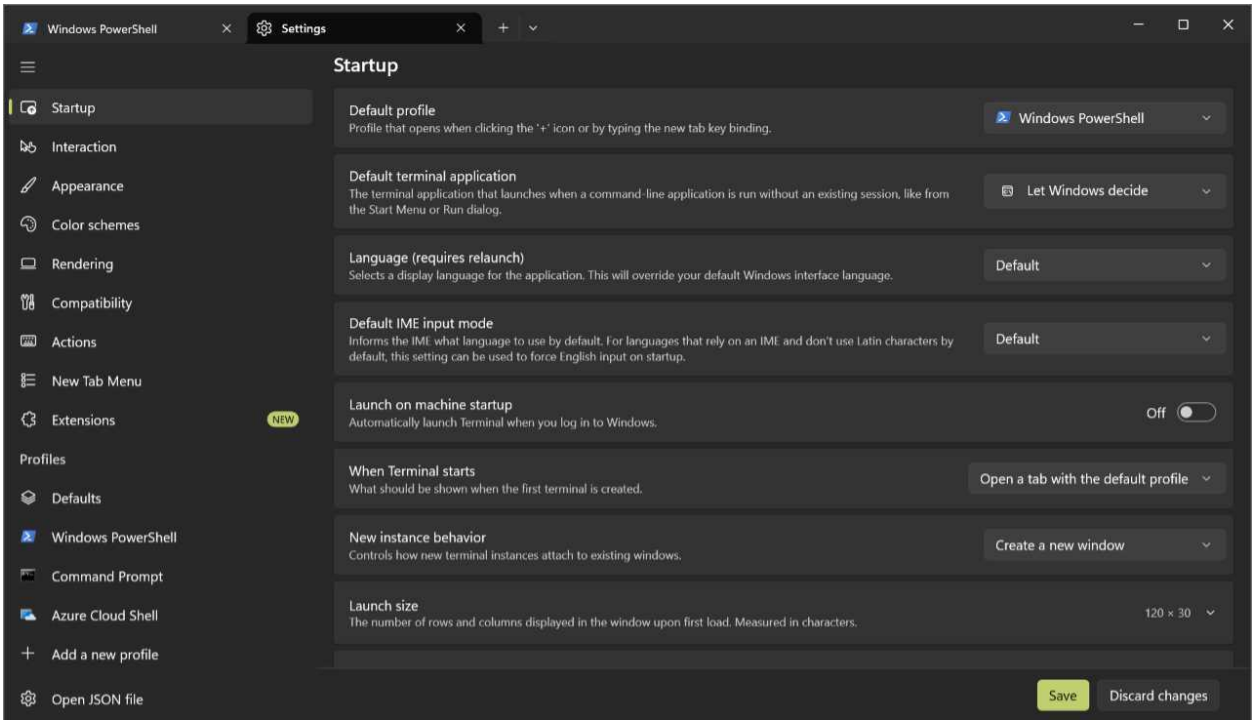
> **Keyboard shortcut**: You can type Ctrl + Tab to cycle between available tabs and type Ctrl + Shift + W to close the current tab.

To close Terminal, type *exit* and tap Enter. Or, click the "Close" window button as with other apps. If there are multiple tabs open, you will be prompted before Terminal closes. Otherwise, it will simply close.

Customize

Terminal can be customized almost endlessly, and if you spend a lot of time in this app, you will definitely want to spend some time examining its many settings. These are available from Terminal settings–it appears as a tab, of course–which can be accessed by selecting the right side of the "Open a new tab" split button ("v") and then "Settings."

> **Keyboard shortcut**: You can also open Terminal settings quickly by typing Ctrl + , (comma).



Yes, this is a daunting set of customization capabilities. Here, I will discuss some of the more impactful changes you can make, as fully documenting Terminal would require a book in its own right. Indeed, customizing Terminal is almost as much art as it is technical skill, and it's well beyond my abilities to explain well.

> **But wait, there's more:** Kayla Cinnamon's YouTube channel and Microsoft's Windows Command Line blog.

Startup settings

The Startup page appears when you first open Terminal settings and it provides several useful settings related to what happens each time you open the app.

- **Default profile**. This setting determines the CLI profile that Terminal uses when it opens and when you click the left side ("+") of the "Open a new tab" button. It's set to Windows PowerShell by default, and this is likely the best option for most.
- **Default Terminal application**. This setting mirrors the "Terminal" setting in Settings > System > Advanced.
- **When Terminal starts**. This setting determines how Terminal opens when you start it, either a new window with a single tab open to the default profile (the default) or with whatever windows or tabs you were using in your last Terminal session.

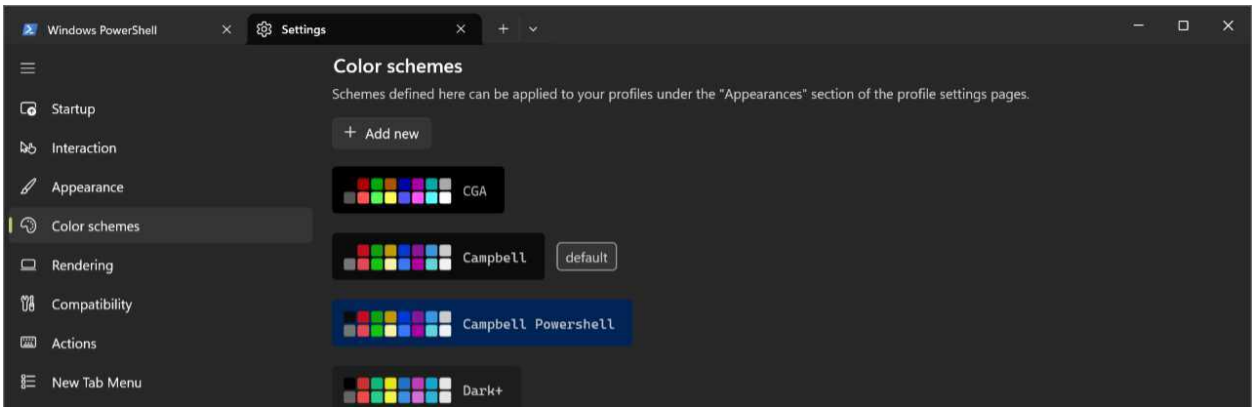
- **Launch size**. By default, Terminal opens with a CLI environment that is 120 characters (columns) wide and 30 characters (rows) tall. You can use this setting to arbitrarily change either of those values.
- **Launch parameters**. Windows determines where to place each new Terminal window you open, but you can use the options under this item to specify a location on screen in x and y coordinates, force the app window to be centered on-screen by default, or specify the type of window (Default, Maximized, Full screen, Focus, or Maximized focus).

Appearance and Color Schemes

The Appearance and Color schemes pages in Terminal settings each contain several options related to how Terminal looks. A few key settings here include:

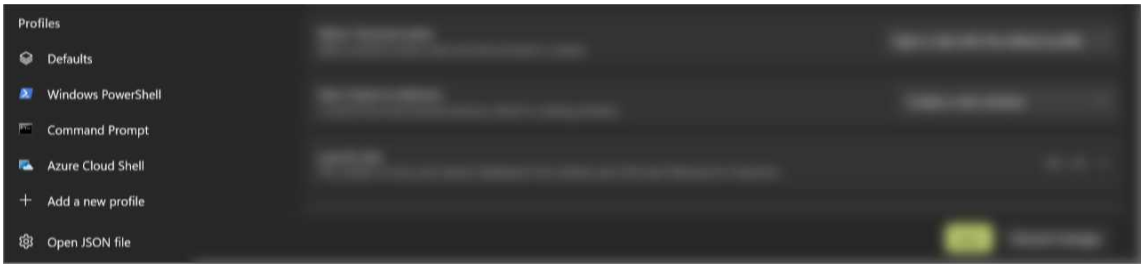
Appearance > Application Theme. Here, you can set the application theme for Terminal to Dark (the default), Dark (Legacy), Light (Legacy), Use Windows theme (Legacy), Light, or Use Windows theme.

Color schemes. By default, Terminal uses a theme called Campbell that features a black background and colored text. But you can change the default theme to your liking, edit existing themes, or add new themes of your own here.

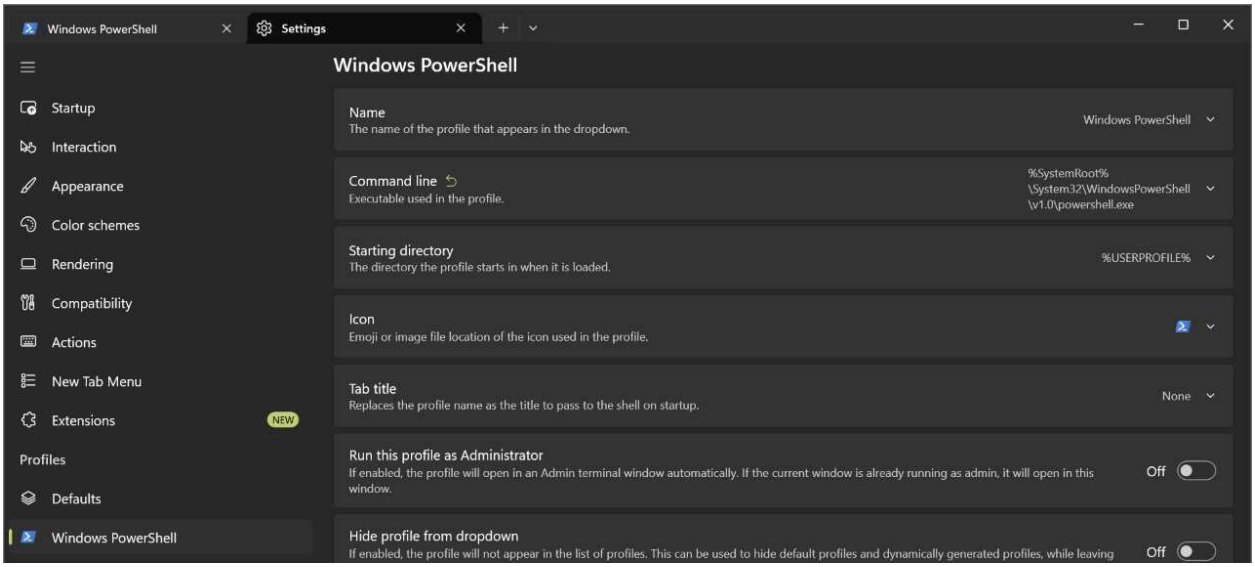


Profile settings

The settings noted above impact the Terminal app. But you can also configure individual profiles, each of which represents a CLI, and you can configure those profiles separately from the app defaults and from each other. You can see the available profiles below the "Profiles" header in the settings navigation bar on the left. And you can use the "+ Add a new profile" item to create your own. This lets you have multiple profiles, each with its own unique settings, for any CLI.



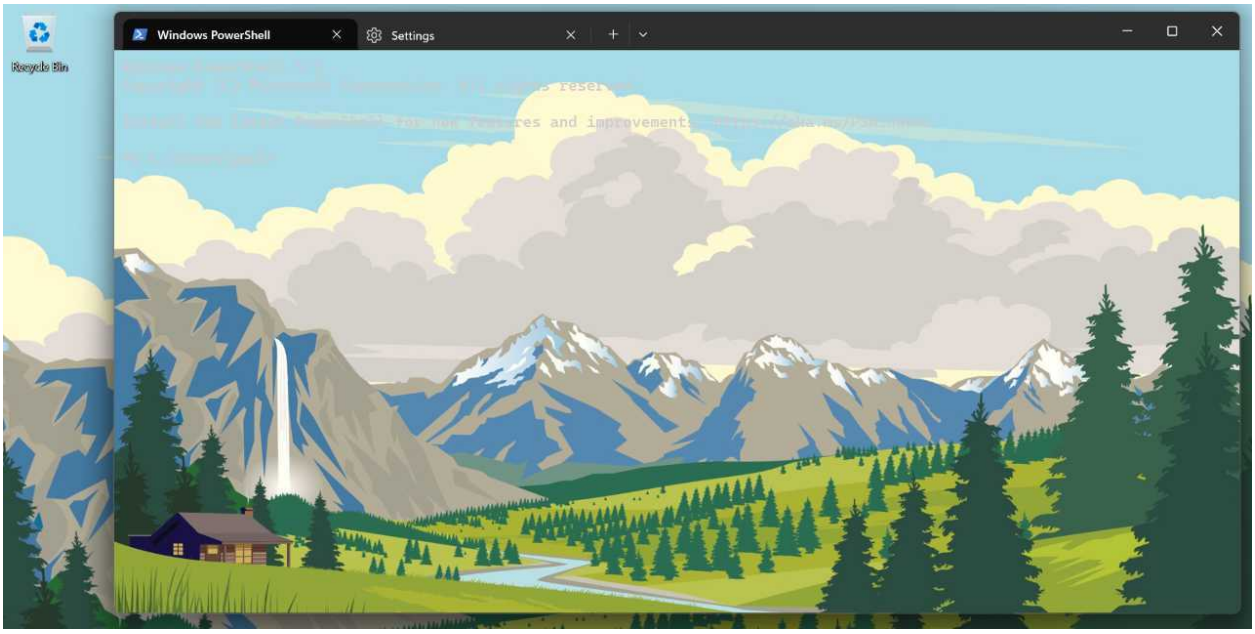
To see the available settings, select a profile.



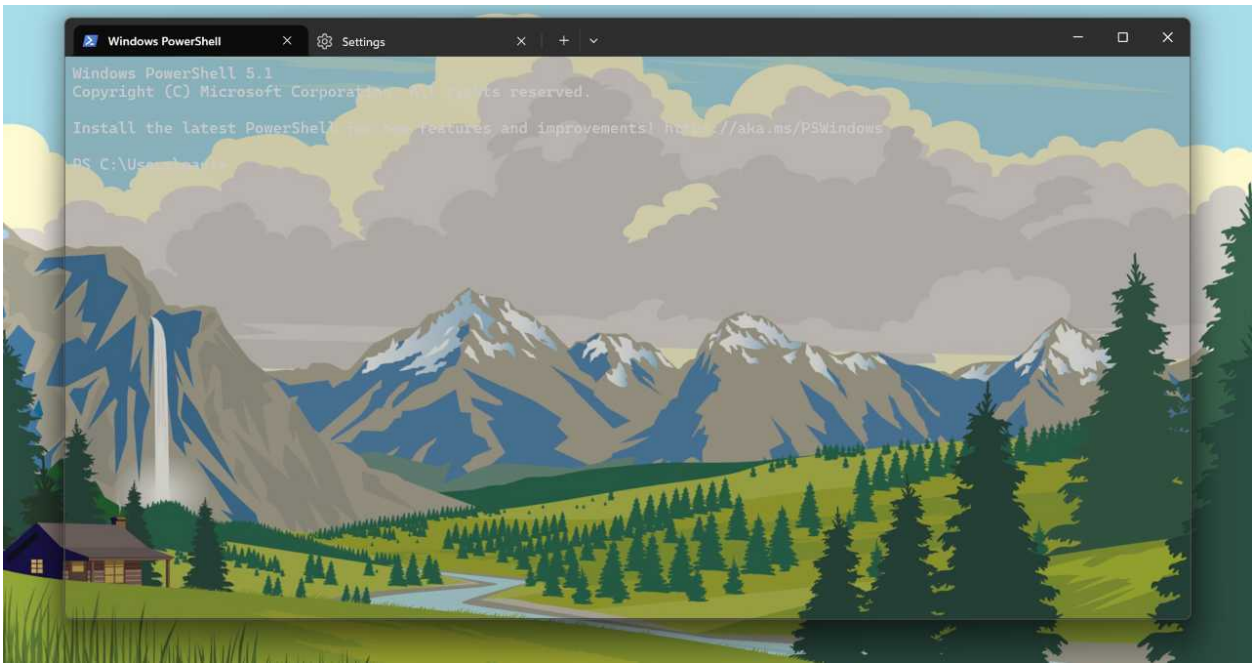
Most of the settings you see here—Name, Starting directory, Icon, Tab title, and so on—are fairly obvious. But if you dig into the Appearance and Advanced sections of each profile, you will find some useful and even fun options.

Key among them are:

- **Appearance > Background image**. Here, you can set the background of the profile to a specific image or just use the same image used for the Desktop wallpaper.

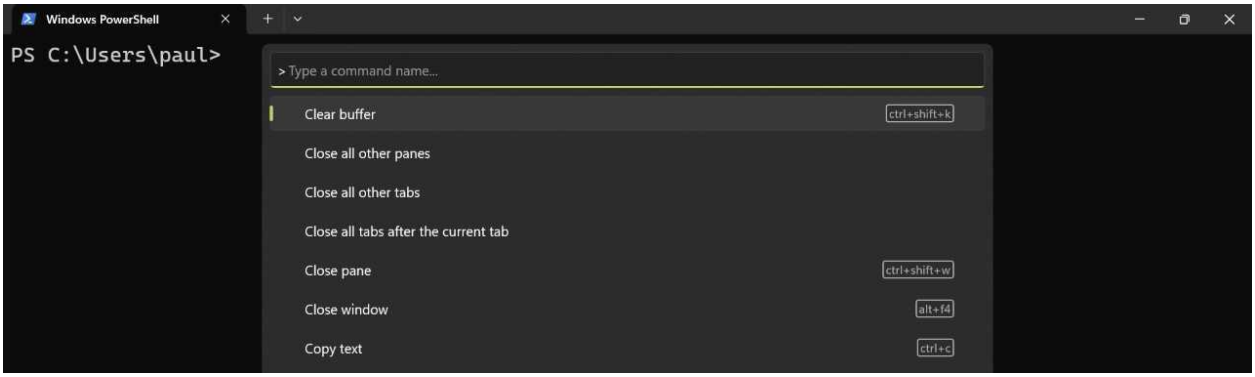


- **Appearance > Transparency**. This set of options lets you set the background opacity of the Terminal window–its level of translucency–and, optionally, enable a so-called Acrylic material effect to the translucency.



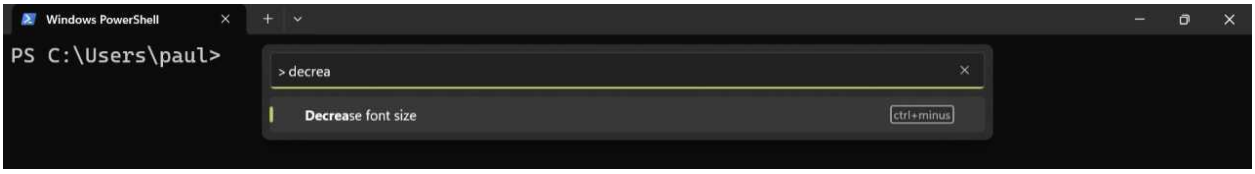
Command palette

Terminal has a *Command palette* feature that lets you easily invoke *actions*, which are commands that this app understands. To display the Command palette, click the right side ("v") of the "Open a new tab" split button and then select "Command palette" from the menu that appears.



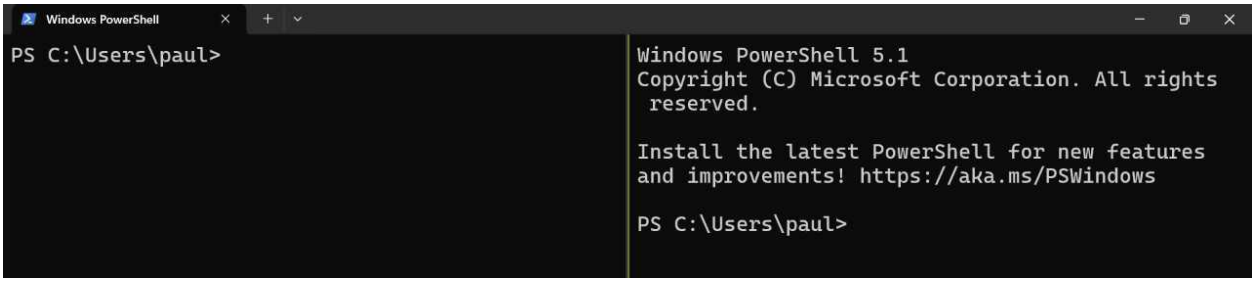
> **Keyboard shortcut**: You can open Command palette more quickly by typing Ctrl + Shift + P.

The Command palette is handy when you don't know how to do something specific. To find what you're looking for, scroll through the list of actions shown in the drop-down, or you can begin typing and the Command palette will filter the list based on what you type.



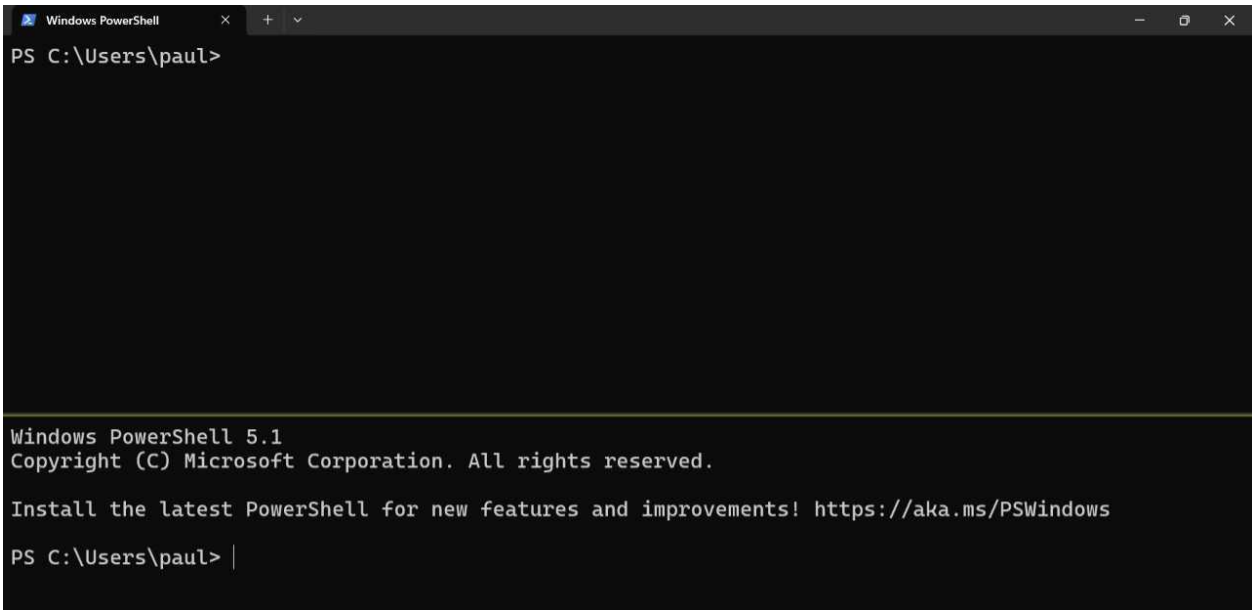
The Command palette is used to find and run *actions*, which are commands used to control the Terminal application. Command palette lists available actions alphabetically. So you can scroll through the list to find the action you need, or you can start typing and the Command palette will filter the list based on what you've typed.

If you're getting started with Terminal, the Command palette is a great way to browse available commands and the place to go when you're stuck. For example, while you can open a second command-line environment in a new tab by using the "Open a new tab" menu, the tooltip that appears lets you know that you can alternatively open that second environment in a new pane instead by holding down the Alt key when you make your selection. This splits the window vertically.



But what if you want to split it horizontally instead?

Command palette to the rescue: You can type *pane* to discover all the actions related to panes. And among them is "toggle pane split orientation," which toggles the panes between vertical and horizontal orientations.



The Command palette also shows keyboard shortcuts for available actions, which can be useful for anyone using this command line tool: If you can remember a shortcut, that's always the fastest way to get something done.

> **Tip**: This is beyond the scope of this book, but Terminal also lets you create your own actions, each of which can be accessed through the Command palette or with its own unique keyboard shortcut. You do so in Terminal settings, on the Actions page.

Zoom the display

Terminal supports web browser-like zoom capabilities, letting you temporarily resize the text in the current CLI environment on the fly. For example, if you zoom in a few times, the text gets quite big.

Because there's no obvious UI to help you zoom, keyboard shortcuts make the most sense:

- **Zoom in**. To zoom in–make the text bigger–type CTRL + + (Plus).
- **Zoom out**. To zoom out–make the text smaller–type CTRL + - (Minus).
- **Return to default zoom level**. To return to the default zoom level, type CTRL + 0.

> **Tip**: The default zoom level is configured in Terminal settings and can be configured on a profile-by-profile basis.

Use Terminal in Focus mode

Terminal supports a *Focus mode* that hides the app's title bar and tabs so you can focus on the command line environment you're using. It's an especially interesting option for those with multiple display setups who wish to use Terminal full-screen on its own display.

To enable Focus mode, open the Command palette, type *focus mode*, and tap ENTER. Terminal takes on a svelte new look.

> **Keyboard shortcut**: If you are going to use Terminal like this, it makes sense to enable Full-screen mode. To do so, type *F11*.

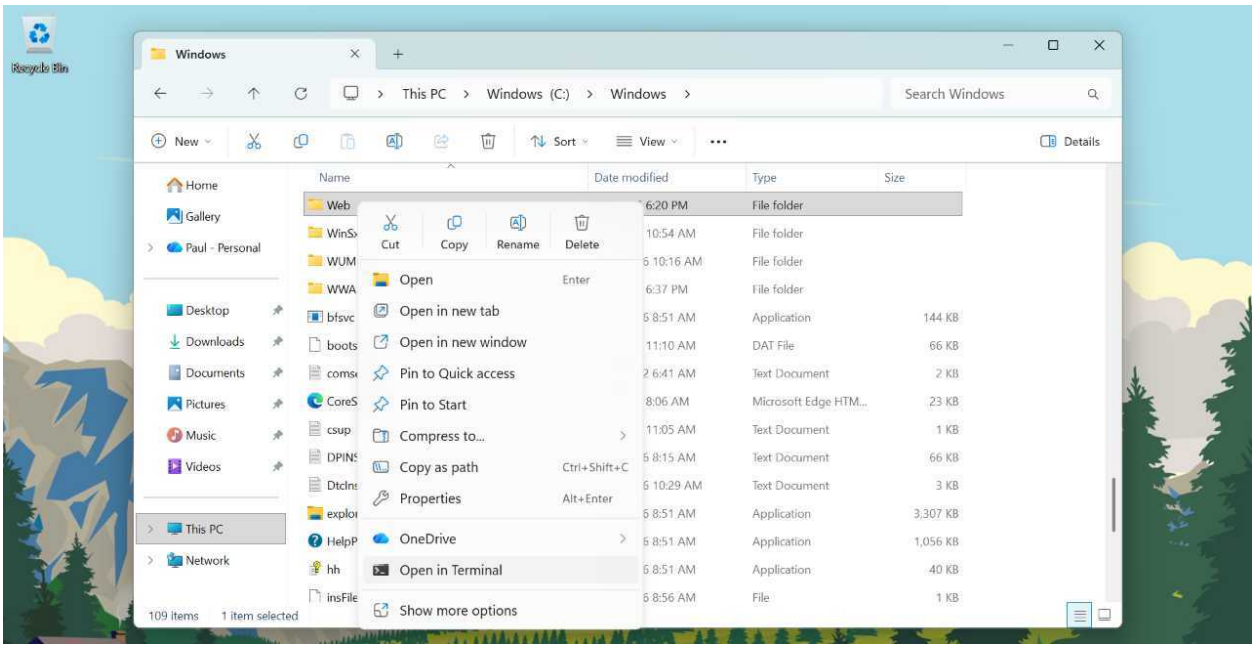
To exit Focus mode, just repeat the same steps: open the Command palette, type *focus mode*, and tap Enter.

Navigate to a specific folder more easily

While each CLI you use in Terminal supports its own set of commands and whatever specific syntax, one thing is common to all of them: It can be a bit tedious to get to a specific folder because of all the typing involved. Fortunately, Terminal does what it can to make this easier. Here are some tips.

Folder auto-completion. When you are navigating into a new folder (or folder structure), you can use auto-complete to move more quickly. This is especially true when you know the name of the folder(s) you are trying to traverse. For example, if you are in C:Windows and wish to navigate to the Web folder, you can type *cd w* and then hit Tab to autocomplete the first folder name that starts with *w*. If the first name that comes up isn't correct, just hit Tab until the right one does appear.

Open Terminal to a specific folder. If you have a long and complex folder location to get to and don't mind using Terminal's default profile (typically Windows PowerShell), you can navigate to the location of the containing folder in File Explorer and then right-click the folder you wish to be in and select "Open in Terminal" from the context menu that appears.



Use File Explorer to get the path. If you have a long and complex folder location to get to and you need to use a specific Terminal profile, you can navigate to the location of the folder in File Explorer and select the contents of the address bar (type Alt + D), which is the path to that folder.

Then, open Terminal with the profile you need and type *cd* followed by Ctrl + V (for Paste) and then Enter.

Drag and drop a folder. If you have a long and complex folder location to get to, type *cd* followed by a space in Terminal. Then, navigate to the location of the containing folder in File Explorer, select the folder to which you wish to navigate, and then drag and drop it into Terminal. This will append the path to the command line, so you just need to hit Enter to go there.

Administrator Privileges and Sudo

Though you can run any app with administrator privileges as needed, this is rarely necessary because Windows 11 will display a User Account Protection (UAP) dialog so you can authenticate and grant additional privileges. But CLIs are different, and so Windows 11 provides two ways to elevate privileges with the Terminal app.

Run Terminal with administrator privileges

Sometimes, you will be instructed to open Terminal as an administrator so you can perform a troubleshooting or system-level task that requires additional privileges.

There are two primary approaches.

- **With a new Terminal window**. You can launch Terminal as an administrator as you would any other app: Locate it in Start, right-click, and choose "Run as administrator." Then, click "OK" in the User Account Control (UAC) dialog that appears.
- **While using Terminal**. If you're already using Terminal, you can open a new CLI with administrator privileges at any time by clicking the right side ("v") of the "Open a new tab" button and pressing and holding the Ctrl key as you click the CLI profile you need. The CLI you selected opens in its own window instead of a tab for security reasons. And as above, you will need to address a UAC dialog.

> **Tip**: When run with administrator privileges, Terminal displays a small shield icon and the tab name is prepended with the text "Administrator." You should close this window as soon as you complete the task that required elevated privileges.

Use sudo to run an individual command with administrator privileges

New to 2026, Terminal users can enable a sudo ("superuser do") command line command that works like the well-understood Linux CLI command of the same name. This lets you run Terminal normally and then elevate privileges for individual commands or scripts.

Enable and configure sudo

To get started, you have to enable sudo. You do this in the Settings app by navigating to System > Advanced and configuring "Enable sudo" (under "Terminal") to "On." You will be prompted to authenticate with a User Account Control (UAC) dialog.

When enabled, you can expand the "Enable sudo" item on this page to reveal a sub-setting, "Configure how sudo runs applications," that is configured as "In a new window" by default. With this configuration, sudo works much like the experience of running a Terminal window with elevated privileges. But if you want this to work more as it does in Linux/Unix, you can change that to "Inline."

> **But wait, there's more**: Sudo on Microsoft Learn](https://learn.microsoft.com/en-us/windows/advanced-settings/sudo/).

Use sudo in a Terminal CLI

To run a single command with administrator privileges, you just prepend the text *sudo* in front of that command in the CLI. For example, to run the Windows Package Manager (winget) with admin privileges, you could use the following:

```
>sudo winget
```

You will have to authenticate with a UAC dialog.

Command Prompt

Command Prompt, sometimes called the Command shell, is a legacy environment that dates back to the original version of Windows NT. But it is modeled after the Command.com command-line interpreter that Microsoft provided with MS-DOS, the text-based predecessor to Windows. As a result, it shares many commands with that earlier system too.

Command Prompt is still provided in Windows for backward compatibility reasons, but Microsoft recommends that anyone needing automation capabilities today should focus on Windows PowerShell instead. While I agree with that advice, I can at least provide a few tips for using Command Prompt here.

Access Command Prompt

Command Prompt can be easily found in Start. Unlike in previous Windows versions, it is no longer a separate standalone app but is instead a command-line profile that runs in the Terminal app.

> **Tip**: The quickest way to launch Command Prompt is to open Start and type *cmd*.

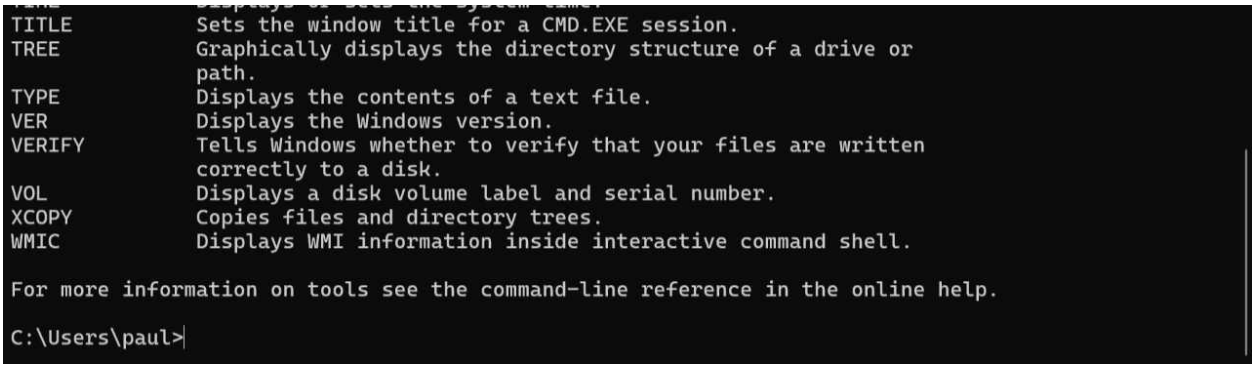
Sometimes, you will need to run Command Prompt as an administrator. To do so, open Start, type *cmd*, and then right-click on *Command Prompt* in the search results list and choose "Run as administrator."

> **Tip**: Curiously, when you run Command Prompt as an administrator, it appears as a standalone app and not inside of Terminal.

Learn which commands are available

Microsoft maintains a useful Command Prompt command reference that will help you get started with some old favorites like *cd* (change directory), *dir* (directory listing), *format*, *mkdir* (make directory), and *ver* (version). But you can also use Command Prompt to find a list of its available commands. To do so, open Terminal to a Command Prompt tab and type:

```
>help
```



The output from this command–the list of available Command Prompt commands–will scroll past the bottom of the console window, hiding much of it. To see the rest, you can scroll back up with

the keyboard or mouse. Or you can type the following to cause the output to pause each time it has filled the height of the window:

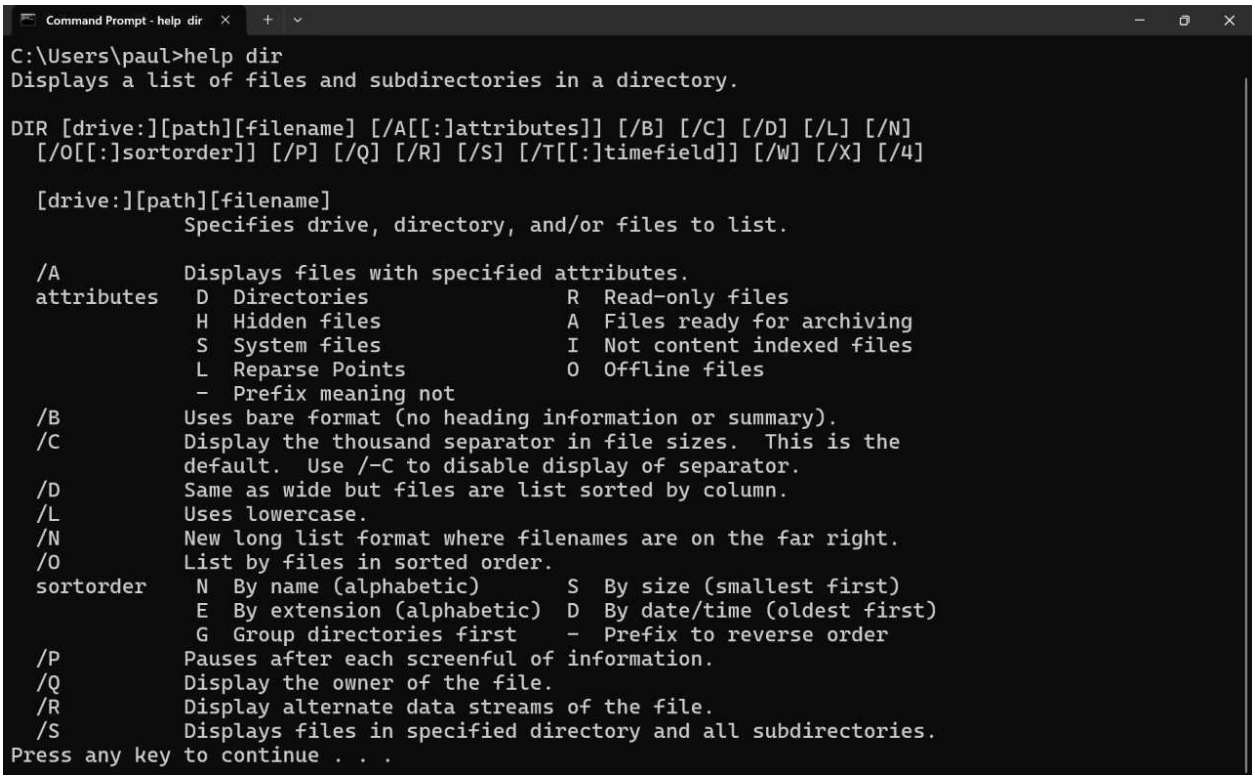
```
>help | more
```

Tap Space or Enter to continue listing available commands.

Learn how to use individual commands

In addition to the online command reference noted above, you can use the *help* command in Command Prompt to get help with an individual command. For example, to learn how to use the dir command, you would type:

```
>help dir
```



> **Tip**: In this case, you don't need to append | *more* to the end of the command, as help will automatically pause each time the text has filled the height of the window.

Learn some useful Command Prompt commands

While most Windows functionality is exposed via graphical interfaces, there are still some useful and unique Command Prompt commands that are worth knowing about.

Some of these include:

Fix corrupt system files. The System File Checker scans Windows and looks for any corrupted system files and, if needed, restores clean and working versions:

```
>sfc /scannow
```

> **Tip**: System File Checker requires an elevated Command Prompt with administrator privileges.

Change the file extension for one or more files. To change the file extension for all files in the current directory from one extension (in this case, jfif) to another (in this case, jpg), you can use:

```
>ren *.jfif *.jpg
```

See the full Windows version number. You can see the version number of Windows, including the full build number, by typing:

```
>ver
```

> **Tip**: Type *winver* instead to see the graphical version.

Get a detailed battery report. Windows will generate a report in the current directory that details the battery usage and estimates the battery life of portable PCs:

```
>powercfg /batteryreport
```

Linux

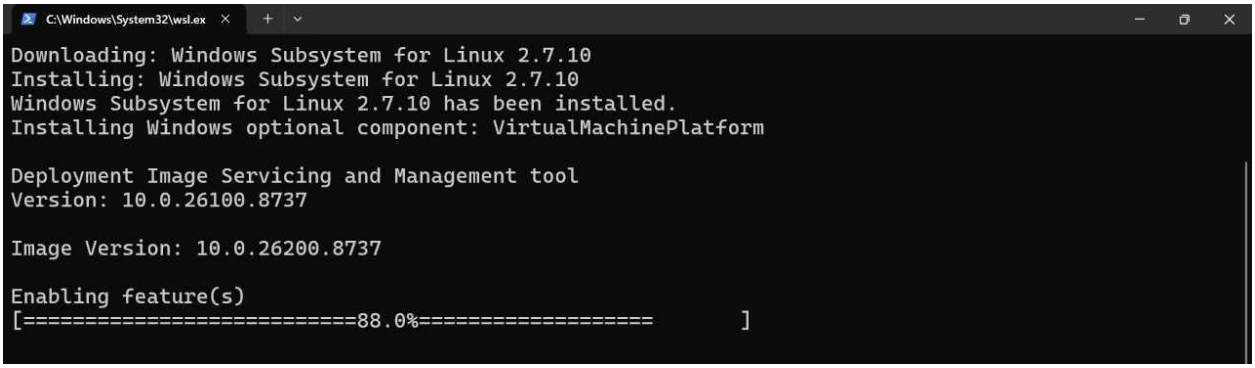
Windows Subsystem for Linux (WSL) is an optional Windows 11 feature that provides a complete *GNU/Linux* environment in Windows, with support for CLI and graphical Linux applications. WSL is aimed at developers who need both Windows and Linux and would like to avoid the inconveniences of using multiple PCs, virtual machines (VMs), or a dual-boot configuration. But it's also an excellent and free way for any Windows 11 user to learn the Linux CLI.

Install Linux in Windows 11

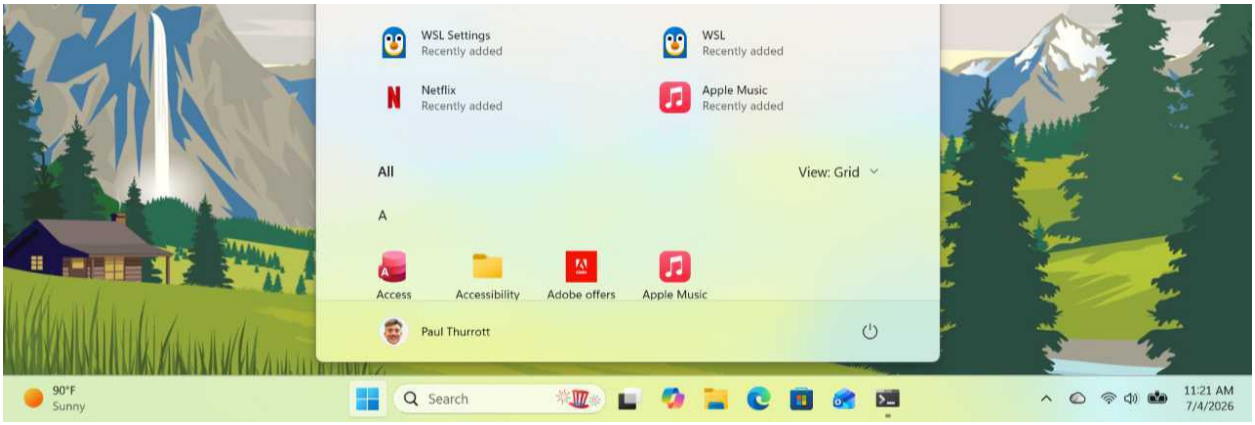
WSL has evolved a lot since its initial implementation, and it's now much easier to install this feature than before.

To get started, open Terminal with administrator privileges and type the following command:

```
>wsl --install
```



When the install completes, you're dumped back into the CLI, and you can see two new app shortcuts in Start, for WSL and WSL Settings.



You're not done yet. The next step is to install a Linux *distribution*. You can use the following command in Terminal to see which distributions are available.

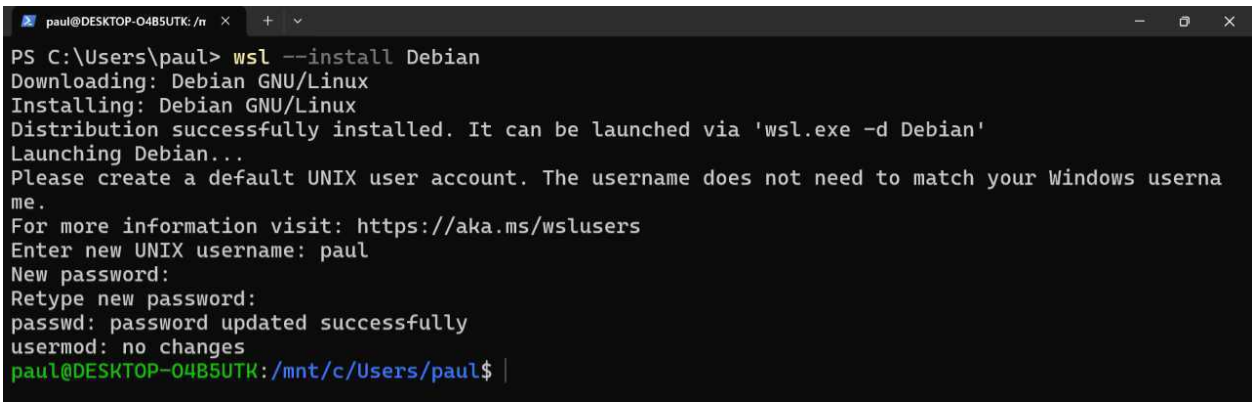
```
>wsl --list --online
```

The output will list the name and friendly name of each distribution. To install one, use its name, like so (using Debian as an example):

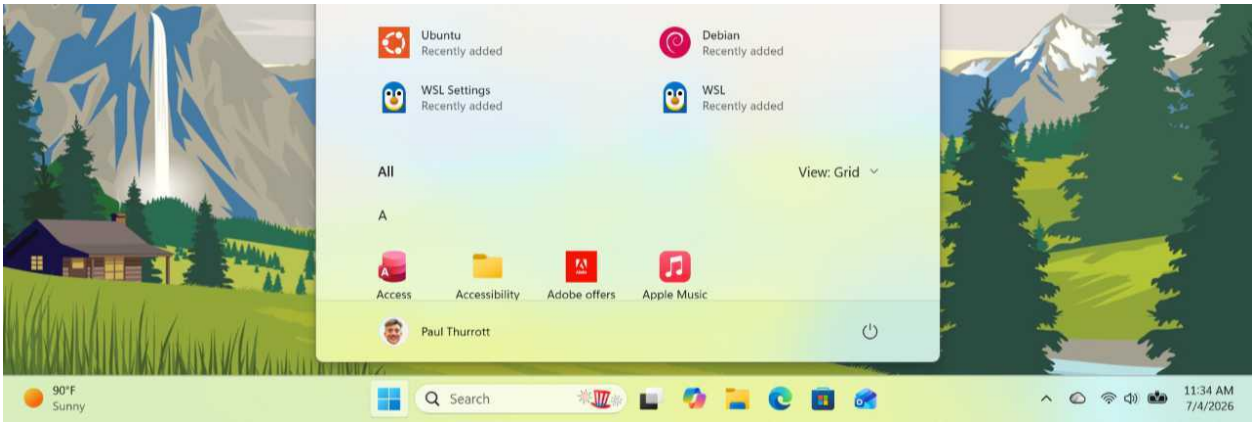
```
>wsl --install Debian
```

Whichever method you use, WSL will prompt you to create a default UNIX user account and a password for use in that CLI. This account is unique to the Linux distribution you just installed, and it's configured with administrator privileges, and WSL will automatically sign in to this account when you open the distribution CLI.

Once you complete this, the prompt changes to a Linux CLI prompt as the CLI is running within the current Terminal tab.



Type *exit* to close the new CLI. Then, open Start, where you will find a shortcut for the Linux distribution.



Going forward you can run open this distribution in a few different ways:

- **Open the distribution in its own CLI window**. Just find the distribution shortcut in Start and launch it like any app.
- **Open the distribution within an existing Terminal window**. Use the following command to open the distribution from within Terminal (again using Debian as an example):

```
>wsl --distribution Debian
```

> **Tip**: Remember that you can install any number of distributions.

Before moving on, you should ensure that the Linux distribution is up-to-date. To do so, type the following command:

```
>sudo apt update
```

You will need to supply your password because the *sudo* command runs apt with elevated privileges. And as you can see, some number of packages will need to be updated.

```
paul@DESKTOP-O4B5UTK: ~
paul@DESKTOP-O4B5UTK:~$ sudo apt update
[sudo: authenticate] Password:
Get:1 http://archive.ubuntu.com/ubuntu resolute InRelease [136 kB]
Get:2 http://security.ubuntu.com/ubuntu resolute-security InRelease [137 kB]
Get:3 http://security.ubuntu.com/ubuntu resolute-security/main amd64 Packages [265 kB]
Get:4 http://archive.ubuntu.com/ubuntu resolute-updates InRelease [137 kB]
Get:5 http://security.ubuntu.com/ubuntu resolute-security/main Translation-en [69.2 kB]
Get:6 http://security.ubuntu.com/ubuntu resolute-security/main amd64 Components [31.1 kB]
Get:7 http://security.ubuntu.com/ubuntu resolute-security/main amd64 c-n-f Metadata [4348 B]
Get:8 http://security.ubuntu.com/ubuntu resolute-security/universe amd64 Packages [128 kB]
Get:9 http://security.ubuntu.com/ubuntu resolute-security/universe Translation-en [40.2 kB]
Get:10 http://security.ubuntu.com/ubuntu resolute-security/universe amd64 Components [43.1 kB]
Get:11 http://security.ubuntu.com/ubuntu resolute-security/universe amd64 c-n-f Metadata [3512 B]
Get:12 http://security.ubuntu.com/ubuntu resolute-security/restricted amd64 Packages [240 kB]
Get:13 http://archive.ubuntu.com/ubuntu resolute-backports InRelease [136 kB]
Get:14 http://security.ubuntu.com/ubuntu resolute-security/restricted Translation-en [44.3 kB]
Get:15 http://security.ubuntu.com/ubuntu resolute-security/restricted amd64 c-n-f Metadata [396 B]
Get:16 http://security.ubuntu.com/ubuntu resolute-security/multiverse amd64 Components [212 B]
Get:17 http://security.ubuntu.com/ubuntu resolute-security/multiverse amd64 c-n-f Metadata [120 B]
Get:18 http://archive.ubuntu.com/ubuntu resolute/main amd64 Packages [1480 kB]
Get:19 http://archive.ubuntu.com/ubuntu resolute/main Translation-en [524 kB]
Get:20 http://archive.ubuntu.com/ubuntu resolute/main amd64 Components [395 kB]
Get:21 http://archive.ubuntu.com/ubuntu resolute/main amd64 c-n-f Metadata [32.4 kB]
Get:22 http://archive.ubuntu.com/ubuntu resolute/universe amd64 Packages [16.0 MB]
31% [22 Packages 3113 kB/16.0 MB 20%]
```

To update all the packages at once, type the following:

```
>sudo apt upgrade
```

This process could take some time and it could be interactive, meaning that you might occasionally need to answer prompts (with a “Y” for yes or an “N” for no), depending on which packages need to be upgraded.

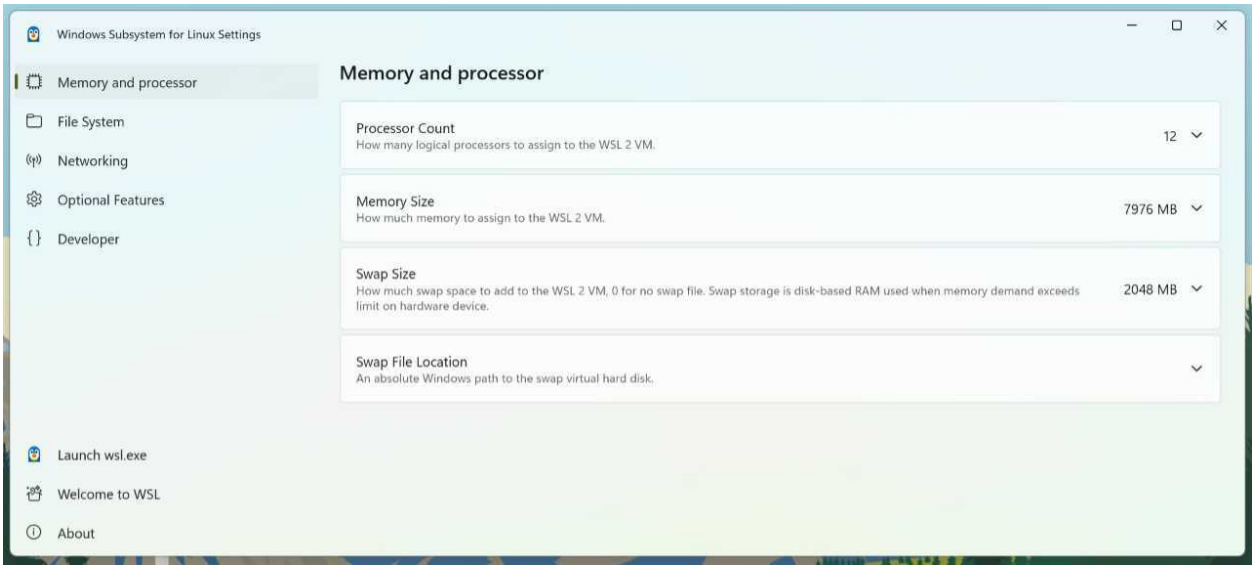
When that completes, you can make sure the distribution is completely up-to-date by running the following command again.

```
>sudo apt upgrade
```

It should say that "All packages are up to date."

Configure WSL

WSL includes a Windows Subsystem for Linux Settings app for configuring various aspects of this feature.



You can ignore this app for the most part, as WSL is configured optimally for most users, especially those who are experimenting with Linux for the first time.

Of more interest are the ways in which you can configure WSL from the command line. You do this from Terminal, not a Linux CLI, using the *wsl* command.

To see which Linux distributions are installed, open a Terminal window (not a Linux CLI) and type one of the following:

```
>wsl --list
>wsl -l
```

As you can see, the Debian and Ubuntu distributions are installed, and it notes that Debian is the default. That means that if you just run WSL from Start, a Debian CLI window will open.

If you have two or more distributions installed, you can change the default using either of the following commands:

```
>wsl --set-default Ubuntu
>wsl -s Ubuntu
```

You can also uninstall a Linux distribution from WSL using the following command (with the appropriate distribution name):

```
>wsl --unregister Debian
```

> **But wait, there's more:** WSL on Microsoft Learn

Use a Linux CLI

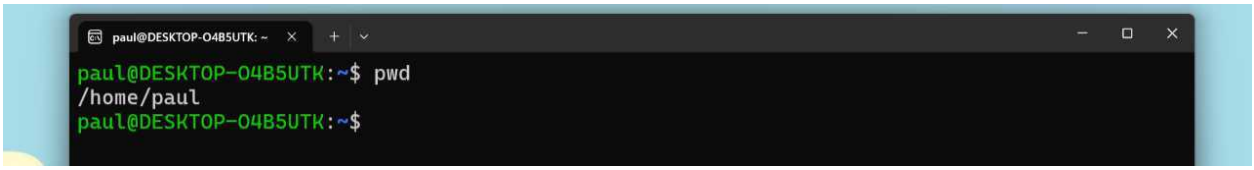
While it's not really possible to provide a complete overview of the Linux command-line shell, called *Bash*, I can at least help you get started.

> **But wait, there's more:** The Linux command line for beginners

Get the full path of the current directory

You can use the *pwd* (path working directory) command to view the full path of the current directory. This is useful because Bash, unlike Command Prompt and Windows PowerShell, typically doesn't display that information in the default prompt (though some distributions configure it otherwise).

```
>pwd
```



Basic navigation

As with other CLIs, you can quickly navigate around in Bash using specific commands. For example, the *ls* (list) command will list all the files and directories in the current directory.

```
>ls
```

> **Tip**: The Linux *ls* command works like *dir* in Command Prompt, and you can use *dir* in place of ls if that's more familiar.

The *cd* (change directory) command helps you navigate to a new location. For example, the following command will always navigate you directly to your user account's home directory:

```
>cd ~
```

And the following command will move you to the root of the file system:

```
>cd /
```

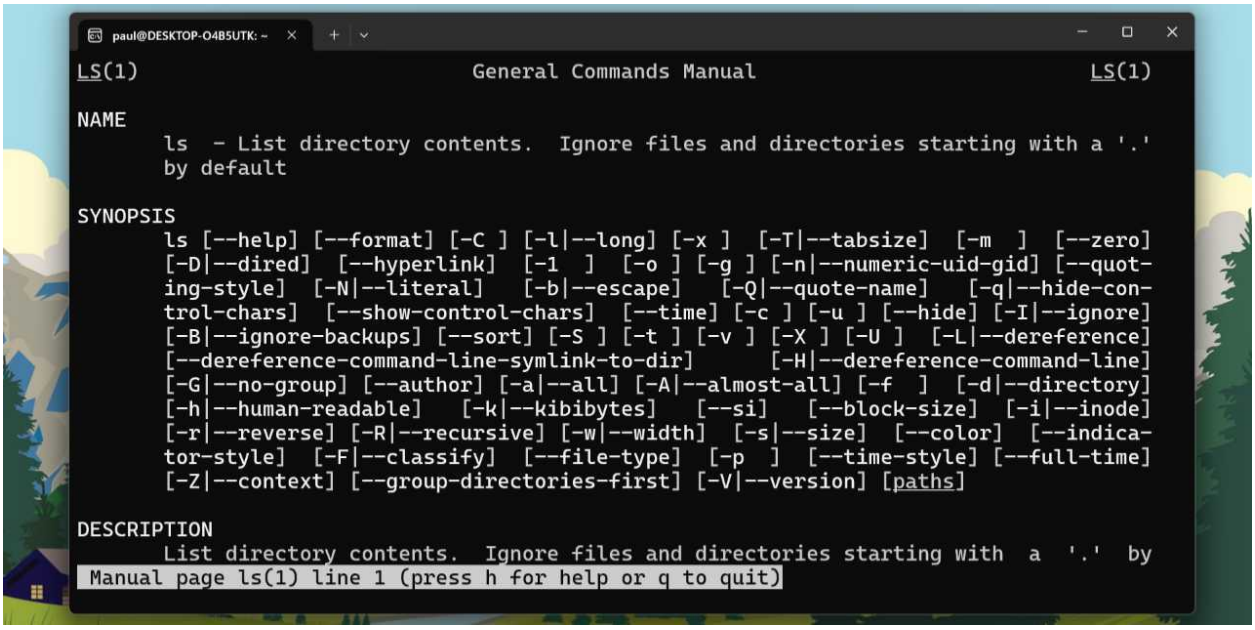
As with Command Prompt and Windows PowerShell, this command will move you up one level in the directory hierarchy.

```
>cd ..
```

Learn more about commands

Linux provides a command called *man* (for manual) that displays pages of information about any available command. For example, to learn more about the *ls* command, you could use the following:

```
>man ls
```



Run a command with administrative privileges

As noted previously in this chapter, you can prepend the *sudo* command when running another command to do so with administrator privileges. For example, if you navigate to /mnt/c to view the Windows file system and use the *ls* command to get a list of the contained files and directories, you can see that ls cannot access some system files because of a permission issue.

But if you run that same command under sudo, you will have to authenticate yourself with your UNIX username and then there are no permission complaints.

Install and use Linux graphical apps

WSL isn't just about CLIs, you can also install and use Linux graphical apps.

Before you get started, you should download the correct graphics driver for your PC, as this will let Linux apps use hardware-accelerated OpenGL rendering for better performance:

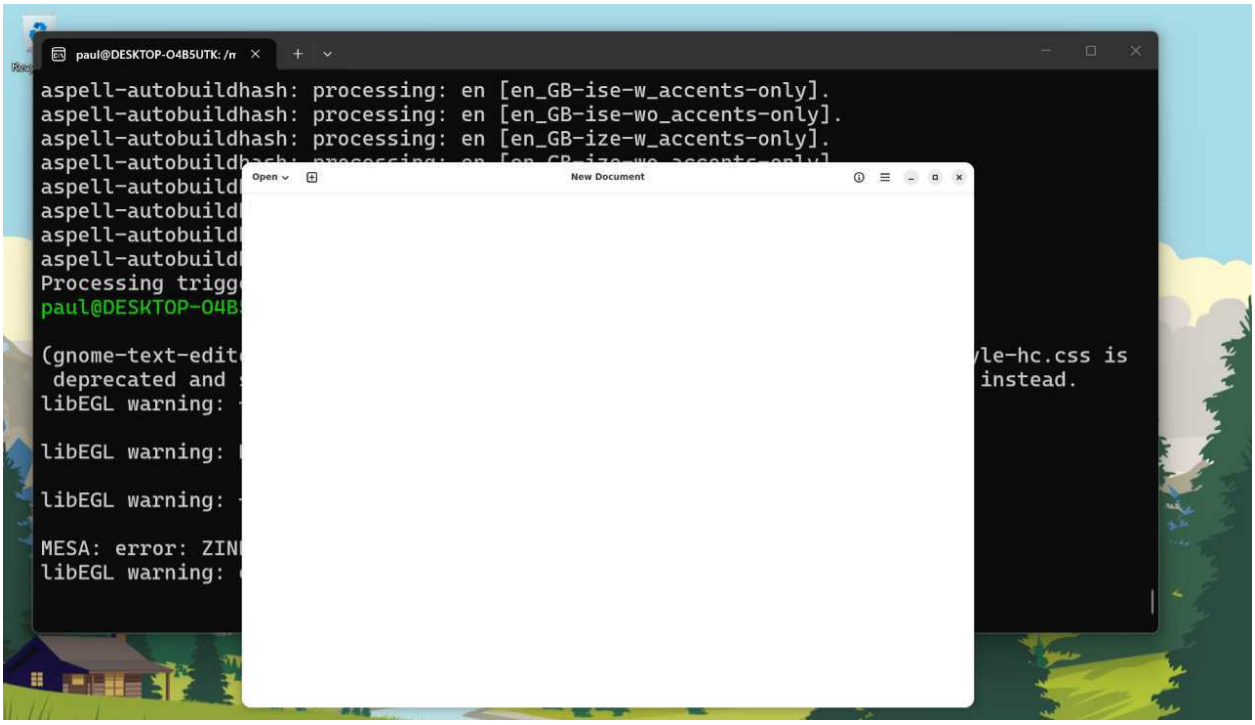
- AMD
- Intel
- NVIDIA

Next, run the Linux CLI and make sure it's up-to-date per the earlier instructions. Linux GUI apps are installed similarly to CLI apps, with the *apt* command.

Some apps you can consider installing include:

Gnome Text Editor. The default text editor in the GNOME desktop environment for Linux.

```
>sudo apt install gnome-text-editor -y
>gnome-text-editor
```

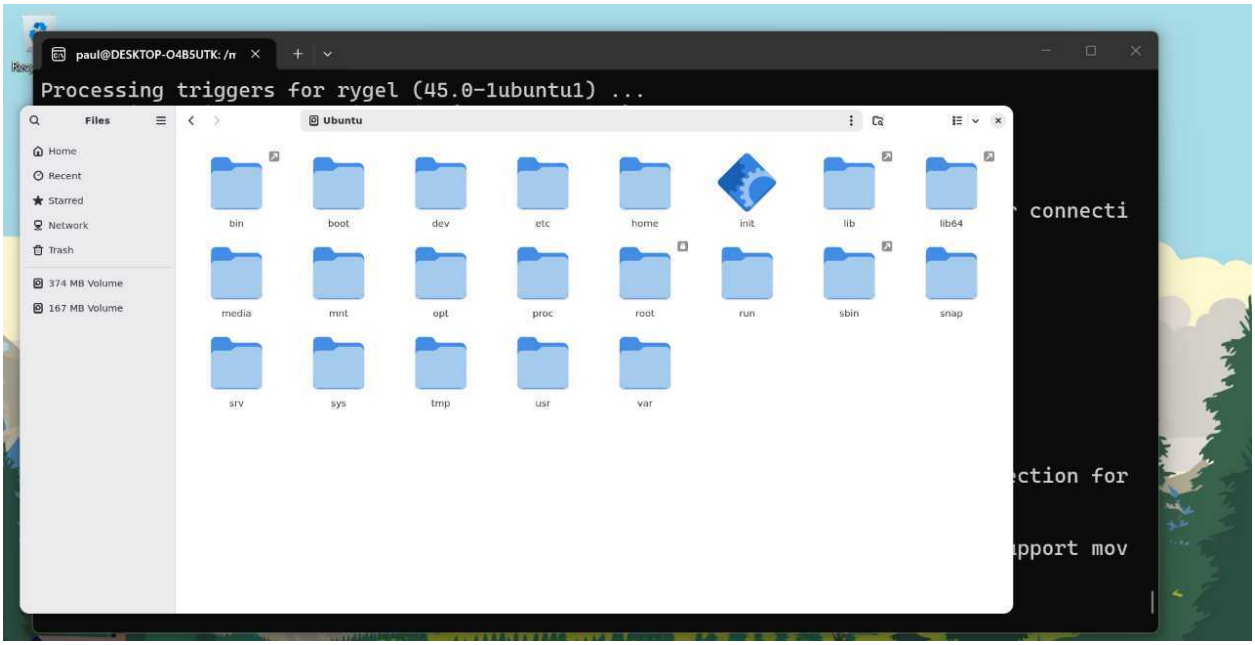


GIMP. A free and open-source image editor.

```
>sudo apt install gimp -y
>gimp
```

Nautilus. A Linux file manager application.

```
>sudo apt install nautilus -y
>nautilus
```



Learn more: Running Linux GUI apps on Microsoft Learn.

File system interoperability

Though Microsoft recommends keeping your Windows- and Linux-based files separate, you may want to move files between the two environments. So WSL offer various ways to interoperate with the Windows file system.

Here are a few key methods.

Access the Windows file system from the Linux command line

You can easily browse your Windows PC's file system from the Linux command line environment because each drive in Windows is mounted as a drive in Linux too. The C:\ drive, for example, is mounted in */mnt/c*. So you can use commands like the following to access the Windows file system.

```
>cd /mnt/c
>dir
>cd windows
>dir *.exe
```

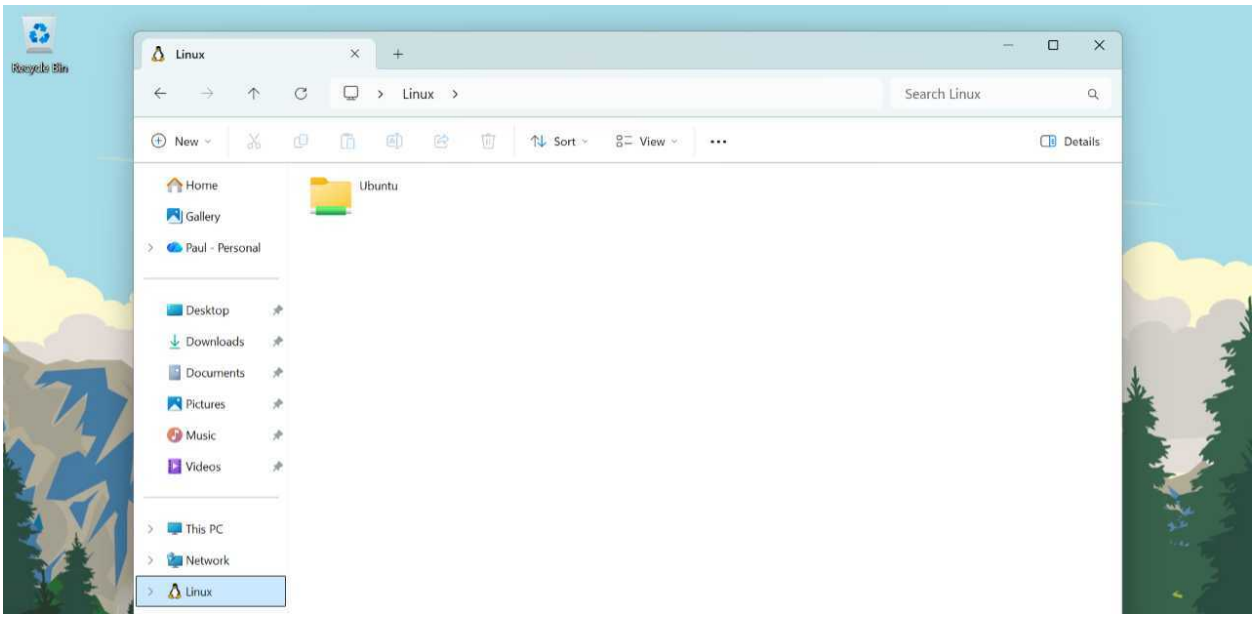
Open the current directory in File Explorer

If you are browsing through the Linux file system in WSL and would like to open the current directory in the Windows 11 File Explorer, you can do so with the following command.

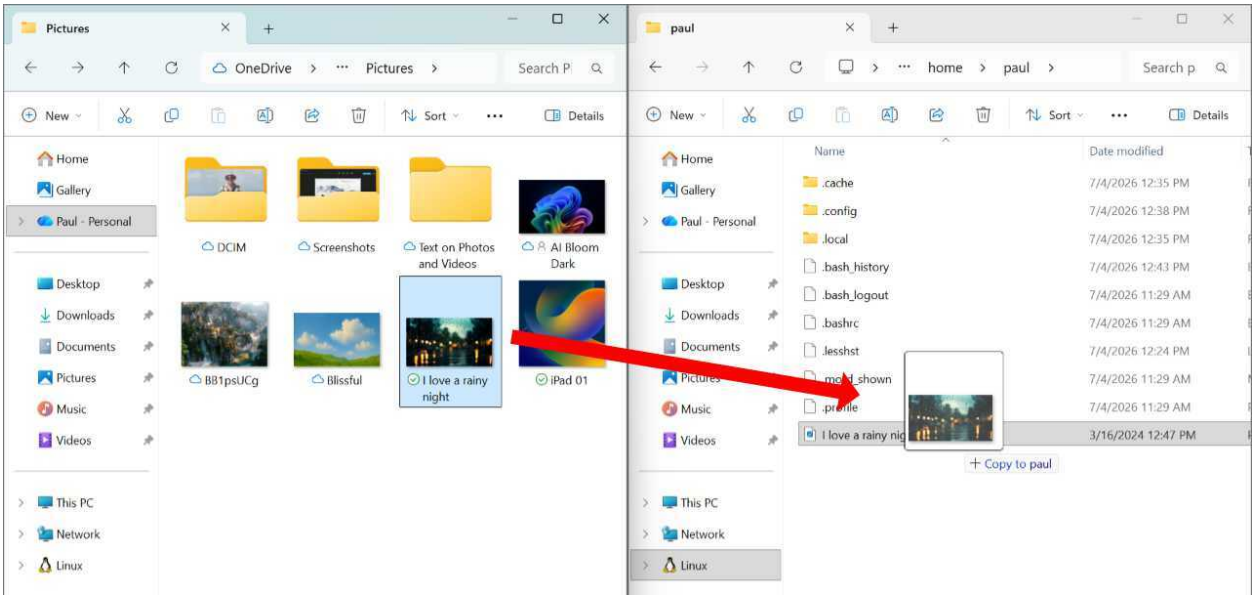
```
>explorer.exe .
```

Access the Linux file system with File Explorer

When you install WSL, Windows 11 adds a Linux entry to the bottom of the File Explorer navigation bar, below This PC and Network, so you can easily access the file system for each installed distribution. Here, for example, you can see that a single distribution, Ubuntu, has been installed.



This lets you seamlessly copy files into the Linux file system so that they can be used in that environment, and vice versa.



Windows Package Manager

The Windows Package Manager is a *package management system* designed to help you automate the installation, upgrading, configuring, and uninstalling of apps in Windows 11. The trick is that it's a CLI command. But don't let that bother you: It's easy to learn and use, and there are third-party graphical front-ends if you get stuck or want to automate app updates more seamlessly.

Get to know the Windows Package Manager

To get started, open Terminal and type the following command (followed by pressing Enter):

```
>winget
```

The output describes the app, explains which command line arguments—separated into groups of *commands* and *options*—that winget accepts, and provides a link where you can learn more.

```
PS C:\Users\paul> winget
Windows Package Manager v1.29.280
© 2026 Microsoft. All rights reserved.

The winget command line utility enables installing applications and other packages from the comman
d line.

usage: winget  [<command>] [<options>]

The following commands are available:
  install    Installs the given package
  show       Shows information about a package
  source     Manage sources of packages
  search     Find and show basic info of packages
  list       Display installed packages
  upgrade    Shows and performs available upgrades
  uninstall  Uninstalls the given package
  hash       Helper to hash installer files
  validate   Validates a manifest file
  settings   Open settings or set administrator settings
  features   Shows the status of experimental features
  export     Exports a list of the installed packages
  import     Installs all the packages in a file
  pin        Manage package pins
  configure  Configures the system into a desired state
  download   Downloads the installer from a given package
  repair     Repairs the selected package
  dscv3      DSC v3 resource commands
  mcp        MCP information
```

Understand app sources

Like other package managers, winget can be used to find apps and install them on your PC. Those apps are found in *repositories*, and there are two configured by default, both of which are maintained by Microsoft: The Windows Package Manager app repository (winget) and the Microsoft Store (msstore). To see this, use the following command line:

```
>winget source list
```

Find an app to install with the Windows Package Manager

Winget has a *search* command that you can use to find apps to install. For example, if you want to see which Adobe apps are available in the default repositories, you can use the following:

```
>winget search adobe
```

The results list includes apps that come from the Microsoft Store (msstore) and the Windows Package Manager (winget) repositories, and you can see the source for each item in the Source column at the end.

```
PS C:\Users\paul> winget search adobe
Name                        Id                          Version      Match                  Source
-----------------------------------------------------------------------------------------------------
Adobe Acrobat Reader (32-… Adobe.Acrobat.Reader.32-b… 26.001.21662 Tag: adobe             winget
Adobe Acrobat Reader (64-… Adobe.Acrobat.Reader.64-b… 26.001.21691 Tag: adobe             winget
Avocode                     Avocode.Avocode             4.15.6       Tag: adobe             winget
Adobe Express               9P94LH3Q1CP5                Unknown                             msstore
Adobe Photoshop             XPFD4T9N395QN6              Unknown                             msstore
Adobe Creative Cloud        XPDLPKWG9SW2WD              Unknown                             msstore
Adobe Acrobat Reader DC     XPDP273C0XHQH2              Unknown                             msstore
Adobe Express Photos (for… 9WZDNCRFJ27N                Unknown                             msstore
Adobe Premiere Elements 2… XPDCG0J5HFNTKX              Unknown                             msstore
Adobe Fresco                XP8C8R0ZKZR27V              Unknown                             msstore
Adobe Photoshop Elements … XP8CMTVZR7MFW2              Unknown                             msstore
Adobe Experience Manager … 9ND12RLXTGTT                Unknown                             msstore
Adobe Acrobat Pro           Adobe.Acrobat.Pro           26.001.21662                        winget
Adobe Acrobat 2020          Adobe.Acrobat.Pro.2020      20.001.30002                        winget
Adobe Connect               Adobe.AdobeConnect          21.11.22                            winget
Brackets                    Adobe.Brackets              1.14.17770                          winget
Adobe Connect               Adobe.Connect               2026.3.125                          winget
Adobe Connect application… Adobe.Connect.MSI           26.3.125                            winget
Adobe Creative Cloud        Adobe.CreativeCloud         6.10.0.252.3                        winget
Cryptr                      Adobe.Cryptr                0.6.0                               winget
Adobe DNG Converter         Adobe.DNGConverter          18.4                                winget
Workfront Proof             Adobe.WorkfrontProof        2.1.55                              winget
Adobe AIR                   HARMAN.AdobeAIR             51.3.3.1                            winget
FileOpen Client             FileOpenSystems.FileOpenC… 1.0.142.1016 Tag: adobereader       winget
ProRes RAW for Windows      Apple.ProResRAWforWindows   1.3          Tag: adobeaftereffects winget
PS C:\Users\paul>
```

To install an app, you will use a command like the following:

```
>winget install [Name or Id]
```

For example, to install Adobe Photoshop Elements 2026 from the Microsoft Store, you could use one of the following command lines:

```
>winget install "Adobe Premiere Elements 2026"
>winget install XP8CMTVZR7MFW2
```

Keep your apps up-to-date with the Windows Package Manager

Winget has an *upgrade* command that can be used to discover which installed apps need to be updated, upgrade individual apps, and upgrade all the apps with pending updates.

In its most basic usage, this command will tell you which apps need to be updated:

```
>winget upgrade
```

```
PS C:\Users\paul> winget upgrade
Name                          Id                            Version             Available           Source
---------------------------------------------------------------------------------------------------------
Google Chrome                 Google.Chrome.EXE             149.0.7827.201      150.0.7871.47       winget
Microsoft Teams               Microsoft.Teams               25007.607.3371.8436 26149.1205.4798.6437 winget
Microsoft Teams               Microsoft.Teams.Free          23119.303.2080.2726 26149.701.4759.8860  winget
Microsoft Visual C++ 2015-… Microsoft.VCRedist.2015+.x… 14.44.35211.0       14.51.36247.0       winget
Microsoft Visual C++ 2015-… Microsoft.VCRedist.2015+.x… 14.44.35211.0       14.51.36247.0       winget
5 upgrades available.
PS C:\Users\paul>
```

To update an individual app, you can use a command line like the following:

```
>winget upgrade [Name or Id]
```

For example, I can upgrade the application Google Chrome like so:

```
>winget upgrade Google.Chrome.EXE
```

And if you run the *winget upgrade* command again, you will see that there is now one fewer app to update and that the app you updated is no longer in the list.

Of course, many times you will simply want to update every app that needs updating. To do so, use the following:

```
>winget upgrade --all
```

But it's better to include the *–include-unknown* option because that will ensure that *all* apps, including those that do not report version information, are updated. (These versionless updates are ignored by *winget upgrade* because winget can't be sure that the version in the repository is newer than the one on your PC.)

```
>winget upgrade --all --include-unknown
```

```
PS C:\Users\paul> winget upgrade --all --silent --include-unknown
Name                          Id                          Version             Available           Source
---------------------------------------------------------------------------------------------------------
Google Chrome                 Google.Chrome.EXE           149.0.7827.201      150.0.7871.47       winget
Microsoft Teams               Microsoft.Teams             25007.607.3371.8436 26149.1205.4798.6437 winget
Microsoft Teams               Microsoft.Teams.Free        23119.303.2080.2726 26149.701.4759.8860  winget
Microsoft Visual C++ 2015-… Microsoft.VCRedist.2015+.x… 14.44.35211.0       14.51.36247.0       winget
Microsoft Visual C++ 2015-… Microsoft.VCRedist.2015+.x… 14.44.35211.0       14.51.36247.0       winget
5 upgrades available.

(1/5) Found Google Chrome (EXE) [Google.Chrome.EXE] Version 150.0.7871.47
This application is licensed to you by its owner.
Microsoft is not responsible for, nor does it grant any licenses to, third-party packages.
Downloading https://dl.google.com/release2/chrome/hlaraixpx7sigrxa2p4aeezhai_150.0.7871.47/150.0.7871.47
_chrome_installer_uncompressed.exe
  ▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒  466 MB /  466 MB
Successfully verified installer hash
Starting package install...
Successfully installed

(2/5) Found Microsoft Visual C++ v14 Redistributable (x86) [Microsoft.VCRedist.2015+.x86] Version 14.51.
36247.0
This application is licensed to you by its owner.
Microsoft is not responsible for, nor does it grant any licenses to, third-party packages.
Downloading https://download.visualstudio.microsoft.com/download/pr/57eef8ae-a341-46c3-b0bc-c041027b54cd
/F0BAB33A302B3CDB2E11113760D016F54FD3D2632C65BA7834FAC4F0ABD7F1A3/VC_redist.x86.exe
  -
```

Depending on how many apps you have to update, this could take a while, and you may need to step through some interactive app setup routines. To avoid that, you can use the *–silent* option like so:

```
>winget upgrade --all --silent --include-unknown
```

> **Tip**: Because so many app installs and upgrades require administrator privileges, you can further simplify this process by running Terminal with administrator privileges before using winget.

Most apps will eventually update automatically on their own or will prompt you interactively. Microsoft Store apps are managed by Microsoft, for example, and are kept up-to-date. And many web-based apps found in the Windows Package Manager repository have their own mechanisms for keeping up-to-date. Regardless, it's not a bad idea to check in with *winget upgrade* from time to time so you can catch any stragglers.

Bulk-install apps with the Windows Package Manager

When you use Reset This PC or buy a new PC and sign in to Windows 11 for the first time, you have several configuration tasks to complete. Among those tasks is installing the apps you need so that you can be productive. You can do so manually, of course, by browsing the Microsoft Store or searching the web. Or, you can automate this task using the Windows Package Manager.

The key to doing so is to string multiple commands, in this case specific *winget install* commands, together, each separated by a semicolon (;). This lets you install multiple apps at once using a single CLI command.

As an example, let's say you want to install three web browsers: Brave, Helium, and Mozilla Firefox. In each case, you can use *winget search [name]* to find the exact name or Id of each app. Then, you can create a new text document with Notepad and list each name/Id in turn. Like so:

```
Brave.Brave
ImputNet.Helium
Mozilla.Firefox
```

Then, you can build the individual commands around each:

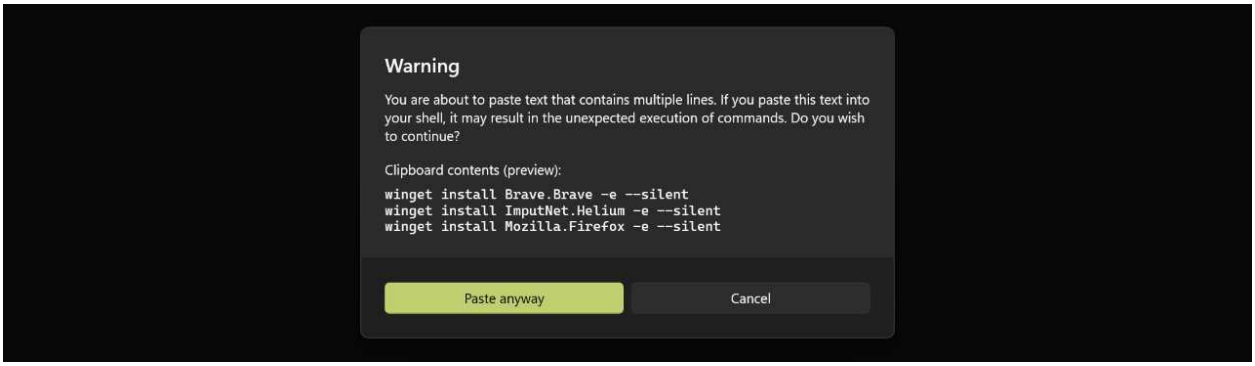
```
winget install Brave.Brave -e --silent;
winget install ImputNet.Helium -e --silent;
winget install Mozilla.Firefox -e --silent;
```

> **Tip**: The *-e* option ensures that winget installs the exact app noted by the Id.

I don't find this to be as readable, but you can also string each line in the file into a single line if desired.

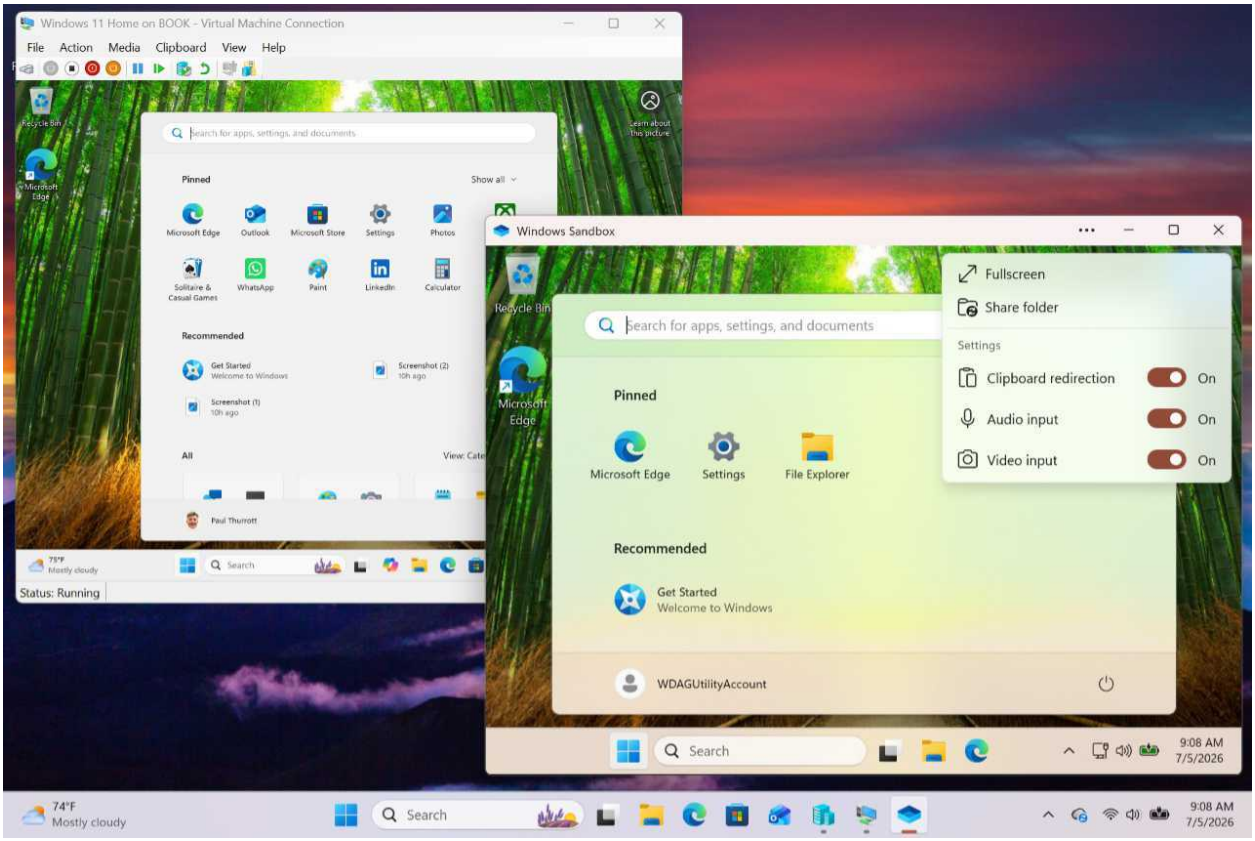
```
winget install Brave.Brave -e --silent; winget install ImputNet.Helium -e --silent; \
winget install Mozilla.Firefox -e --silent;
```

Then, copy of the contents of the file into the Clipboard, open a Terminal window with administrator privileges, and paste the text into the CLI and tap Enter. After you OK a warning dialog, the Windows Package Manager will install each app in turn without requiring any intervention on your part.



Virtualization

Windows 11 includes integrated *virtualization* technologies that allow it to run other instances of operating systems in emulation. This is the underlying technology behind the Windows Subsystem for Linux (WSL) and the two optional Windows 11 features described in this chapter, Windows Sandbox and Hyper-V Client.



Just as many Windows 11 security features require a PC with a Trusted Platform Module (TPM) 2.0 chipset, Windows 11 virtualization capabilities require specific CPU-based hardware virtualization support. This capability is available in all modern PCs, but it has to be enabled in your PC's UEFI firmware (formerly called the BIOS), and accessing the firmware varies from PC to PC.

> **But wait, there's more:** Microsoft Learn

With that support enabled, you can optionally install and use features like WSL, Sandbox, and Hyper-V Client. Each is built on the same core architecture, which provides chipset-level hardware acceleration to host virtual environments that run *virtual machines* (VMs) that act as software-based PCs.

More artificially, Windows Sandbox and Hyper-V Client both require Windows 11 Pro, while WSL also works with Windows 11 Home.

Windows Sandbox

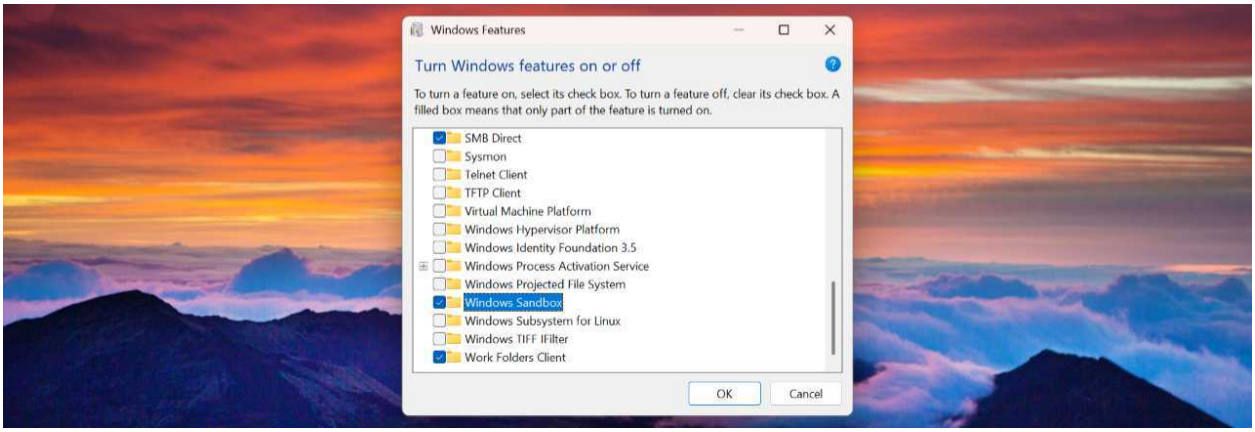
Windows Sandbox is an optional Windows 11 Pro feature that lets you run untrusted software in an isolated, temporary Windows 11 Desktop environment without impacting the host PC. Because of this focus, it's more lightweight than Hyper-V, can only run the same Windows 11 version as the PC on which it runs, and provides just a few of the apps found in a typical Windows 11 installation.

The important thing to understand about Windows Sandbox is that the Windows 11 environment it provides is temporary: Every time you start Windows Sandbox, you get a pristine, new Windows 11 environment. Nothing persists from session to session as on a real PC or with a Hyper-V virtual machine (VM). Windows Sandbox also doesn't need an ISO image or a virtual hard disk (VHD). Everything it needs is already there in Windows 11.

> **Tip**: Apps and data added to Windows Sandbox will persist if you reboot the virtual version of Windows 11 it contains. But they will all be erased when you close Windows Sandbox.

Install Windows Sandbox

To install Windows Sandbox, search for *features* using Windows Search and select "Turn Windows features on or off" in the results list that appears. The "Windows Features" control panel will open.



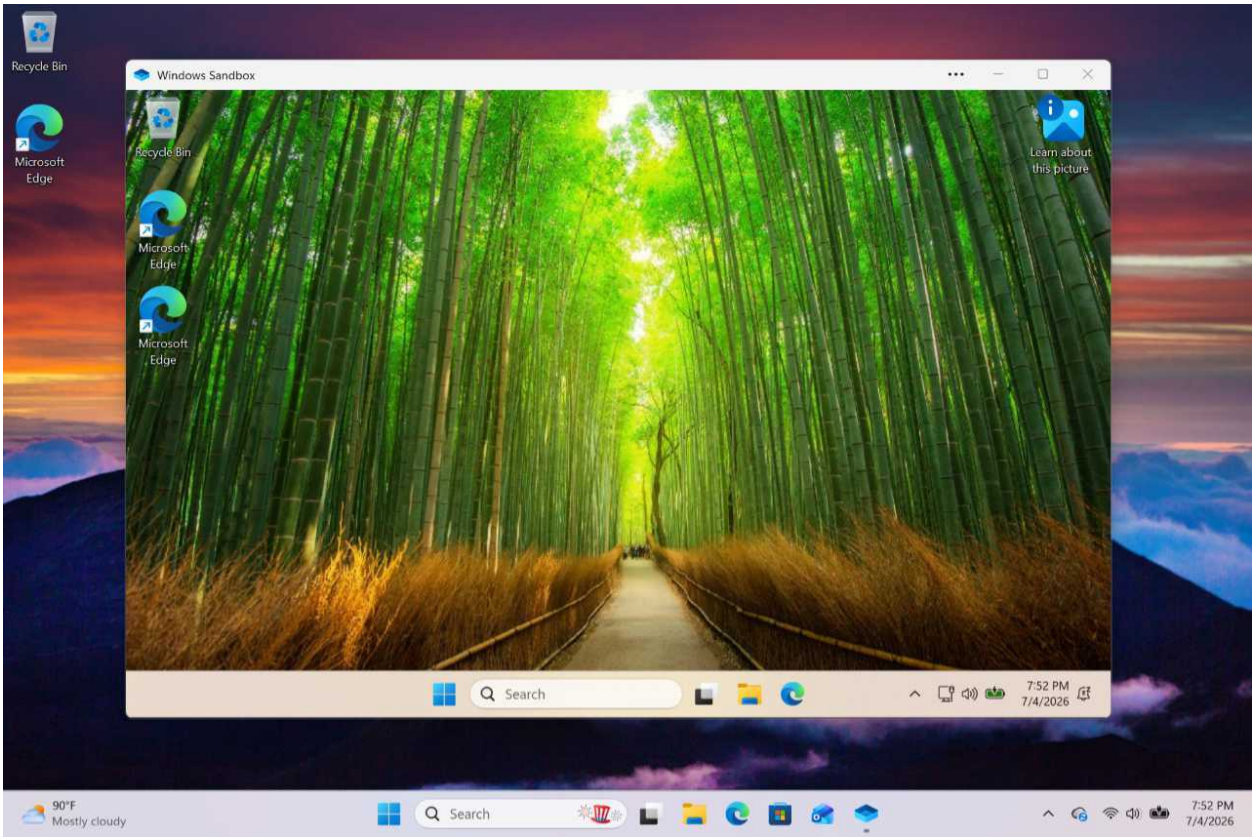
Scroll down to find the entry for Windows Sandbox. Select it and then click OK. The feature will be installed and then you will be prompted to restart the PC. Do so.

> **Tip**: If you later choose to uninstall Windows Sandbox, you can do so via the Windows Features control panel. Just uncheck "Windows Sandbox" in the list, click OK, and restart your PC when prompted.

Defaults

Windows Sandbox isn't automatically added to the Recent section in Start after it's installed, but you can find it easily enough with Windows Search. When you first run the app, it may need to download and install an update, but after that it should appear quickly.

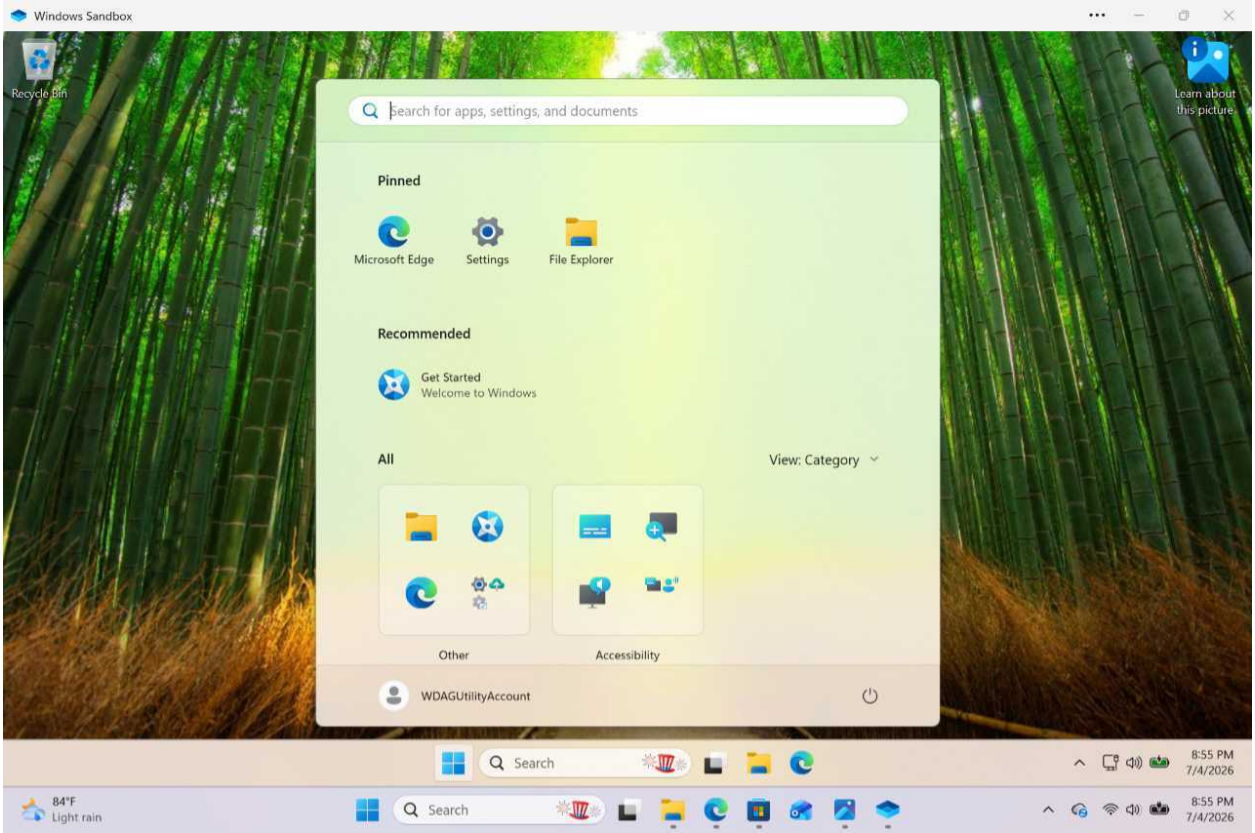
In use, Windows Sandbox couldn't be simpler: It provides a virtualized version of your Windows 11 Pro installation, but stripped down to just a basic set of apps–Microsoft Edge, Settings, File Explorer, and a few others–and presented in a resizable, automatically-scaled Remote Desktop Connection (RDC) window.



Additional options are available in the menu that appears when you click the "More" ("...") button in the Windows Sandbox title bar, to the left of the normal window buttons.

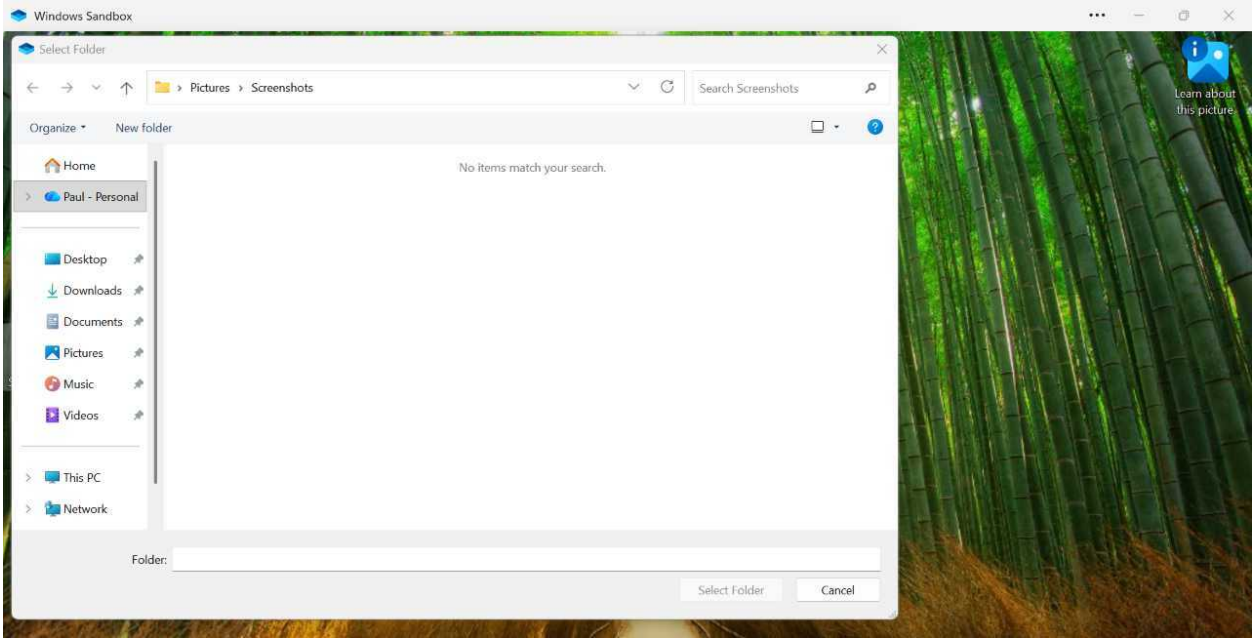
From here, you can:

Resize the window. You can arbitrarily resize the Windows Sandbox window or maximize it, and the virtual Windows 11 environment it displays will rescale accordingly.



Go full screen. Using the "Fullscreen" option in the "More" menu, you can display the virtual environment using the entire display and interact with it as if it's a real PC. A connection bar is pinned to the top of the screen by default with "Unpin"/"Pin," "Restore," and "Close" buttons. The "More" menu is unavailable when Windows Sandbox displays full-screen.

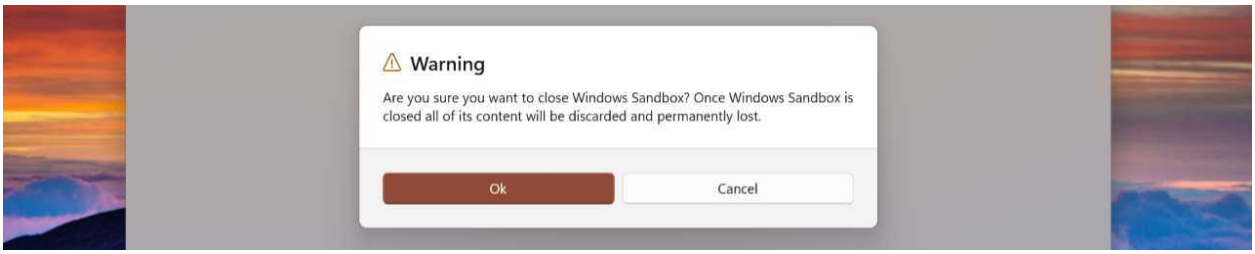
Configure a shared folder. Using the "Share folder" item in the "More" menu, you can use a "Select folder" window to share a folder on the host (physical) PC with the virtual environment in Windows Sandbox. When you do so, a shortcut to the folder appears on the Desktop in the virtual environment so you can copy files between it and the host PC.



A: **Tip**: You can create multiple shared folders this way, you're not just limited to one.

Configure settings. By default, the virtual environment in Windows Sandbox shares a Clipboard, audio input, and Video input with the host PC. But you can toggle each of these features in the "More" menu if desired.

Close Windows Sandbox. You can close Windows Sandbox by clicking the app's "Close" window button as you do with other apps and windows. When you do so, Windows Sandbox will prompt you to remind you that everything you have changed–installed apps, created or copied files, and whatever else–will be lost permanently.

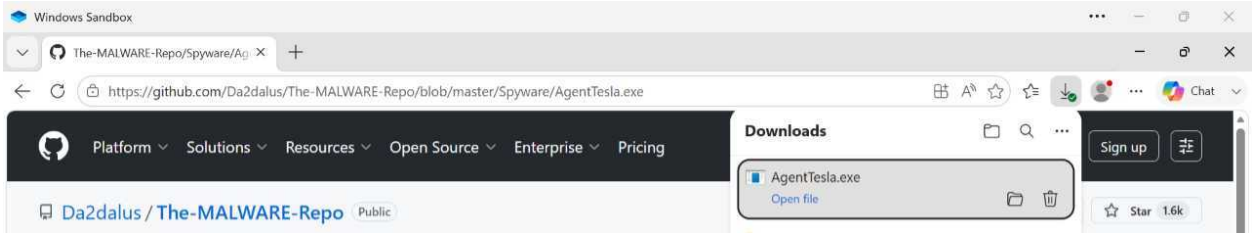


Test suspicious software in Windows Sandbox

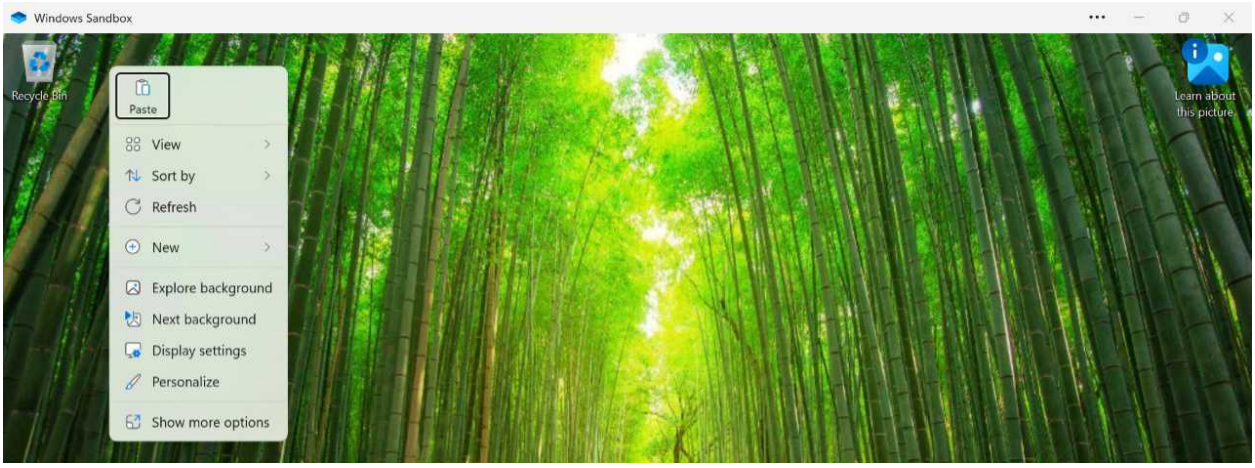
Windows Sandbox exists solely so you can test potentially dangerous apps or files in a virtual environment without risking the security of a real PC. It provides two general ways to do so:

- **Microsoft Edge**. You can use the Microsoft Edge web browser in Windows Sandbox to download the software in question and then install or otherwise test it from there. This is a

useful technique if Edge blocked a suspicious download on the host PC and you want to test it virtually before proceeding.



Host integration. You can use the Clipboard or shared folder capabilities noted above to copy a file or folder in the host OS to the virtual environment in Windows Sandbox. The shared Clipboard functionality is usually quicker: Just right-click the file or folder in the host OS, select "Copy" from the context menu that appears, then display the Desktop or a folder in the virtual environment in Windows Sandbox, right-click, and select "Paste."



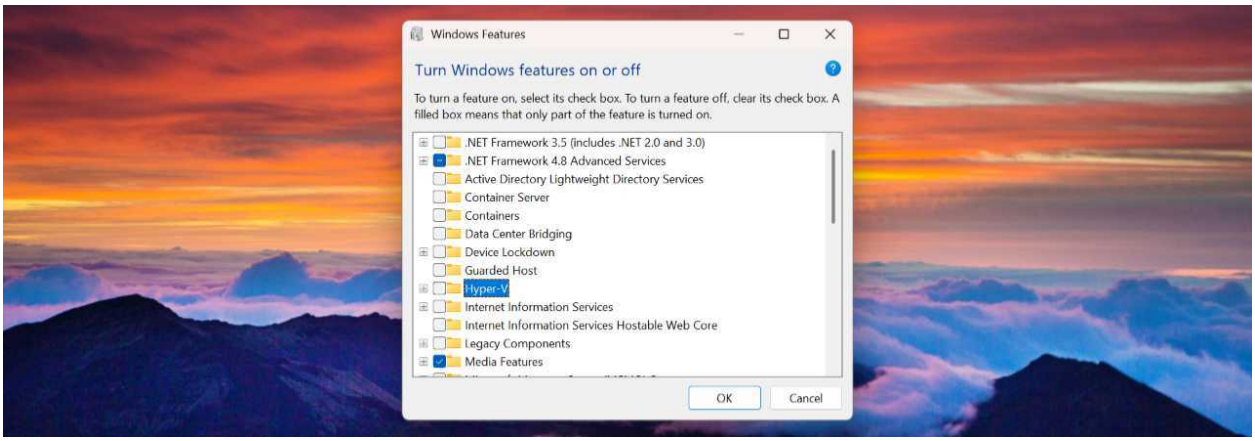
Hyper-V Client

Windows 11 Pro includes an optional feature called Hyper-V Client–often referred to simply as Hyper-V–that lets you run Windows 11 and other operating systems in virtual machines (VMs). This technology is useful for various reasons. For example, developers can use Hyper-V to test their applications and other software in other versions of Windows or in other operating systems.

> **Tip**: Hyper-V can be resource-intensive. If you will be using this feature regularly, be sure that your PC is a relatively high-end model with a fast processor, fast SSD storage, and as much RAM as you can afford.

Install Hyper-V

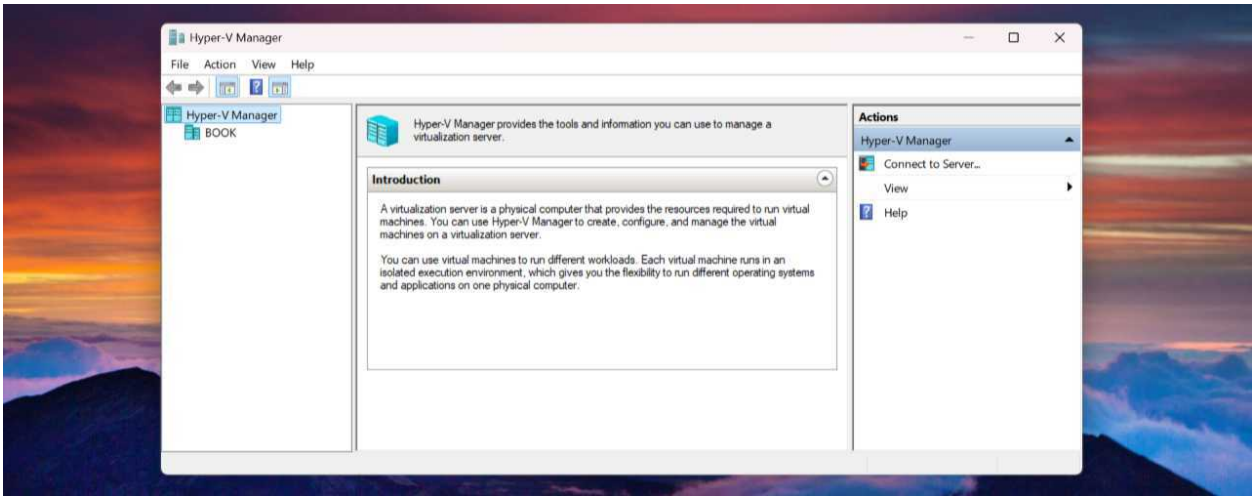
To install Hyper-V, search for *features* using Windows Search and select "Turn Windows features on or off" in the results list that appears. The "Windows Features" control panel will open.



Scroll down to find the entry for Hyper-V. Select it and then click OK. The feature will be installed and then you will be prompted to restart the PC. Do so.

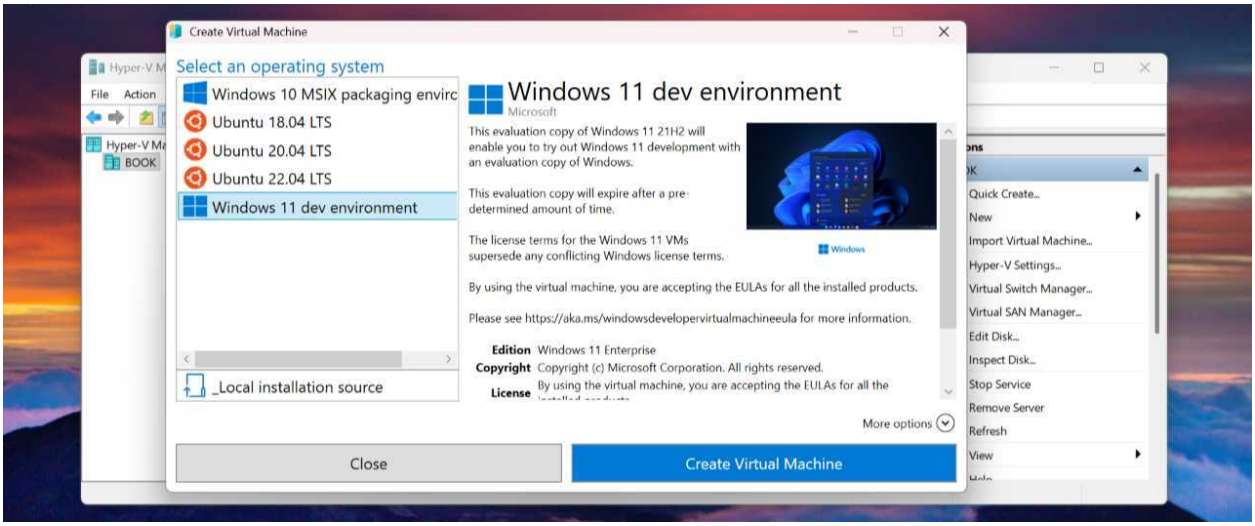
> **Tip:** If you later choose to uninstall Hyper-V, you can do so via the Windows Features control panel. Just uncheck "Hyper-V" in the list, click OK, and restart your PC when prompted.

You use the Hyper-V Manager application to manage Hyper-V and its virtual machines (VMs), virtual hard disks (VHDs), and virtual floppy disks (VFDs). You can find Hyper-V Manager with Windows Search.



Create and use a virtual machine

Hyper-V Manager lets you create VMs using a "Quick Create" wizard that automates downloading the ISO (identical storage image of optical media) file for different versions of Windows and Ubuntu Linux installation media and then installing the system using a default configuration.



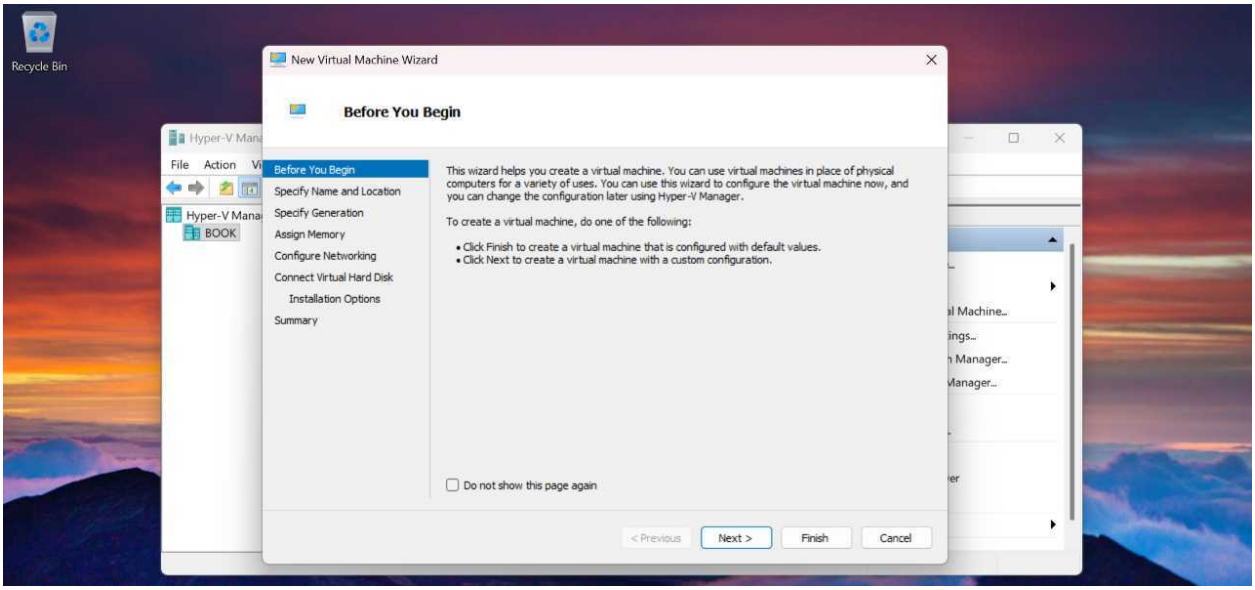
Or you can use a more manual approach in which you download the ISO(s) you need yourself and then configure the VMs to your liking. I strongly prefer the latter approach and document that here.

Create a new virtual machine manually

To install a supported OS in a Hyper-V VM, you need to first download the correct ISO file–Windows 11, Ubuntu Linux, or any other Linux distribution–to your PC.

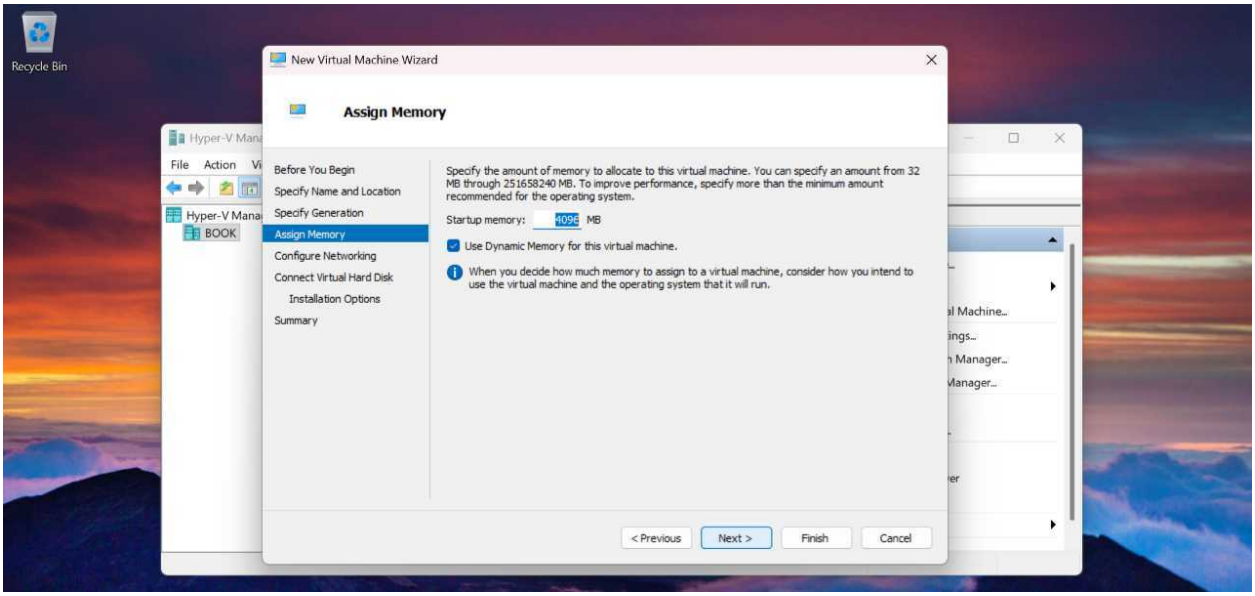
> **Tip**: If you are using a traditional Intel- or AMD-based PC, you can only use x86/x64 ISOs. If you are using a modern Windows 11 on Arm-based PC, you can only use an Arm64 ISO.

Then, open Hyper-V Manager and select Action > New > Virtual Machine. The "New Virtual Machine Wizard" window opens.



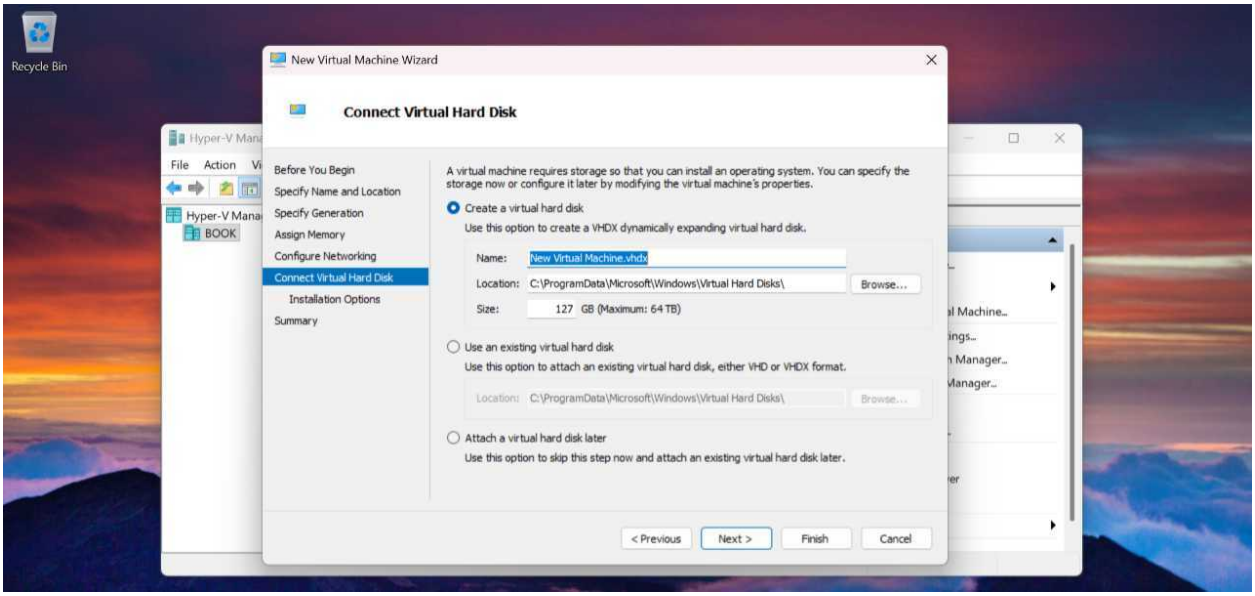
From here, you will click "Next" and work through the following steps (here, for a Windows 11 VM).

- **Specify Name and Location**. In this step, you name the VM ("Windows 11 Home" or similar) and, optionally, choose to store it in a different location than the default.
- **Specify Generation**. "Next." In the Specify Generation step that appears, you will choose between a Generation 1 and Generation 2 VM. As the names suggest, Generation 2 is more modern and supports UEFI-based firmware instead of a legacy BIOS, so this is almost certainly the right choice.
- **Assign Memory**. In this step, you will configure the amount of memory that will be allocated to this VM. What you choose here will depend on various factors including how much RAM your PC has, which operating system you are installing in the VM, and how you intend to use the VM. But you can always change the memory allotment later.

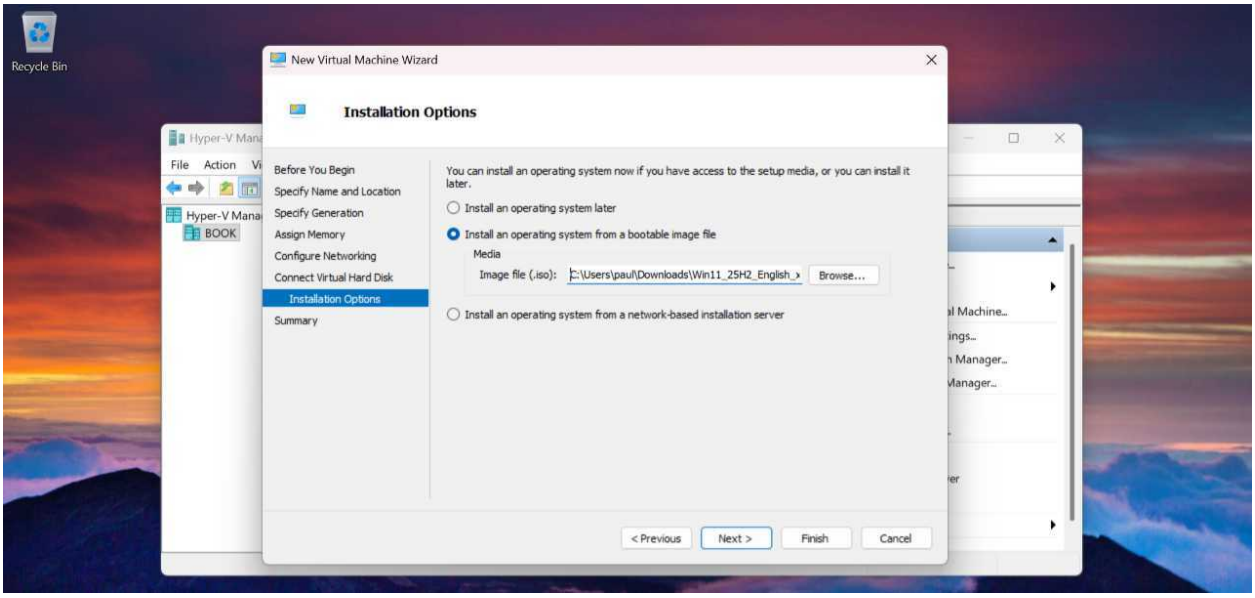


Tip: Leave the option "Use Dynamic Memory for this virtual machine" enabled.

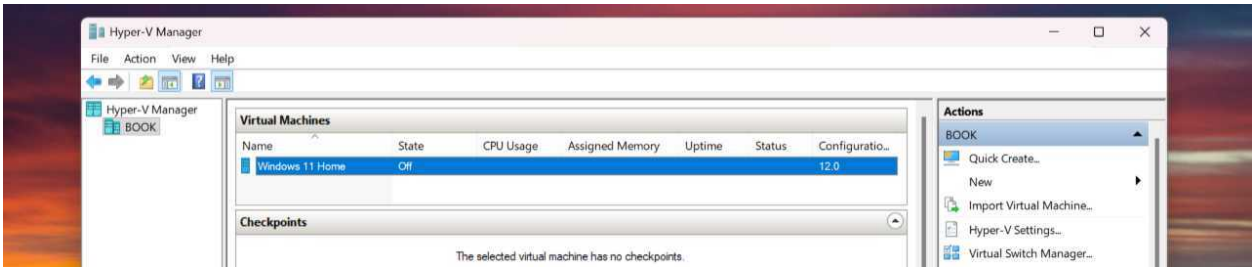
- **Configure Networking**. Here, you can–and should–configure a network connection. If your PC has only one network connection, you can use "Default Switch," which means that the VM will share the same network connection as the host Windows 11 system.
- **Connect Virtual Hard Disk**. In this step, you determine which VHD to use with the VM. By default, Hyper-V will create a new VHD with the same name as the VM, and that is what you want most of the time. But you can use an existing VHD or choose to attach a VHD later too.



- **Installation Options**. Here, you choose to install an operating system now or later. Typically, you will choose "Install an operating system from a bootable image file" and then select the ISO file you downloaded.

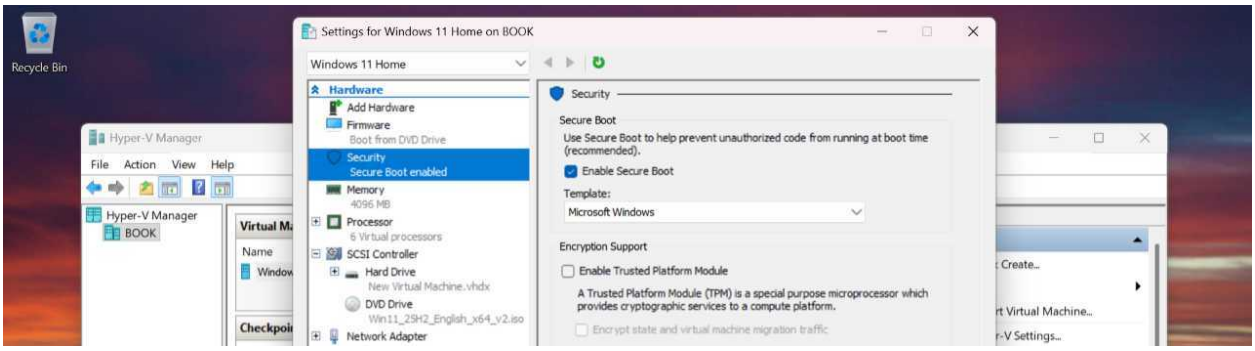


Complete the New Virtual Machine Wizard. In this final step, the "New Virtual Machine Wizard" provides a review of the settings you configured so you can check them one last time. Click "Finish" and Hyper-V will create the new virtual machine, and it will appear in the list of virtual machines in Hyper-V Manager.



Make specific configuration changes for Windows 11 or Ubuntu Linux

If you are installing Windows 11 or Ubuntu Linux in the VM, you have one more step: Right-click the VM in the list and choose "Settings" from the context menu that appears to open the VM's settings. Then, navigate to the Security page.



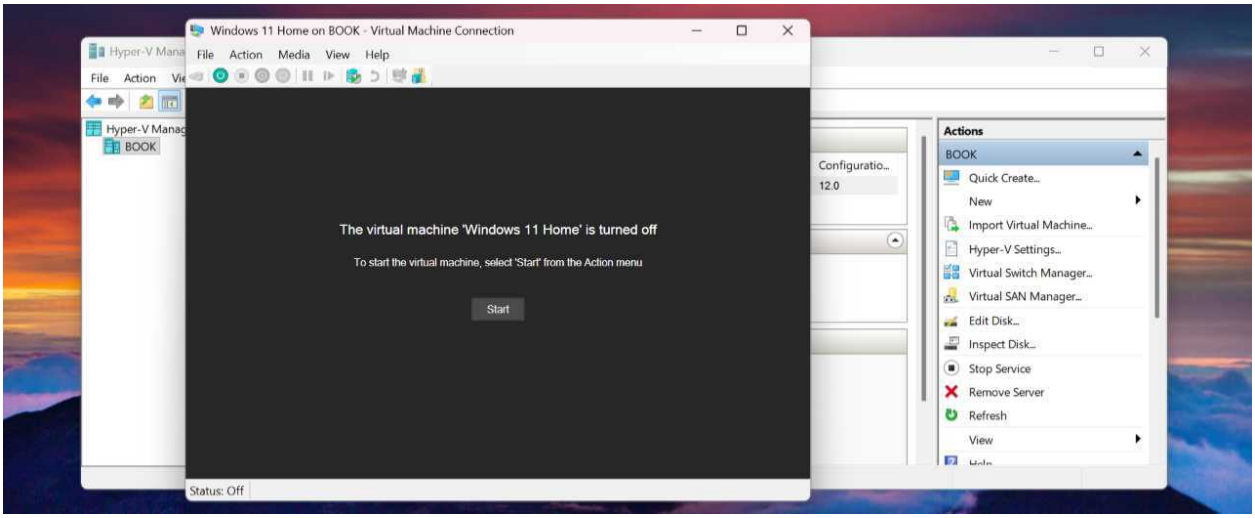
If you are installing Windows 11, check the option "Enable Trusted Platform Module." This allows the VM to meet Windows 11's hardware requirements. Otherwise, you will see an error when Windows Setup begins and won't be able to continue.

If you are installing Ubuntu Linux, change the option "Template" to "Microsoft UEFI Certificate Authority." Otherwise, the VM will not boot using the Ubuntu setup ISO.

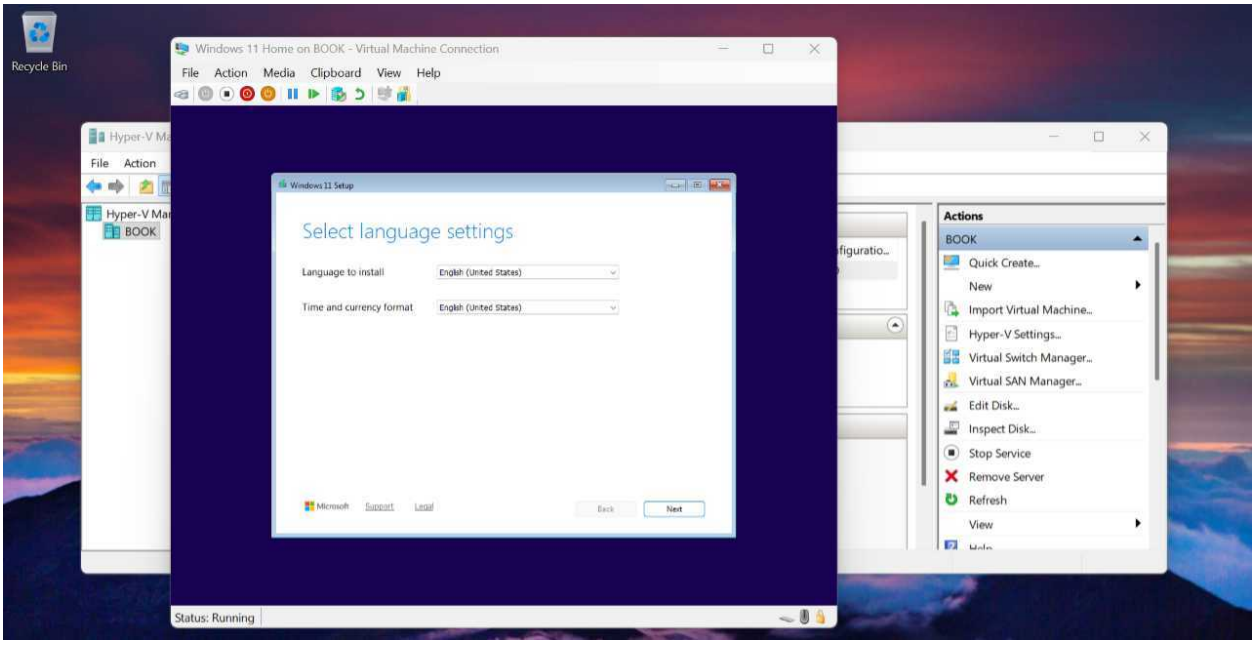
Either way, click "OK" when you're done.

Install and configure Windows 11 or Linux

To install Windows 11 or Linux in a newly created VM, double-click the VM in the virtual machines list in Hyper-V Manager. A "Virtual Machine Connection" window appears.



Click "Start" to power on the VM. From here, the VM mimics the behavior of a real PC, but in a window, in software. You can follow on-screen prompts to install the OS you chose.



Once the OS is fully installed and running properly in the VM, there are a few options to consider.

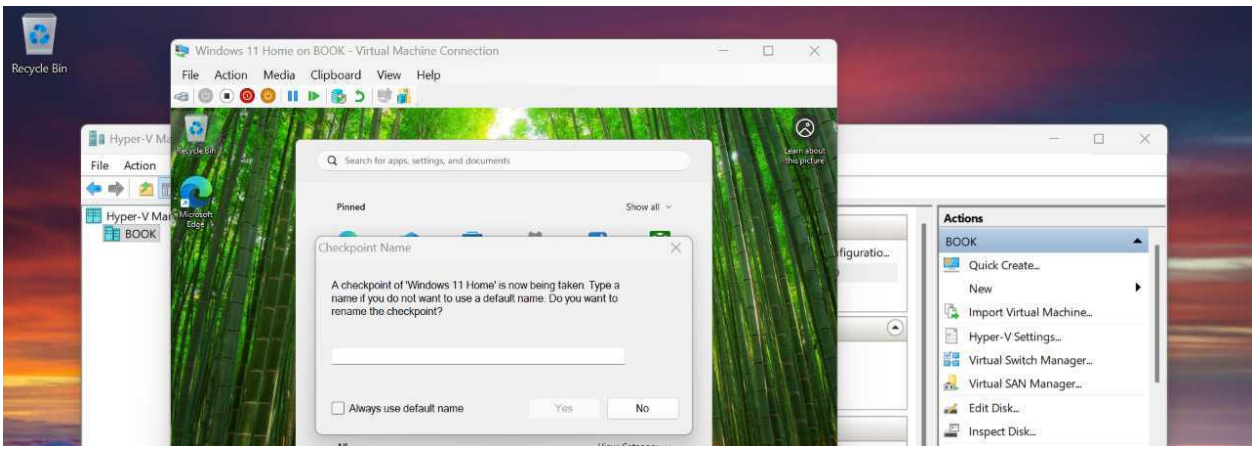
- **Remove the ISO**. Once the operating system is installed, you can detach the ISO file from the VM. To do so, display the Virtual Machine Connection window and choose Media > DVD Drive > Eject [name of ISO].iso.
- **Copy text into the VM using the Clipboard**. The Virtual Machine Connection window lets you paste text from the Clipboard of the host PC into the VM. This can be handy for many reasons, for example when you want to paste a Windows product key into an activation window. To do so, select Clipboard > Type clipboard text.

- **Capture a screenshot of the VM**. You can capture a screenshot of the VM by selecting Clipboard > Capture screen. This is particularly handy for offline interfaces like Windows Setup or the Lock screen where you can't normally take a screenshot.
- **Change the zoom level**. By default, the Virtual Machine Connection windows will automatically scale the VM it contains, but you can specify a zoom level if you want or even display the VM full screen. Both options are in the View menu.
- **Understand how Ctrl + Alt + Del works**. Windows 11 uses the Ctrl + Alt + Del keyboard shortcut to display a special security screen with five options: Lock, Switch user, Sign out, Task Manager, and Cancel. But because this keyboard shortcut has to always work, it's not possible to access this screen in a Windows-based VM using the normal shortcut because it always impacts the host operating system instead. But you can still use Ctrl + Alt + Del with a VM in Hyper-V: just type Ctrl + Alt + End instead. Or, choose Action > Ctrl + Alt + Del in the VM window's menu.

Use checkpoints to save a VM's state

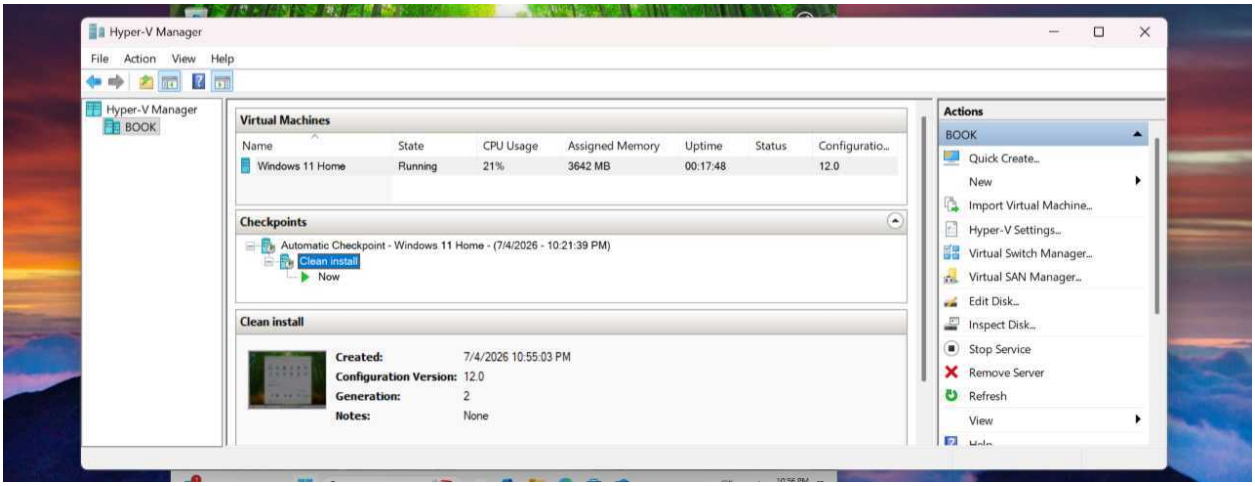
Thanks to Hyper-V's *checkpoint* feature, you can save the state of a VM at any time and then return the VM to that state later. This is handy if you're about to make a major change to a VM and want a way to go back in time and reverse that change.

To create a checkpoint, select Action > Checkpoint in the "Virtual Machine Connection" while the VM is running.



> **Tip**: You can also create a checkpoint from Hyper-V Manager: Right-click the VM and select "Checkpoint." Each checkpoint for a VM appears in the Checkpoints area in Hyper-V Manager

Later, you can return to any saved checkpoint and return the VM to the state it was in at that time. To do so, select the VM in Hyper-V Manager and view the available checkpoints in the "Checkpoints" section below "Virtual Machines."



You will be prompted to apply the selected checkpoint. (And Hyper-V will offer to create a new checkpoint so you can get back to the present, so to speak, if the change doesn't work out.)

Configure a VM's settings

Each VM has its own custom settings, some of which you configured when you first created it. But you can customize these settings at any time if needed.

> **Tip**: Well, not at *any* time: Many VM settings can only be configured when the VM is not running. So make sure to shut down the VM first.

To access the settings for a VM, right-click it in Hyper-V Manager and choose "Settings." The VM Settings window appears.

Some key settings to consider include:

- **Boot order**. As with firmware settings on a real PC, you can configure the order in which boot devices are checked to start up the operating system. This happens in Settings > Hardware > Firmware.
- **Security**. You can determine whether Secure Boot and Trusted Platform Module (TPM) are supported in Settings > Hardware > Security.
- **RAM**. To change how much RAM is allocated to the VM, visit Settings > Hardware > Memory. If you enabled dynamic memory, which you should, you can also specify the minimum and maximum amounts of RAM the VM can use.
- **Storage**. Every VM gets a single virtual hard drive (VHD), but you can add more–or add a DVD drive (which can be an ISO file) or shared drive–in Settings > Hardware > SCSI Controller.

- **Automatically start the VM when the PC starts**. By default, Hyper-V VMs won't run until you tell them to. But if you are going to use a VM all the time for whatever reason and want it to start up automatically when you sign in to Windows, you can configure it to do so in Settings > Management > Automatic Start Action.

Reference

Keyboard shortcuts

These keyboard shortcuts are mentioned as needed throughout this book.

Windows Setup: Out-of-Box Experience

Shift + F10 - Open a Command Prompt window

Desktop

Windows key - Open Start

Windows key + X - Open the Quick link menu

Windows key + W - Open Widgets

Windows key + S - Open WiSearch

Windows key + Tab - Open Task view

Windows key + C - Open Copilot

Windows key + A - Open Quick settings

Windows key + E - Open File Explorer

Ctrl + Shift + Esc - Open Task Manager

Windows key + [#] - Open specific app on the Taskbar

Windows key + T - Select the first app shortcut on the Taskbar (and display the Taskbar if it's hidden)

Windows key + Ctrl + V - Open the Sound output pane

File Explorer

Alt + Shift + P - Toggle the Details pane

Multitasking

Alt + Tab - Open Alt-Tab

Windows key + Tab - Open Task view

Windows key + Z - Display Snap layouts for current window

Windows key + [Arrow key] - Position current window with Snap

Ctrl + Shift + Esc - Open Task Manager

Windows key + R - Open the Run app

Windows key + V - Open Clipboard history

Windows key + Ctrl + D - Create a /new virtual desktop

Windows key + Ctrl + Right arrow - Switch to the next virtual desktop

Windows key + Ctrl + Left arrow - Switch to the previous virtual desktop

Windows key + Ctrl + F4 - Close the current virtual desktop

Accounts

Windows key + L - Lock Windows 11 without signing out

Microsoft Edge

Alt + F - Open the Settings and more menu

Ctrl + Tab - Switch between open Tabs

Ctrl + T - Open a new Tab

Ctrl + W - Close the current Tab

Ctrl + Shift + A - Reopen a closed Tab

Ctrl + Shift + A - Search Tabs

Ctrl + Shift + , - Toggle Vertical Tabs

Ctrl + D - Add current page to Favorites

Ctrl + H - Display History pane

Ctrl + Plus - Page zoom in

Ctrl + Minus - Page zoom out

Ctrl + 0 - Return to the default zoom level

Ctrl + F - Find in page

Ctrl + Shift + / - Toggle the Edge Sidebar

Ctrl + M - Mute the audio playback in the current Tab

Ctrl + Shift + S - Web capture

Ctrl + Shift + X - Web select

Ctrl + P - Print the current page

F11 - Toggle Full-screen mode

F9 - Toggle Immersive reader

Ctrl + Shift + U - Toggle Read aloud

Snipping Tool, Screenshots, and Screen Captures

Print Screen (or **Windows key + Shift + S**) - Launch Snipping Tool in its unique Screen capture full-screen experience

Ctrl + N - If Snipping Tool is running, capture a new snip

Windows key + Print Screen - Capture a screenshot of the entire screen and automatically save it as a file in the Screenshots folder in your Pictures folder

Alt + Print Screen - Use Game Bar to capture a screenshot of the currently focused window and automatically save it a file in the Captures folder in your Videos folder

Photos

Left arrow/Right arrow Navigate between each image in the current folder while viewing an image **F** - Toggle the filmstrip while viewing an image **Esc** - Close the window displaying an image

Ctrl + + (Plus) - Zoom in on an image

Ctrl + - (Minus) - Zoom out of an image

0 - Return an image to its default size

Ctrl + E - Edit an image

Ctrl + R - Rotate an image

Delete - Delete an image

L - Add an image to your favorites

Alt + Enter - Toggle the display of the Info pane while viewing an image

Ctrl + S - Save an image

Ctrl + P - Print an image

Ctrl + C - Copy an image to the Clipboard

Ctrl + Shift + C - Copy the full path to the image file to the Clipboard

Ctrl + L - Set an image you are viewing as the lock screen background

Ctrl + B - Set an image you are viewing as the Desktop background

F11 - Toggle full-screen mode while viewing an image **Ctrl + 0** - Zoom an image to fit in the window

Ctrl + 1 - Display an image in its actual size

Sound Recorder

HOME - Jump directly to the beginning of the recording

Ctrl + R - Start a recording

Esc - Stop recording

SPACE - Pause, resume, or play a recording

Ctrl + M - Add a marker at the current position

Ctrl + + (Plus) - Zoom in to a recording

Ctrl + - (Minus) - Zoom out of a recording

Ctrl + 0 - Return the view to its default

F2 - Rename a recording

Delete - Delete a recording

Account security terms and concepts

Account. An *account* is a digital identity that you use to access a system like a PC, an online service, or a website.

Online account. An *online account* is an account you create on a remote system, like an online service or website, while online (connected to the Internet).

Username. An account has an associated *username*. For an online account, this is typically an email address.

Password. An account can also have an associated *password*, a string of characters known only to the account holder that's used to *authenticate* that person and verify that they are the account

holder. For online accounts, a password and/or other forms of authentication (as discussed below) are mandatory.

Sign in. To authenticate yourself, you *sign in* to an account using the username and a password and/or other forms of authentication. When you successfully sign in to an account, you gain access to whatever data it may contain and *rights* it provides.

The problem with passwords. Passwords are insecure. They can be easily guessed, and malicious actors use social engineering in the form of *phishing* attacks to impersonate a legitimate person, business, or other entity to fool you into revealing your password or other personal information.

Identity theft. If a malicious actor obtains your username and password, they gain access to the information contained by, and the rights associated with, that account. They can then steal that information or use it to impersonate you in what's called *identity theft*.

Accounts associated with your identity need more scrutiny. Hacking and identity theft are particularly problematic for online accounts like those provided by Amazon, Apple, Google, and Microsoft because they often contain credit card numbers, shipping addresses, and other deeply personal information.

Multi-factor authentication (MFA). To prevent this type of crime, security organizations invented an additional layer of account protection called *multi-factor authentication* (MFA). The most common form of MFA requires a password and a second form of authentication (identity verification), and so you will typically see it described as two-factor authentication (2FA) or two-step authentication.

Why MFA works. The second authentication method you use with an MFA-protected account will be *something you know* (a PIN, a one-time password or other code, the answer to a secret question, and so on), *something you have* (a phone or a hardware security key), and/or *something you are* (a biometric sign-in provided by your PC, phone, or other device, like facial or fingerprint recognition).

Common forms of MFA include:

- **One-time password (OTP)**. This is a code that is sent to you via a text message, email message, phone call, or other means. Text message is the most common, but it's also the least secure because text messages can be intercepted by hackers and other malicious actors.

- **Authenticator app**. You can install an *authenticator app* on your phone to generate time-based one-time passcodes or trigger a *push notification* when you attempt to sign in to an online account. These apps can also be protected by whatever device security you have on your phone, requiring you to use a PIN or biometric authentication.

- **Passkey**. This is a credential stored on a phone, PC, or other device, or in a passkey management service, typically called a *password manager*. Passkeys stored on a device are called *device-bound* passkeys, while those stored in a password manager are *portable* because you

can access that service (and the passwords and passkeys it stores) on any device. Passkeys are the most secure form of MFA because they are phishing resistant, impervious to data breaches, and require the use of the PIN or biometric authentication method you configured on that device.

Be vigilant. You should protect your online accounts with whatever MFA methods each supports. A passkey is best, but authenticator app-based notifications and codes are also good, followed by getting a one-time password via email, which is better than using a text message.

The more the merrier. You should also protect your online accounts with multiple ways to verify your identity. For example, you might configure an account to send one-time passwords to one or more email addresses, send a text message to your phone number, send a sign-in notification to an authenticator app, and save a passkey in a password manager.

Use a password manager. You should use a *password manager* to store passwords *and* passkeys. Ideally, this is a third-party password manager not associated with a web browser or OS. But the primary goal is portability: This password manager needs to be available on whatever phones, PCs, and tablets you use.

Passwordless. You can enable a *passwordless* sign-in experience for accounts in which you only need to enter your username (email address) and then engage in whatever MFA method you prefer to identify yourself and gain access to that account. When doing so, you will typically be required to verify your identity using the PIN or biometric authentication method you configured on that device.

Remove the password from (some) online accounts. Some online accounts, including the Microsoft account (MSA), even allow you to remove your password from the account. This may seem scary, but it's the most secure configuration, assuming that you have correctly enabled multiple MFA methods.

Secure your Microsoft account

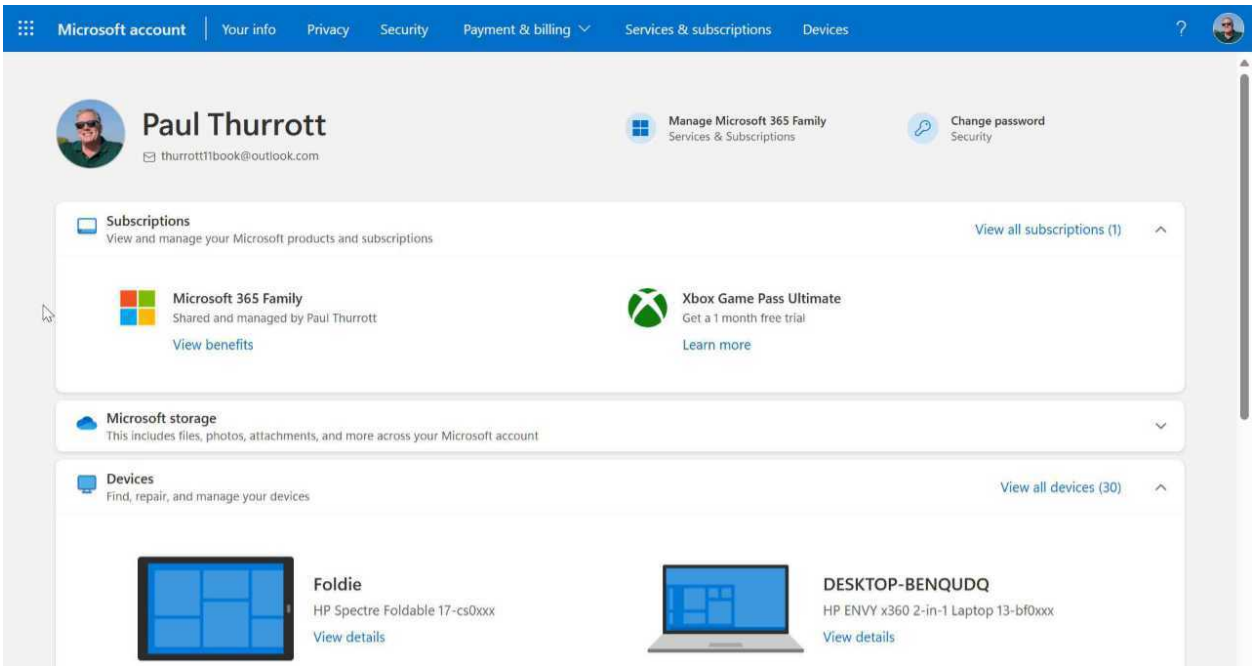
Windows 11 includes deeply integrated security features that help protect your PC and the personal data that it contains from digital and physical attacks. But if the Microsoft account (MSA) that most use to sign in to Windows 11 isn't properly secured, then the PCs you use it with can't be fully secured either.

What does it mean to have a correctly configured Microsoft account? Three things. A correctly configured Microsoft account:

- Has has up-to-date and complete profile and account information
- Has multiple additional sign-in and verification methods
- Is configured to require two-step verification

Locate the MSA website

You don't configure your MSA in Windows 11, you configure it online at the Microsoft account website.



This website is organized into several top-level functional areas like Your info, Privacy, Security, Payment & billing, Services & subscriptions, and Devices.

Configure your profile information

When you first created your MSA, you were asked to specify a new outlook.com email address and an associated password.

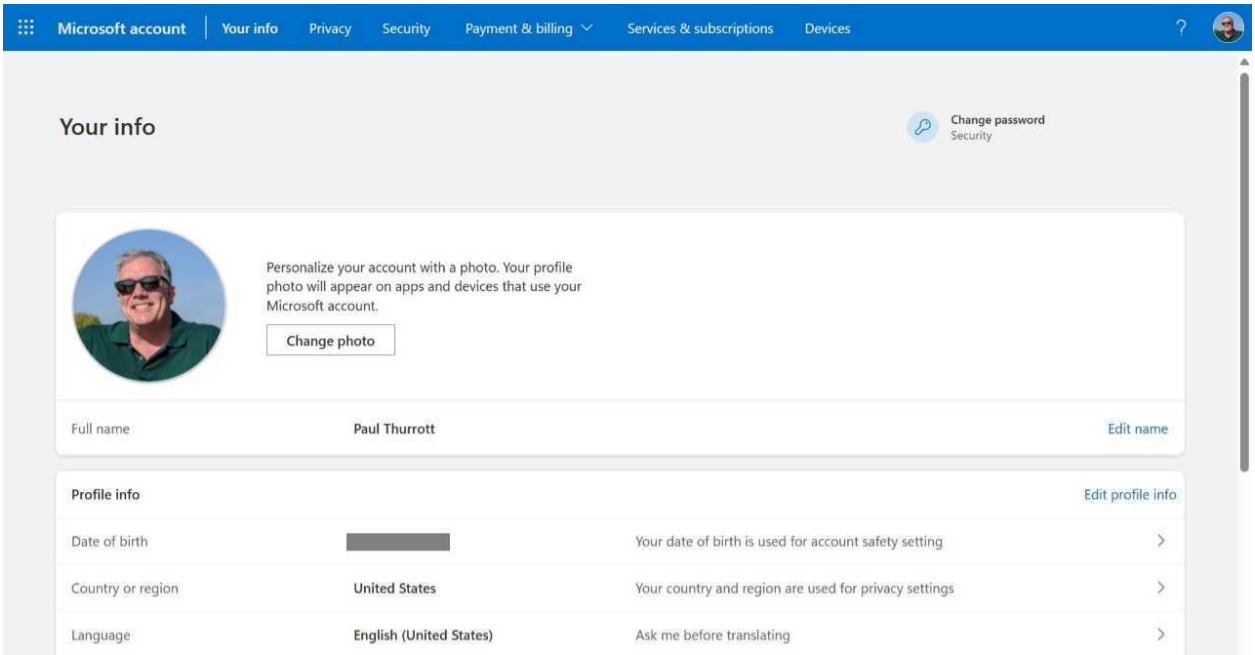
> **Tip**: If you've been around as long as I have, you may have been prompted to create a hotmail.com or live.com email address instead. They all work identically, and you can actually still create a Microsoft account with a hotmail.com email address today if you'd like.

> **Warning**: I don't recommend this, but you can also use an existing email address from any source–Gmail, Yahoo, your workplace, whatever–as a Microsoft account. For the most part, these MSAs work identically to those with outlook.com, hotmail.com, and live.com email addresses, but with a notable difference: The email service associated with that email address is managed

elsewhere and if anything happens to the original account, you could lose access to your MSA and all of the data it contains, including the purchases you made and any subscriptions. Generally speaking, you're better off not using an existing email address as your Microsoft account.

Microsoft also requires new Microsoft account holders to specify a date of birth for security reasons, and your country/locale for privacy reasons. These items and your other profile information should be configured fully and accurately.

You do this from the Your profile page on the Microsoft account website, which you can access directly by clicking the "Your info" link in the site's top navigation.



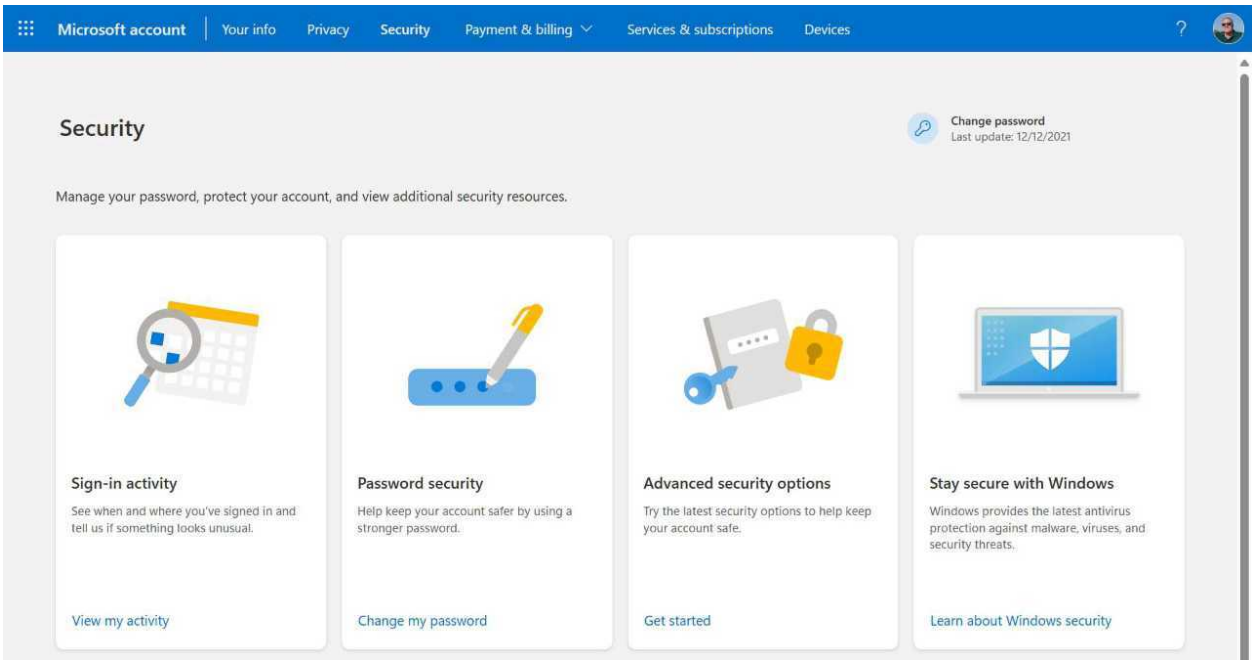
Here, ensure that all of the personal information associated with your account is correct, especially those items–Date of birth, Country or region, Language, Billing & shipping addresses, Email address(es), and Phone number(s)–that are tied to your account security and privacy. Don't move on until you've verified all of the information here.

Tip: Related to this, Microsoft lets you add one or more optional *aliases* to your Microsoft account so that you can sign into this account using a different email address or phone number. Aliases are managed on the Manage how you sign in to Microsoft page on the Microsoft account website. It's better not to have too many aliases and to limit which of them can be used to sign-in to your Microsoft account. You configure *that* from the Sign-in preferences page on the Microsoft account website. Here, fewer is better because each email address and phone number is an avenue of attack. I recommend using a single email address, a single phone number, and optionally a single

alias with a custom domain if you prefer that to an outlook.com or other standard Microsoft account email address.

Configure additional sign-in and verification methods

The security features associated with your MSA are managed on the Security page on the Microsoft account website, which is sometimes referred to as the Security dashboard. Here, you will see links for reviewing your sign-activity (described later in the chapter), changing your password, and the area we're concerned with here, Advanced security options.



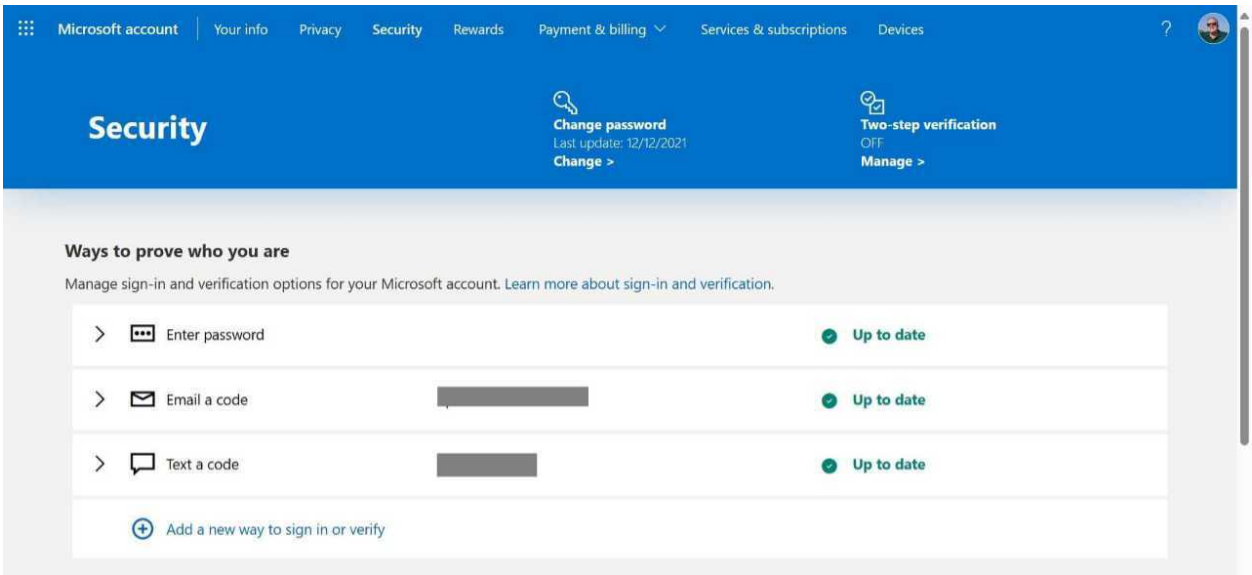
The next step to securing your MSA involves correctly configuring *additional sign-in and verification methods* that are associated with this account.

But what does that mean?

Your MSA's email address and password are its original sign-in and verification methods, the things you *know* that verify who you are when you need to use the account in any way. But your MSA also supports a variety of *additional* sign-in and verification methods, each of which is to some degree more secure than using your password. So you can use any of these methods to authenticate yourself when you sign in, instead of using the account's password.

> **Tip**: Some will immediately realize that just *adding* additional sign-in and verification methods to your MSA doesn't eliminate the security issues with a password. But that's the problem that *two-step verification* solves, as described in the next section. You have to configure additional sign-in and verification methods *before* you can enable two-step verification. First things first.

You create and manage additional sign-in and verification methods on the Additional security options page on the Microsoft account website. (You can access this by clicking "Get started" under "Advanced security options" on the Security dashboard page.) If you've had your Microsoft account for a while, it's likely that you have at least one or two additional methods list here.



Aside from your password, the following additional sign-in and verification methods are available:

- **Text a code**. With this method, you configure a phone number associated with a smartphone so Microsoft can send you a code via text message each time you need to sign-in to your Microsoft account: You will enter that code as prompted on your PC or elsewhere.

> **Warning**: I recommend *not* configuring this additional sign-in and verification method if possible because it's insecure. Among other issues, text messages are sent in plain text and not encrypted, and hackers who compromise your smartphone or phone number–or, in more extreme cases, even entire phone networks–can intercept the the codes and use them to gain access to your account. Note, however, that to remove this option, you will need at least two other methods that can

be used for account recovery. So adding a second email address ("Email a code") is perhaps the obvious solution.

- **Email a code**. With this method, you register a valid email address so Microsoft can send you a code via email message each time you need to sign-in to your Microsoft account: You will enter that code as prompted on your PC or elsewhere.

Tip: Emailed verification codes are only as secure as the email account to which they are sent. So make sure that the account associated with this email address is controlled by you and as configured as securely as possible, as are the devices on which you access it.

- **Use an (authenticator) app**. Microsoft and other reputable companies make so-called *authenticator* apps for Android and iPhone that prompt you to authenticate yourself in one of a variety of secure methods whenever you need to sign-in to your MSA. This is one of the most secure additional sign-in and verification methods in part because these apps integrate with the PIN and/or biometric security features on your phone, adding an additional layer of security.
- **Use a security key**. Workplaces with enhanced security needs often require their employees to protect their online accounts with a physical *security key*, a small hardware fob or dongle that connects to your PC and other devices via USB-C, USB-A, or Near Field Communication (NFC) wireless technology. These devices utilize an open authentication standard called FIDO2, can securely store thousands of online account credentials, are unlocked with an integrated fingerprint reader or PIN, and are resistant to phishing and account takeover attacks. And, yes, they can be used with your Microsoft account, though a newer and simpler technology called *passkeys* is far more common and user-friendly.
- **Use your Windows PC**. Windows 11 requires that anyone who signs in to a PC with an MSA creates a Windows Hello *PIN* (personal identification number) in part because signing in with a PIN is much easier than remembering and correctly typing a potentially complex password. (You can also optionally enable even more secure Windows Hello sign-in methods, like facial or fingerprint recognition.) But there's another reason: When you created this sign-in account on your PC, Windows 11 also created an associated *device-bound passkey* that allows it to pass your credentials through to services like OneDrive and Outlook, and to websites attached to that account. And *that's* what this option does, it creates a passkey on the current PC so that you can use Windows Hello to securely authenticate yourself, albeit only when using the current PC. If you signed in to Windows 11 with your Microsoft account, there's no reason to configure this option now: The passkey it would create is already there.

So what should *you* do?

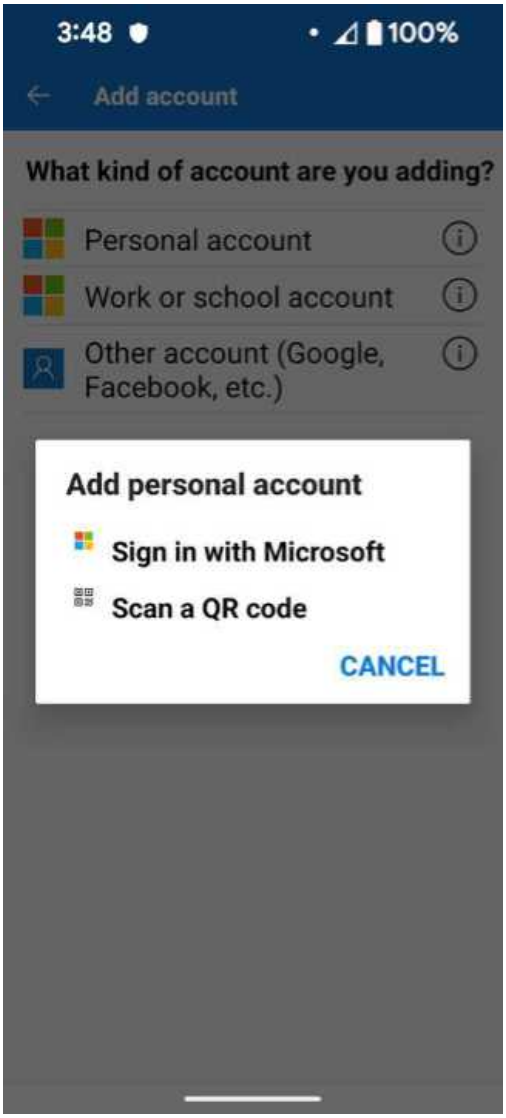
An authenticator app is the single best choice for most people, so I recommend protecting your MSA with the Microsoft Authenticator app. But adding a single additional sign-in and verification method is not enough: You need at least one more verification method for those times when your phone is not available for some reason. And for that, I recommend configuring at least one alternative email address too.

> **Tip**: This alternative email address is *not* an alias for your MSA, meaning that you cannot use that address to sign in to this MSA. Instead, Microsoft will only send verification codes to the alternative email address when you choose this method during an MSA sign-in.

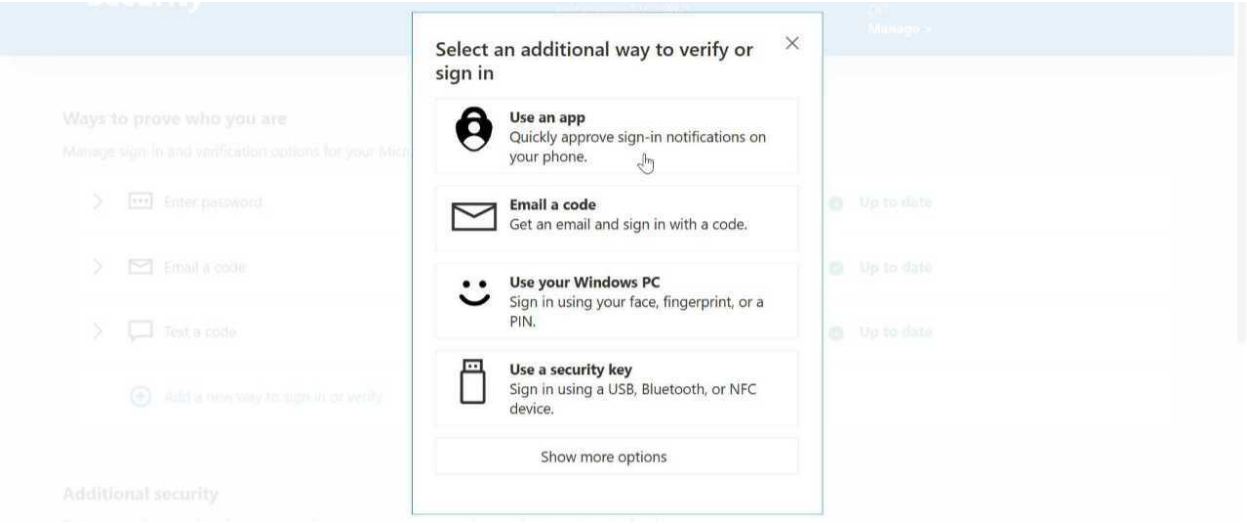
Adding an alternative email address is straightforward. But it's possible you're not familiar with Microsoft Authenticator, so let's walk through the process of setting up that mobile app and using it with your Microsoft account.

Installing Microsoft Authenticator is easy enough: The app is available for Android in the Google Play Store and for iPhone in the Apple App Store. Then, you just need to add your Microsoft account to the app.

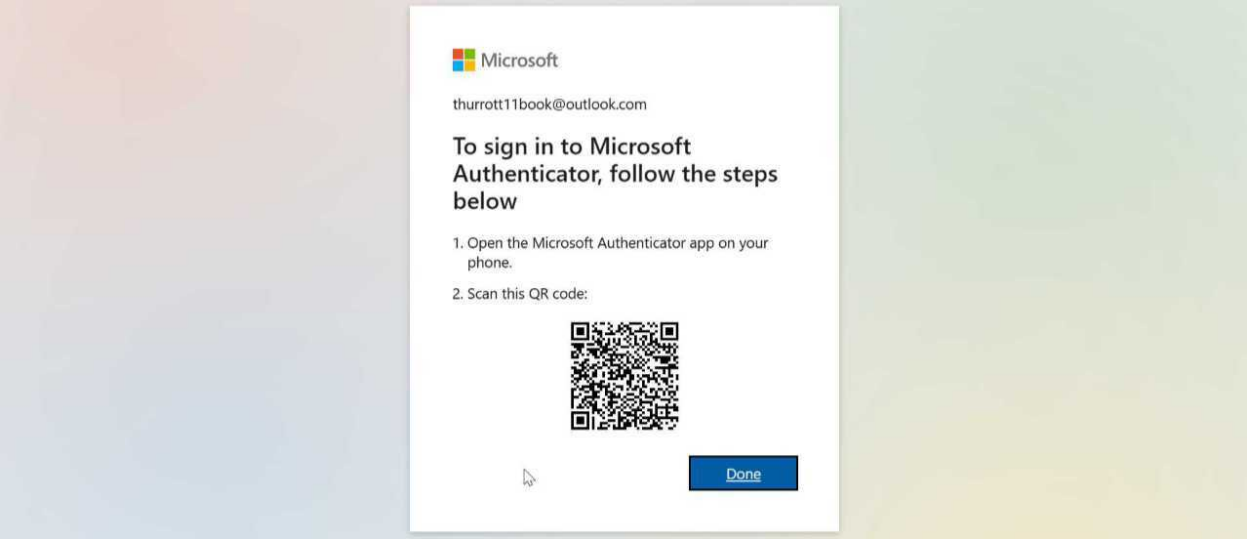
To do so, open Microsoft Authenticator on your phone, tap "Add account" ("+") followed by "Personal account" and "Scan a QR code," after which you'll be prompted to allow the app to use your phone's camera. Accept this request.



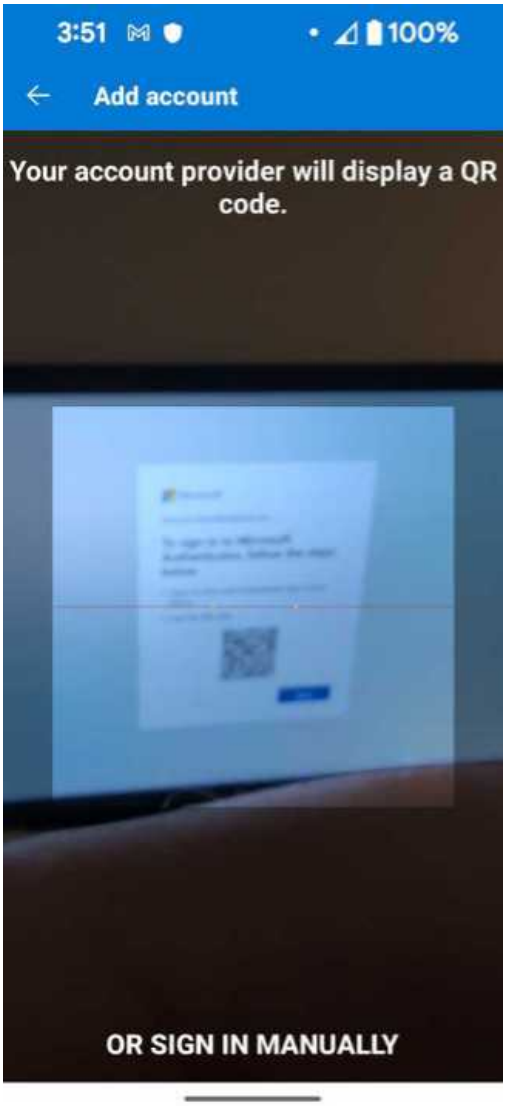
On your PC, navigate to the Additional security options page on the Microsoft account website and click "Add a new way to sign in or verify."



In the dialog that appears, click “Use an app.” Step through the prompts that ask you to download the Microsoft Authenticator app until a screen with a QR code appears.

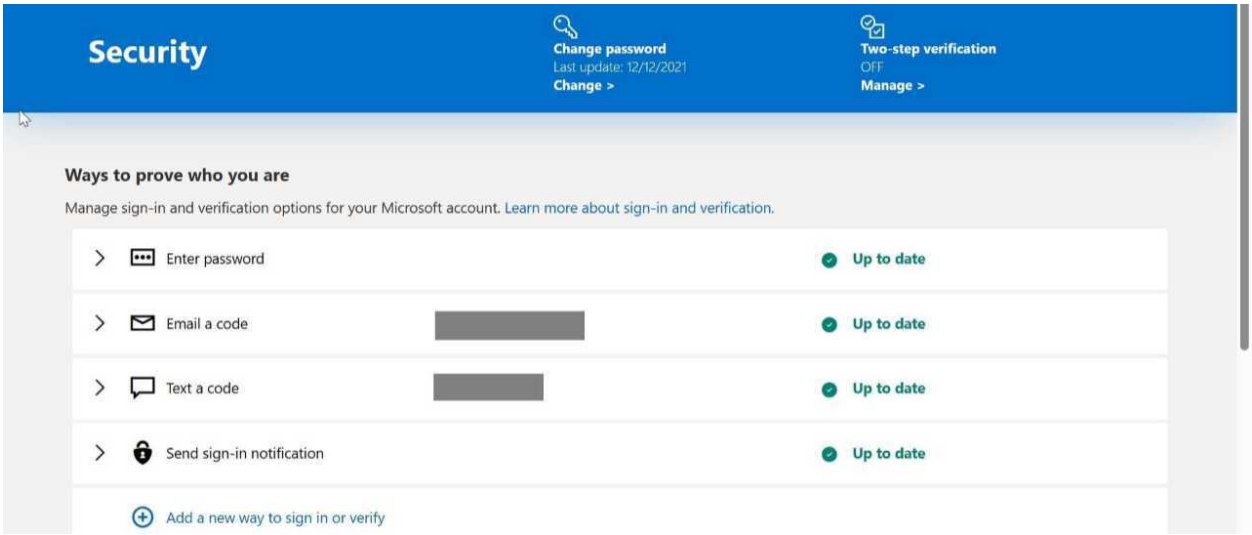


Then, point your smartphone camera at the QR code on your PC’s display. It will scan the code, prompt you, and then add your Microsoft account to its list of accounts.

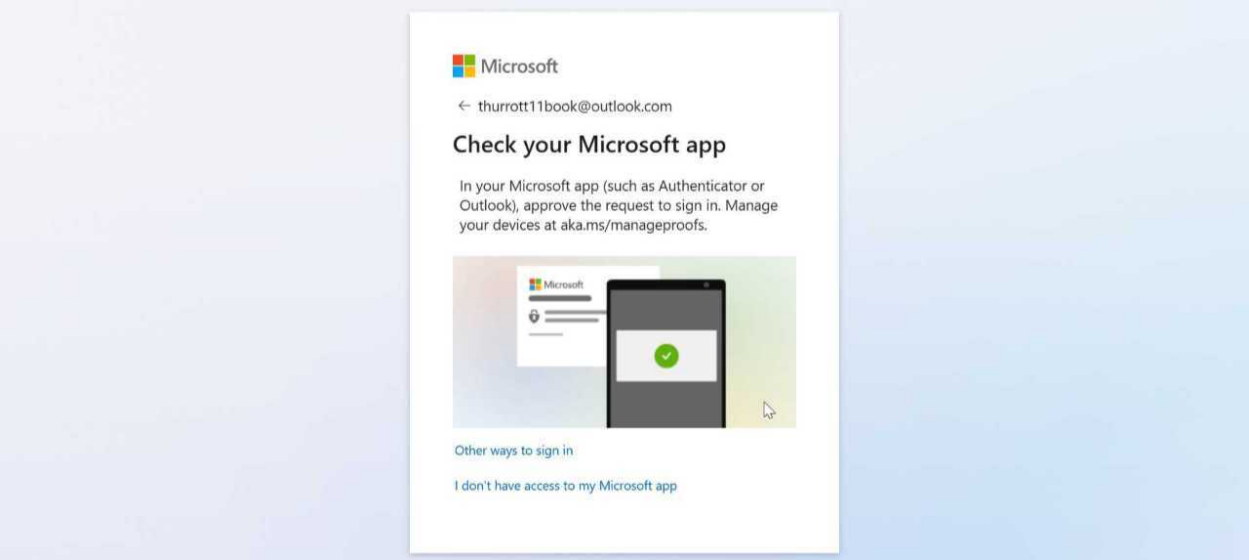


> **Tip:** Microsoft Authenticator may also ask you whether you'd like to use it a password autofill provider for your phone. That's a distraction at the moment, so just tap "Skip" if asked.

On your PC, click the "Done" button under the on-screen QR code. A new additional sign-in and verification option, "Send sign-in notification," now appears in your list of "ways to prove who you are."

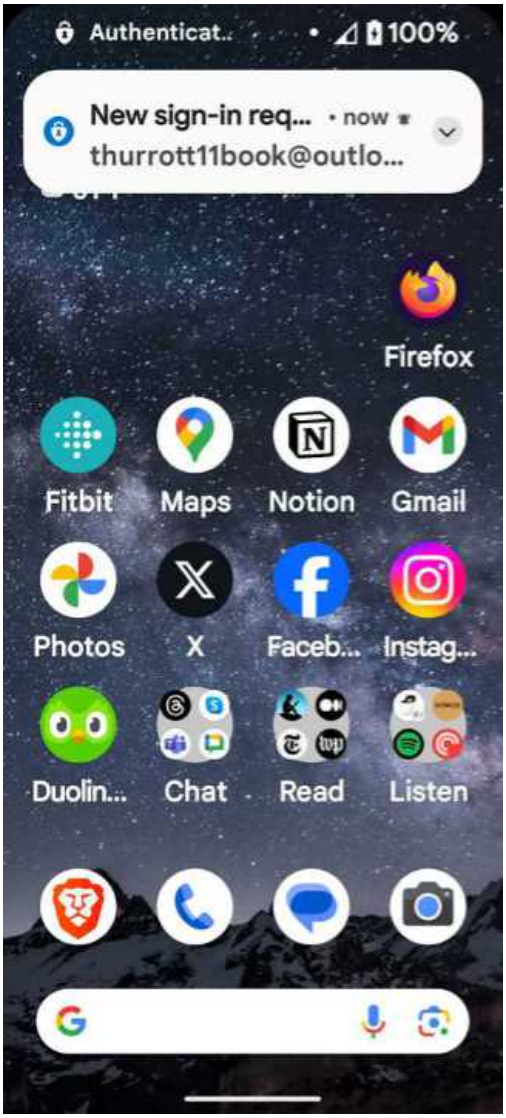


You can now use this method to sign in to your MSA. For example, if you navigate to Bing.com on a PC or mobile device and begin a sign-in, the site will prompt you to enter your email address as usual. But when you click "Next," it will prompt you to "Check your Microsoft app" and will optionally display a number.

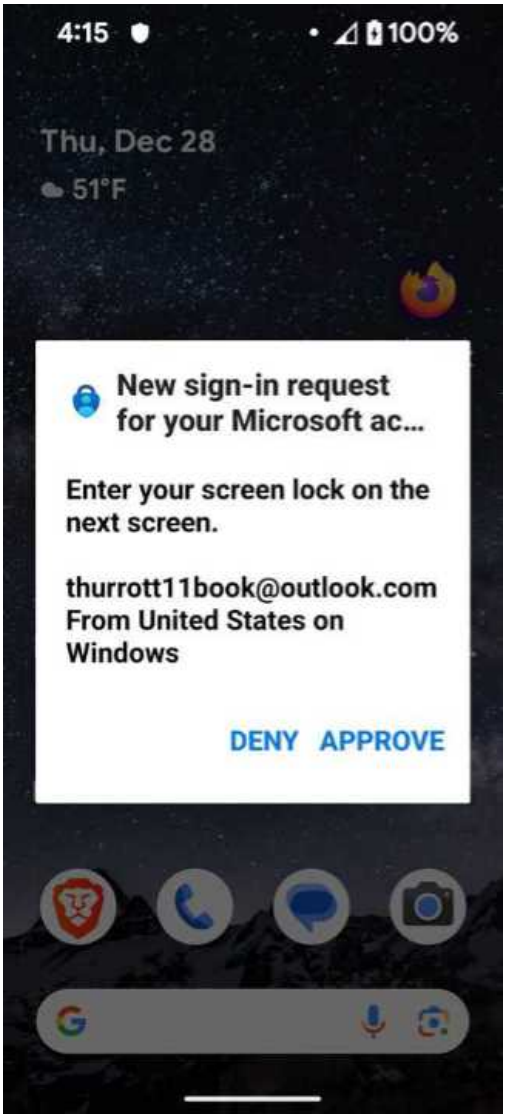


> **Tip**: If you don't see this or a similar display, click "Other ways to sign in" and then "Approve a request using my Microsoft app."

Meanwhile, your phone will display a Microsoft Authenticator app notification and, if configured that to do so, it will play a notification sound.



When you select this notification, the app will prompt you to securely authenticate using a PIN or biometric method and then note that there is a new sign-in request. If the PC-based notification displayed a number, this phone-based notification will display three numbers, one of which is the same number, so you can prove that the request came from you.



On the phone, tap the correct number if necessary. And either way, tap "Approve" to authenticate yourself and sign in to Bing.com on your PC, with no password required.

This process will become second nature as you use it more often. But for your MSA to be truly secure, you must enable at least one more feature: Two-step verification. That's next.

Enable two-step verification

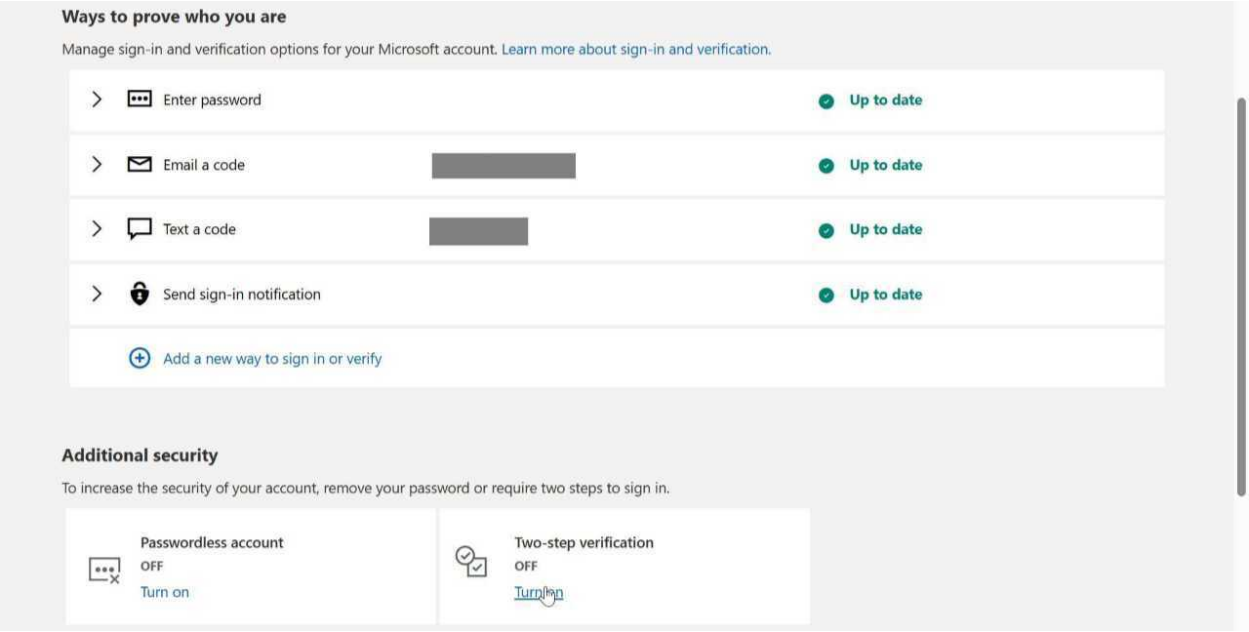
It's not enough to configure additional sign-in and verification methods for your MSA because your insecure password is still available as one method: A hacker could still steal or guess that password and gain access to your account.

But that's where *two-step verification* comes in: This additional layer of security works its magic by *requiring* you to take a secure additional step each time you need to sign-in or verify your

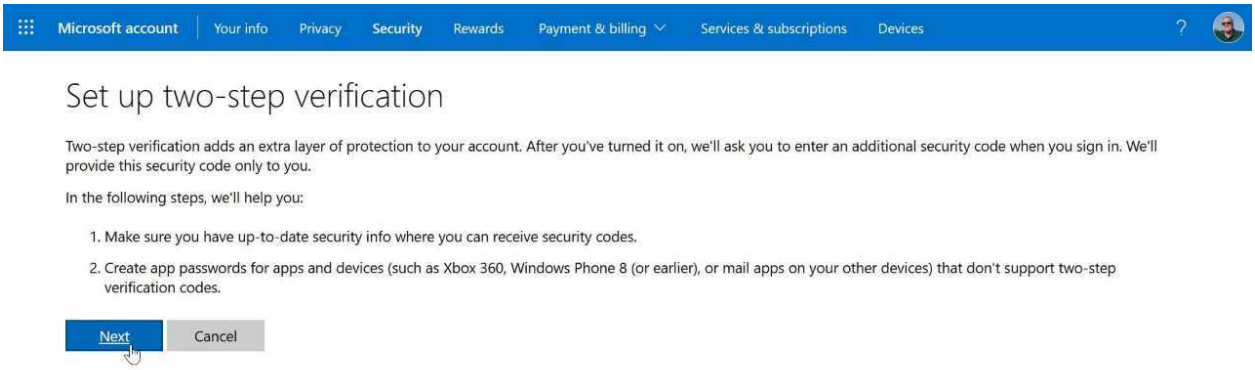
Microsoft account credentials.

That sounds like it could be time consuming and complex, but it's not: Two-step verification uses a device you already have with you at all times–which can be the PC you're using or your smartphone and the authenticator app you just configured–to streamline this process dramatically. And because you never actually have to type the password associated with your account either way, it's easy, quick, *and* secure.

To enable two-step verification, you have to first navigate to the Additional security options page on the Microsoft account website and scroll down to the section "Additional security."



Then, click "Turn on" under "Two-step verification." You will be prompted to send a verification request to your authenticator app because "you're accessing sensitive info." But there is also a "Sign in with Windows Hello or security key" link, so you have a choice: You can authenticate with your phone by clicking "Send notification." Or you can authenticate using Windows Hello by using that link. Either way will work fine, and once you've authenticated yourself, the Microsoft account website on your PC will explain what it means to enable this feature for your account.



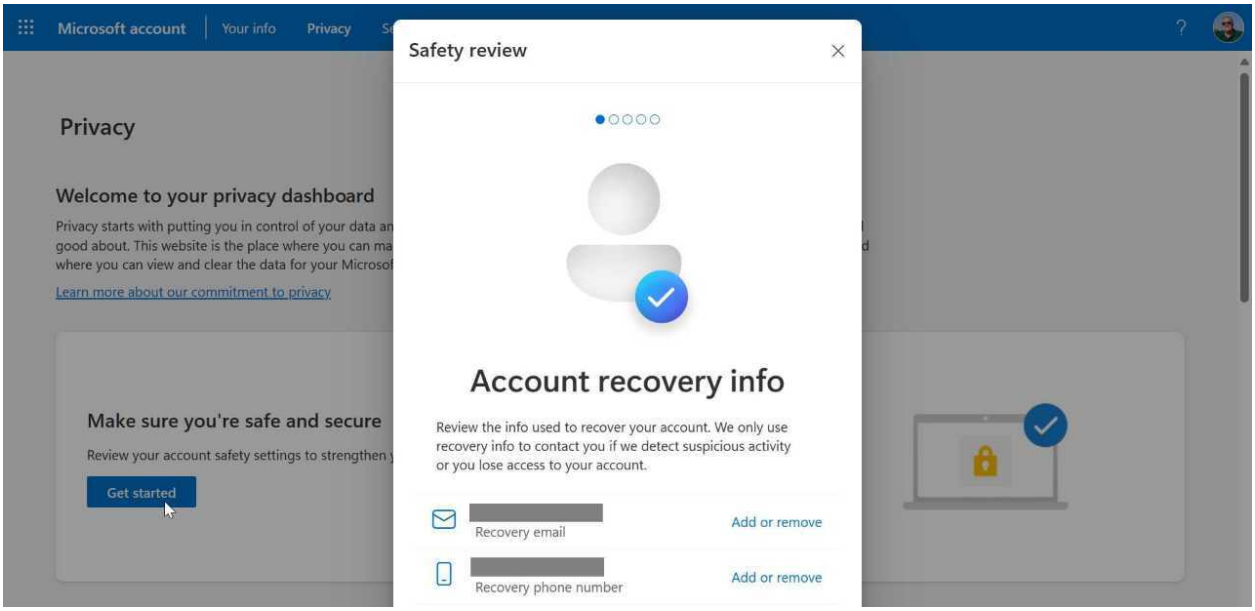
Click "Next."

That's it. Your MSA is now secure, and signing in and verifying your identity is easier than ever too. This is true no matter how or where you sign-in to this account: When you sign-in for the first time on a Windows 11 PC, when you access Microsoft apps or online services, or when you add the account to a mobile device. When you're using a Windows 11 PC, all you need is Windows Hello. And when you're elsewhere, all you need is your email address and your smartphone with the Microsoft Authenticator app.

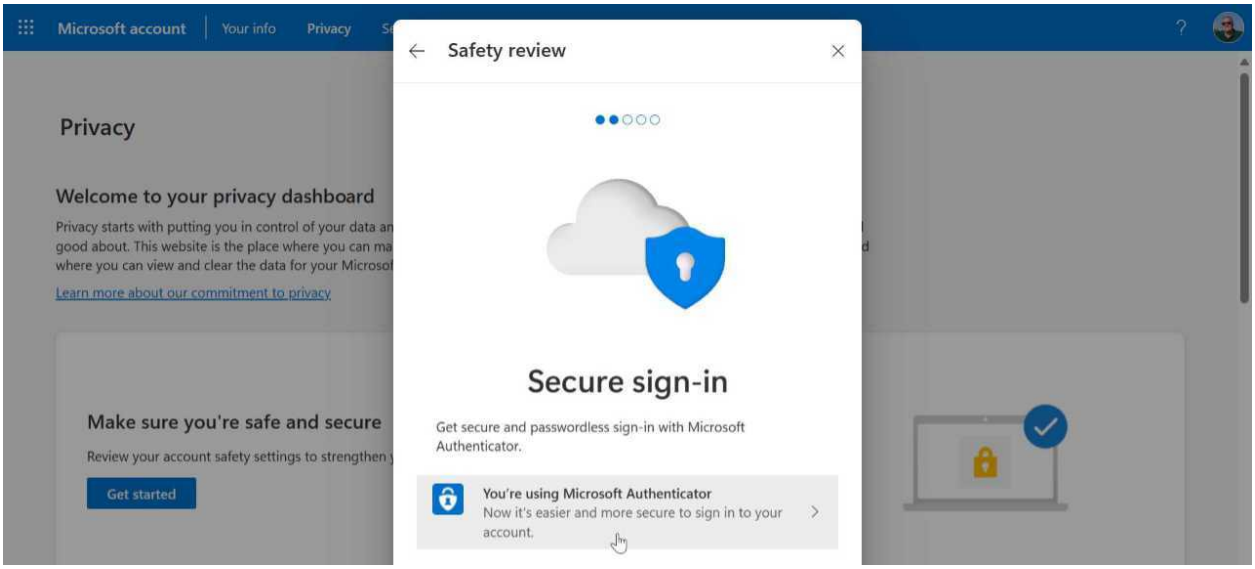
Review your account safety options

Before moving on, let's make sure that you configured your MSA to be as secure as possible. The quickest way to do that is to use a simple wizard on the Microsoft account website called Safety review.

To access this wizard, open the Microsoft account website and navigate to Privacy. Then, click "Get started" under "Make sure your safe and secure."



In this first step, review your account recovery information: You should have at least one email address and phone number configured for recovery purposes. (Or, two email addresses.) Click "Next" to continue if both are correctly configured.



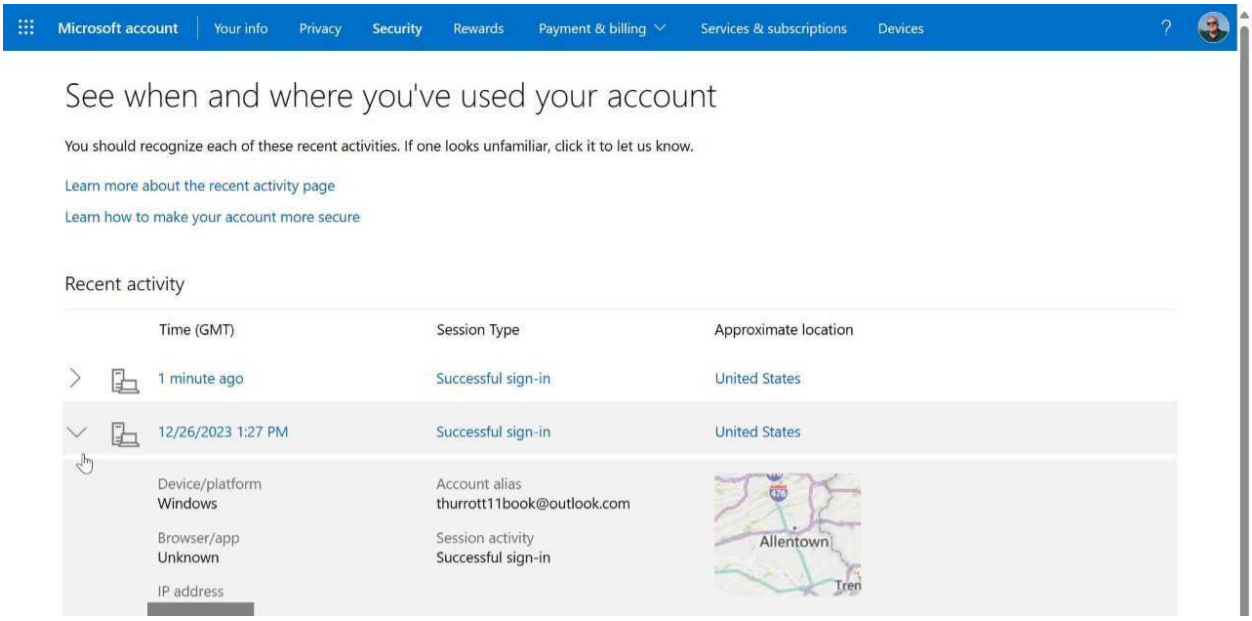
In the second step, you confirm that you can securely sign-in to your MSA from anywhere using the Microsoft Authenticator mobile app and without needing to use a password. Click "Next" to continue.

The next three steps–Safe web browsing, More safety resources, and Microsoft 365 privacy settings–are unrelated to account security, so you can ignore or dive in as the mood strikes.

Understand the other security features offered by the Microsoft account website

While you're securing your MSA, you should take the time to familiarize yourself with the other security features you can access from this website. Most of these other features are reactive rather than proactive, as you typically need them only when something goes horribly wrong. But that's a great reason to see what's available there now: It's important to know where to turn if you see suspicious activity and suspect that your account is compromised.

- **Review your sign-in activity**. The See when and where you've used your account page lists recent sign-in attempts, successful or not, and other account activity in reverse chronological order, and you can expand each event to see more information, including the time and date, the location (with a small map), and more. Ideally, you will recognize all of these events. But if you see suspicious activities here, including unsuccessful sign-in attempts, especially from other locations including places far from your home, then you're probably still fine because your account is secure. Plus, there's nothing you can do about it anyway: Microsoft doesn't even provide a way to report this activity.



> **Tip**: If you *just* secured your account using the information in this chapter and notice some recent successful sign-in activities that you're nervous about, you can use the "Immediately sign out from your Microsoft account everywhere" and "Reset Windows Hello on all of your PCs" options noted below to solve *that* problem.

- **Create, remove, and use app passwords**. If you use an older device like an Xbox 360 or a third-party service that doesn't support two-step verification for some reason, you don't need to disable this important security feature from your account. Instead, you can create an *app password* for that one time use. To do so, navigate to the Additional security options page and locate the "App passwords" section.
- **Immediately sign out from your Microsoft account everywhere**. In the unlikely event that someone else accessed your MSA before you secured it as described in this chapter, you can remotely sign out of the account almost everywhere from the Microsoft account website. To do so, visit the Additional security options page and find the "Sign out everywhere" section. (Be sure to use the next option as well.)
- **Reset Windows Hello on all of your PCs**. Tied to the previous option, you can also remotely reset all of the Windows Hello sign-ins that you've configured across all of your PCs. You will still be able to sign-in on your own PCs, of course, as you'll simply be prompted to authenticate using Microsoft Authenticator or another method. And then you can re-enable Windows Hello as needed. This option is also located on the Additional security options page in the "Sign out everywhere" section.
- **Generate and use a recovery code**. Like other online accounts, your MSA provides a single complex recovery code that you can use if you somehow managed to lose all access to all of your sign-in and verification methods. If you didn't save this code in a secure location or can't find it, you can generate a new one on the Additional security options page. You'll find it under "Recovery code."

Optionally remove the password from your Microsoft account

Enabling two-step verification ensures that no one can access your account using just its email address and password: This feature bypasses the password at sign-in but requires you to have configured an additional sign-in or verification method, ideally the Microsoft Authenticator app on your phone because it will work from anywhere. So now you can sign in with something you *know*–your email address–and something you *have*, the smartphone with Microsoft Authenticator, which is protected with its own PIN or biometric protections.

This will be enough for most people. But you can also fully realize the passwordless dream and secure your Microsoft account even further by *removing* its password. You won't notice any difference in day-to-day use since you're already bypassing its password and using two-step verification. But going passwordless comes with two prerequisites.

First, you must have configured two account recovery methods–typically an alternate email address and a phone number, but perhaps two alternative email addresses that you control–in case you lose your phone or otherwise can't access the Microsoft Authenticator app. If you followed along with the discussion earlier in this chapter and successfully completed the Microsoft account Safety review, you meet this requirement.

Second, you can no longer use older, out-of-date, and unsupported Microsoft products and services that predate two-step authentication and still require a password like it's still the 20th

century. This won't be an issue for most people, but if you're unsure, you can find a list of these offerings, which include the Xbox 360 video game console, Office 2010 and earlier versions, Windows 8.1 and earlier versions, and more on the Microsoft Support website.

> **Tip**: This isn't a one-way, dead-end street. If you later discover that removing your password was a mistake for some reason, you can simply add a password to the account again later without issue.

When and if you're ready to take this step, open the Microsoft account website and navigate to the Additional security options page. Then, scroll down to the "Additional security" section, where you will find a "Passwordless account" option. Click "Turn on" to display a short informational dialog.

Click "Next." You will be prompted to approve the password removal request using the Microsoft Authenticator app on your phone as always. When you do so, your Microsoft account password is removed.