

The ultimate in-depth reference
Hundreds of time-saving solutions
Supremely well-organized, packed
with expert advice



Windows 11 Inside **OUT**

Ed Bott

FREE SAMPLE CHAPTER |



Windows 11 Inside Out

Ed Bott

Windows 11 Inside Out

Published with the authorization of Microsoft Corporation by Pearson Education, Inc.

Copyright © 2023 by Ed Bott

All rights reserved. This publication is protected by copyright, and permission must be obtained from the publisher prior to any prohibited reproduction, storage in a retrieval system, or transmission in any form or by any means, electronic, mechanical, photocopying, recording, or likewise. For information regarding permissions, request forms, and the appropriate contacts within the Pearson Education Global Rights & Permissions Department, please visit www.pearson.com/permissions. No patent liability is assumed with respect to the use of the information contained herein. Although every precaution has been taken in the preparation of this book, the publisher and author assume no responsibility for errors or omissions. Nor is any liability assumed for damages resulting from the use of the information contained herein.

ISBN-13: 978-0-13-769133-3

ISBN-10: 0-13-769133-5

Library of Congress Control Number: 2022952040

ScoutAutomatedPrintCode

Trademarks

Microsoft and the trademarks listed at <http://www.microsoft.com> on the “Trademarks” webpage are trademarks of the Microsoft group of companies. All other marks are property of their respective owners.

Warning and Disclaimer

Every effort has been made to make this book as complete and as accurate as possible, but no warranty or fitness is implied. The information provided is on an “as is” basis. The author, the publisher, and Microsoft Corporation shall have neither liability nor responsibility to any person or entity with respect to any loss or damages arising from the information contained in this book.

Special Sales

For information about buying this title in bulk quantities, or for special sales opportunities (which may include electronic versions; custom cover designs; and content particular to your business, training goals, marketing focus, or branding interests), please contact our corporate sales department at corpsales@pearsoned.com or (800) 382-3419. For government sales inquiries, please contact governmentsales@pearsoned.com. For questions about sales outside the U.S., please contact intlcs@pearson.com.

Editor-in-Chief: Brett Bartow

Executive Editor: Loretta Yates

Technical Editor: Carl Siechert

Sponsoring Editor: Malobika Chakraborty

Development Editor: Charlotte Kughen

Managing Editor: Sandra Schroeder

Senior Project Editor: Tracey Croom

Editorial Services: The Wordsmithery LLC

Indexer: Cheryl Lenser

Proofreader: Sarah Kearns

Editorial Assistant: Cindy Teeters

Cover Designer: Twist Creative, Seattle

Compositor: Bronkella Publishing LLC

Graphics: tj graham art

Pearson's Commitment to Diversity, Equity, and Inclusion

Pearson is dedicated to creating bias-free content that reflects the diversity of all readers. We embrace the many dimensions of diversity, including but not limited to race, ethnicity, gender, socioeconomic status, ability, age, sexual orientation, and religious or political beliefs.

Books are a powerful force for equity and change in our world. They have the potential to deliver opportunities that improve lives and enable economic mobility. As we work with authors to create content for every product and service, we acknowledge our responsibility to demonstrate inclusivity and incorporate diverse scholarship so that everyone can achieve their potential through learning. As the world's leading learning company, we have a duty to help drive change and live up to our purpose to help more people create a better life for themselves and to create a better world.

Our ambition is to purposefully contribute to a world where:

- Everyone has an equitable and lifelong opportunity to succeed through learning.
- Our products and services are inclusive and represent the rich diversity of readers.
- Our content accurately reflects the histories and experiences of the readers we serve.
- Our content prompts deeper discussions with readers and motivates them to expand their own learning (and worldview).

While we work hard to present unbiased content, we want to hear from you about any concerns or needs with this Pearson product so that we can investigate and address them. Please contact us with concerns about any potential bias at <https://www.pearson.com/report-bias.html>.

Dedication

To Judy, who has been by my side every step of the way



Contents at a Glance

Part I

Windows essentials

Chapter 1	
Everything you need to know about Windows 11 . . . 3	
Chapter 2	
Setting up a new Windows 11 PC 25	
Chapter 3	
Using Windows 11 67	
Chapter 4	
Personalizing Windows 11 113	
Chapter 5	
Installing and configuring apps 139	
Chapter 6	
Using and managing built-in Windows apps . . . 171	
Chapter 7	
Using Microsoft Edge 209	
Chapter 8	
Managing local and cloud storage 251	

Part II

Managing Windows 11

Chapter 9	
Using File Explorer 289	
Chapter 10	
Managing user accounts, passwords, and credentials 335	
Chapter 11	
Configuring Windows networks 371	
Chapter 12	
Windows security and privacy 429	

Chapter 13	
Managing hardware and devices 471	

Chapter 14	
Performance and power management 509	

Chapter 15	
Troubleshooting, backup, and recovery 543	

Part III

For IT professionals and Windows experts

Chapter 16	
Windows Terminal, PowerShell, and other advanced management tools 595	

Chapter 17	
Running Windows 11 in a virtual machine or in the cloud 637	

Chapter 18	
Using Android and Linux on Windows 11 681	

Chapter 19	
Managing Windows PCs in the enterprise 691	

Part IV

Appendixes

Appendix A	
Windows 11 editions and licensing options 723	

Appendix B	
The Windows Insider Program 731	

Appendix C	
Help and support resources 741	

Index 751	
----------------------------	--



Table of Contents

	Dedication	iv
	Acknowledgments	xix
	About the author	xix
	Introduction	xx
	Who this book is for	xxi
	How this book is organized	xxi
	Stay in touch	xxii
	Errata, updates, and book support	xxii
Part I	Windows essentials	1
Chapter 1	Everything you need to know about Windows 11	3
	What's new in Windows 11?	4
	Setup, updates, and upgrades	6
	User experience	10
	Windows 11 and the web	15
	Cloud connections	17
	Windows 11 apps and the new Microsoft Store	18
	Security	21
	Windows 11 and hardware	22
Chapter 2	Setting up a new Windows 11 PC	25
	Backing up data and settings	25
	Downloading and creating installation media	26
	Using the Media Creation Tool	27
	Working with ISO files directly	29
	Windows 11 minimum hardware requirements	32
	Bypassing hardware compatibility issues	34
	Installing Windows 11	36
	How Windows 11 Setup works	36
	Upgrading from Windows 10	38
	Performing a clean install	41
	Performing an edition upgrade	48

Activating Windows	50
Windows licensing options	52
Do you need a product key?	53
Managing Windows activation	55
Troubleshooting activation problems	56
Product activation and corporate licensing	59
Advanced Windows license management	60
Using multiple operating systems on the same PC	61
Tweaking and tuning your Windows installation	65
Chapter 3 Using Windows 11	67
An overview of the Windows 11 user experience	67
Using and customizing the Start menu	71
Customizing the contents of the Start menu	73
Arranging pinned apps into folders	75
Using the Start menu to search	76
Using and customizing the taskbar	79
Pinning apps to the taskbar	85
Changing the order of taskbar buttons	85
Using Jump Lists for quick access to documents and folders	86
Customizing the Quick Settings pane	87
Managing notifications and eliminating distractions	89
Customizing notifications	91
Eliminating distractions	93
Managing and arranging windows	95
Switching between tasks and desktops	100
Using Task View to switch between windows	100
Switching between virtual desktops	101
Using a keyboard and voice input in Windows 11	102
Customizing and using a physical keyboard	102
Using the Touch Keyboard	107
Using voice commands and dictating text	110
Using a pen with Windows 11	110
Chapter 4 Personalizing Windows 11	113
Customizing the look and feel of Windows	114
Selecting the desktop background	114
Selecting colors	118
Customizing the lock screen and sign-in screen	120
Assigning sounds to system events	122
Customizing mouse pointers	123
Using themes to save and apply personalizations	126

	Fine-tuning visual options	127
	Configuring desktop icons	127
	Making other small visual tweaks	129
	Setting date and time, currency, and other regional options	130
	Overcoming challenges	132
	Working with fonts	135
	Making text easier to read	136
	Using font smoothing to make text easier on the eyes	137
Chapter 5	Installing and configuring apps	139
	Understanding the Windows app landscape	139
	Legacy desktop apps	140
	Windows apps	143
	Progressive Web Apps (PWAs)	143
	Installing, managing, and uninstalling apps	144
	Using and managing Store apps	147
	Managing legacy desktop apps	155
	Managing Progressive Web Apps	157
	Managing apps and processes with Task Manager	158
	Terminating an app with Task Manager	159
	Finding detailed information about an app	159
	Managing startup apps	160
	Suspending or removing startup items	161
	Advanced tools for managing startup items	163
	Setting default apps and file-type associations	164
	Turning Windows features on or off	167
	Setting AutoPlay options	168
Chapter 6	Using and managing built-in Windows apps	171
	Apps included with Windows 11	172
	Windows system apps	172
	Provisioned Windows apps	172
	Installed apps	176
	Mail, Calendar, People, and To Do	177
	Managing online accounts	178
	Reading, composing, and managing email messages	181
	Setting up and using Calendar	184
	Adding or editing contacts with People	187
	Managing tasks and lists with Microsoft To Do	188
	Using Microsoft Teams	190
	Music, photos, and movies	192
	Using Media Player to play music and video files	192
	Using Photos to view and edit image files	196
	Using Movies & TV to watch purchased media files	202
	Using Clipchamp to edit video clips	204

Performing screen captures with Snipping Tool	205
Using Maps	206
Searching for places and services	206
Getting directions	207
Downloading maps for offline use	208

Chapter 7 Using Microsoft Edge.....209

An overview of Microsoft Edge	209
Choosing an Edge release channel	212
Managing updates	212
Managing Edge profiles and sync	214
Using the built-in password manager	216
Syncing and filling in other information	220
Customizing browser settings	221
Changing the browser's appearance	222
Installing and managing browser extensions	224
Customizing the new tab page	226
Customizing the startup page	227
Fine-tuning browser performance	228
Undoing all customizations	229
Working with tabs	229
Using vertical tabs	231
Pinning tabs for quick access	231
Making webpages easier to read	232
Finding and organizing information	234
Changing the default search provider	234
Finding previously visited pages in History	236
Saving, editing, and organizing Favorites	237
Saving and sharing your research as Collections	239
Managing privacy and tracking prevention	241
Preventing online tracking	241
Using InPrivate browsing to suppress your history	243
Controlling site permissions	244
Clearing your browsing history and other personal information	244
Managing cookies	246
Opening incompatible pages in Internet Explorer mode	248
Using Microsoft Edge to read and edit PDFs	249

Chapter 8 Managing local and cloud storage.....251

Setting up hard disks and other storage devices	251
Running Disk Management	252
Managing disks from the command prompt	255
Setting up a new hard disk	255
Using Storage Spaces to combine disks	261

Connecting OneDrive to your Windows PC	265
How OneDrive and OneDrive for Business work	266
Setting up and using OneDrive	267
Using Personal Vault	271
Managing disk space	272
Changing default save locations	275
Cleaning up unneeded files	275
Managing existing disks and volumes	277
Assigning or changing a volume label	277
Assigning and changing drive letters	277
Mapping a volume to an NTFS folder	278
Shrinking or extending an NTFS volume	280
Converting a FAT32 volume to NTFS	283
Deleting a volume	283
Permanently wiping all data from a disk	283
Working with virtual hard disks	284
Part II	
Managing Windows 11	287
Chapter 9	
Using File Explorer	289
Mastering File Explorer	289
Using the navigation pane	293
Navigating faster with favorite files and folders	294
Layouts, previews, and other ways to arrange files	295
Managing file properties and metadata	298
Using compressed (zipped) folders	302
Organizing personal data with user profile folders and libraries	303
What's what (and where) in your user profile	303
Relocating personal data folders	306
Using libraries	308
Integrating OneDrive with File Explorer	310
Syncing files and folders	312
Sharing OneDrive files and folders	313
Recovering lost, damaged, and deleted files and folders	315
Restoring files and folders	317
Purging the Recycle Bin	317
Sorting, filtering, and grouping in File Explorer	318
Sorting a folder's contents	318
Filtering folder contents	318
Grouping folder contents	320
Searching from File Explorer	321
Configuring the Windows search index	324
Which files and folders are in the index?	325
Monitoring the index and tuning indexer performance	327

	Advanced search tools and techniques	328
	Searching by item type or kind	329
	Changing the scope of a search.	330
	Searching for item properties	330
	Using multiple criteria for complex searches	331
	Using wildcards and character-mode searches	332
	Saving searches	333
Chapter 10	Managing user accounts, passwords, and credentials	335
	Creating and managing user accounts	336
	Choosing how you sign in	337
	Administrator or standard user account?	343
	Changing account settings	344
	Deleting an account	346
	Making the sign-in process more secure	347
	Adding security with multifactor authentication.	350
	Using Windows Hello	351
	Using a picture password	355
	Setting or changing a password	355
	Managing a physical security key	358
	Signing out, switching accounts, or locking your computer	358
	Using Dynamic Lock	359
	Sharing your PC with other users	360
	Adding a user to your computer	361
	Controlling your family's computer access	363
	Restricting use with assigned access	366
	Introducing access control in Windows	366
Chapter 11	Configuring Windows networks	371
	Windows 11 networking essentials	372
	Checking the status of your network.	374
	Network management tools	377
	TCP/IP configuration.	379
	Mobile hotspots and other metered connections.	385
	Enabling network discovery	388
	Setting the network location	389
	Connecting to a wireless network	390
	Connecting to a hidden network	393
	Wireless security.	395
	Connecting to another computer with Remote Desktop	398
	Installing Remote Desktop client software	399
	Enabling inbound Remote Desktop connections	399
	Using the Microsoft Remote Desktop app.	401
	Using Remote Desktop Connection.	405

Sharing files, printers, and other resources over a local network	406
Understanding sharing and security models in Windows	407
Configuring your network for sharing	408
Sharing files and folders	411
Sharing a printer	415
Finding and using shared resources on a Windows network	417
Working with mapped network folders	418
Connecting to a network printer	419
Connecting to and using cloud-based apps and resources	419
Troubleshooting network problems	420
Network troubleshooting tools	421
Troubleshooting TCP/IP problems	422
Chapter 12 Windows security and privacy	429
Understanding security threats	429
Monitoring your computer's security	432
Keeping Windows up to date	433
What you get from Windows Update	435
Choosing when and how updates are installed	437
Deferring and delaying updates	439
Finding technical information about updates	442
Troubleshooting update problems	444
Configuring privacy options	445
Preventing unsafe actions with User Account Control	448
What triggers UAC prompts	449
Dealing with UAC prompts	450
Modifying UAC settings	452
Blocking malware	455
Using Microsoft Defender Antivirus	455
Manually scanning for malware	456
Dealing with detected threats	457
Blocking ransomware with controlled folder access	457
Protecting Windows from exploits	457
Stopping unknown or malicious programs with Microsoft Defender SmartScreen	458
Encrypting information	459
Encrypting with BitLocker and BitLocker To Go	460
Using BitLocker To Go	461
Using the Encrypting File System	463
Blocking intruders with Windows Defender Firewall	465
Using Windows Defender Firewall with different network types	466
Managing Windows Defender Firewall	467
Restoring default settings	469

Chapter 13	Managing hardware and devices	471
	Adding, configuring, and removing hardware devices	471
	Installing a new Plug and Play device	472
	How device drivers and hardware work together	473
	Getting useful information from Device Manager	476
	Enabling and disabling devices	480
	Adjusting advanced device settings	481
	Setting up Bluetooth devices	482
	Managing USB devices	485
	Updating and uninstalling drivers	485
	Managing automatic driver updates	486
	Updating a device driver manually	487
	Rolling back to a previous driver version	489
	Uninstalling a driver	490
	Printers and print queues	494
	Configuring displays and graphics adapters	497
	Changing display settings	497
	Controlling scaling on high-DPI displays	501
	Using multiple displays	503
	Night Light	505
	Speakers, microphones, and headsets	505
Chapter 14	Performance and power management	509
	What causes performance problems?	510
	Viewing details about your system	511
	System Information	512
	Systeminfo	514
	Windows Management Instrumentation tools	515
	Monitoring performance with Task Manager	516
	CPU	519
	Memory	520
	Disk	523
	Network	524
	GPU	525
	Using Resource Monitor to pinpoint performance problems	526
	Managing services	528
	Using the Services console	528
	Starting and stopping services	530
	Configuring services	531
	Managing services from Task Manager	534
	Managing battery life on portable PCs	536
	Battery Saver and other power management options	539
	Monitoring long-term battery life and capacity	540
	Configuring power options from the command line	541
	Power management on desktop systems	541

Chapter 15	Troubleshooting, backup, and recovery	543
	Getting to know your troubleshooting toolkit	543
	Built-in troubleshooters	544
	Windows Error Reporting	544
	Feedback and diagnostics	546
	Reliability Monitor	547
	Event Viewer	548
	Types of events	550
	Viewing logs and events	551
	Customizing the presentation of tabular data in Event Viewer	553
	Filtering the log display	554
	Dealing with Stop errors	555
	Customizing how Windows handles Stop errors	556
	What's in a Stop error	558
	Isolating the cause of a Stop error	560
	Troubleshooting in Safe Mode	561
	Checking disks for errors	564
	Offering remote support with Quick Assist	566
	Windows 11 backup and recovery options	567
	Using a recovery drive	570
	Using File History to protect files and folders	571
	Using the Reset option to recover from serious problems	579
	Using the Windows 7 Backup program	582
	Configuring and using System Restore	588
	Rolling back to a previous restore point	591
Part III	For IT professionals and Windows experts	593
Chapter 16	Windows Terminal, PowerShell, and other advanced management tools	595
	Using and configuring Windows Terminal	596
	An introduction to PowerShell	599
	Interacting with PowerShell	600
	Scripting with PowerShell	612
	Finding additional PowerShell resources	616
	Working in a Command Prompt session	616
	Running with elevated privileges	616
	Starting Command Prompt at a particular folder	616
	Starting Command Prompt and running a command	617
	Using AutoRun to execute commands when Command Prompt starts	617
	Editing the command line	618
	Using command symbols	618

Editing the Windows registry	621
Understanding the Registry Editor hierarchy	622
Registry values and data types	624
Browsing and editing with Registry Editor	626
Backing up and restoring parts of the registry	627
Automating registry changes with .reg files	628
Registry virtualization	631
Automating tasks	631
Task Scheduler	632
Automating command sequences with batch programs	632
Automating tasks with Windows Script Host	632
Using Microsoft Management Console	633

Chapter 17 Running Windows 11 in a virtual machine or in the cloud 637

Virtualization in Windows 11	638
Creating an instant VM with Windows Sandbox	639
Setting up Hyper-V on Windows 11	641
Creating and managing virtual machines with Hyper-V Manager	644
What's in a VM?	646
Using Quick Create to download and run a preconfigured VM	654
Building a custom VM with the New Virtual Machine Wizard	656
Running a virtual machine	663
Working with Virtual Machine Connection windows	664
Using enhanced session mode	666
Working with checkpoints	669
Changing settings for a virtual machine	671
Firmware	671
Security	671
Memory	672
Processor	674
SCSI Controller	674
Network Adapter	677
Automatic start and stop actions	678
Importing, exporting, and moving Hyper-V VMs	678
Running virtual machines from the cloud	679

Chapter 18 Using Android and Linux on Windows 11 681

Linking an Android phone to your PC	681
Running Android apps on Windows 11	685
Using the Windows Subsystem for Linux	688

Chapter 19	Managing Windows PCs in the enterprise	691
	Using a domain-based network	691
	Managing an Azure AD-based network	693
	Managing hybrid networks	695
	Managing computers with Group Policy	696
	Using Local Group Policy Editor	698
	Changing policy settings	700
	Deploying Windows 11 in the enterprise	701
	Microsoft Endpoint Configuration Manager	701
	Microsoft Deployment Toolkit	702
	Windows System Image Manager	704
	Windows Autopilot	705
	Windows Server Update Services	706
	Windows Update for Business	707
	Managing Windows 11 in the cloud	708
	Microsoft 365 and Windows Enterprise licensing	709
	Azure Virtual Machines running Windows 11	711
	Windows 365 cloud PCs	712
	Microsoft Defender for Endpoint	713
	Microsoft Intune	713
	Managing apps with Intune	715
	Managing special-purpose computers	717
	Using shared PC mode	717
	Setting up a kiosk device	718
Part IV	Appendixes	721
Appendix A	Windows 11 editions and licensing options	723
	Windows 11 editions at a glance	724
	Retail and OEM editions	724
	Windows 11 Home	725
	Windows 11 Pro	726
	Windows 11 Pro for Workstations	727
	Editions for organizations	727
	Windows 11 Enterprise	728
	Windows 11 Enterprise E3 and E5	728
	Microsoft 365 E3, E5, and F3	728
	Windows 11 Enterprise LTSC	729
	Editions for educational institutions	729
	Windows 11 Education	730
	Windows 11 Pro Education	730
	Windows 11 SE	730

Appendix B The Windows Insider Program	731
How the Windows Insider Program works	731
Enrolling a device in the Windows Insider Program	733
Keeping track of what's in each preview build	737
Submitting and tracking feedback	739
Appendix C Help and support resources	741
Online help	741
Online reference material from Microsoft	744
Microsoft Support	744
Microsoft Docs	745
Resources for IT Pros	745
Microsoft Learn	746
Getting technical support	746
Microsoft Q&A	747
Free and paid support from Microsoft	748
What's next for Windows	749
Index	751

Acknowledgments

For this edition of the book, like many before it, we're fortunate to have an experienced production crew that has worked together as a team for multiple editions in this series. Led by executive editor Loretta Yates, the team includes technical editor Carl Siechert (who was a co-author on earlier editions), proofreader Sarah Kearns, compositor Tricia Bronkella, and indexer Cheryl Lenser. Together, they asked the right questions and made excellent suggestions to help turn a collection of Word files and screenshots into the visually compelling, tightly organized, technically accurate volume you're reading now. Thanks, too, to Andrew Warren, who provided much-needed help with the enterprise-focused chapters.

And we've saved a special tip of the hat to our longtime colleagues Charlotte and Rick Kughen. This book would never have gotten into your hands without their production magic.

About the author

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

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

Introduction

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

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

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

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

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

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

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

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

— Ed Bott, January 2023

Who this book is for

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

Assumptions about you

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

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

How this book is organized

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

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

Part 3, "For IT professionals and Windows experts," leads off with a chapter that introduces Windows Terminal and PowerShell, tools that take some effort to master but pay huge dividends for automating repetitive administrative tasks. An additional chapter covers Hyper-V, a powerful virtualization platform built into Windows 11 Pro and Enterprise editions. In the final chapters, we cover the unusual Windows subsystems for Linux and Android and offer pointers for administrators working in enterprise environments.

Finally, we provide three appendixes of reference information: a concise look at the differences between Windows 11 editions, a hands-on guide to the Windows Insider Program, and an overview of help and support resources.

Stay in touch

Let's keep the conversation going! We're on Twitter: <https://twitter.com/MicrosoftPress>.

Errata, updates, and book support

We've made every effort to ensure the accuracy of this book and its companion content. You can access updates to this book—in the form of a list of submitted errata and their related corrections—at

<https://MicrosoftPressStore.com/Windows11InsideOut/errata>

If you discover an error that is not already listed, please submit it to us at the same page.

For additional book support and information, please visit

MicrosoftPressStore.com/Support

Please note that product support for Microsoft software and hardware is not offered through the previous addresses. For help with Microsoft software or hardware, go to

<https://support.microsoft.com>



An overview of the Windows 11 user experience	67	Managing notifications and eliminating distractions	89
Using and customizing the Start menu	71	Managing and arranging windows	95
Using the Start menu to search	76	Switching between tasks and desktops	100
Using and customizing the taskbar	79	Using a keyboard and voice input in Windows 11	102
Customizing the Quick Settings pane	87		

This chapter covers the core features of the Windows 11 user interface—all the things you tap, click, drag, and drop to make Windows do what you want it to do.

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

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

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

An overview of the Windows 11 user experience

Before we dive into detailed descriptions of individual features, please join us for a brief tour of Windows 11. Our goal is to introduce the different parts of Windows, new and old, so that we can be sure we're on the same page.

Figure 3-1 shows the two most important building blocks of Windows 11 and offers a hint of its signature visual style.

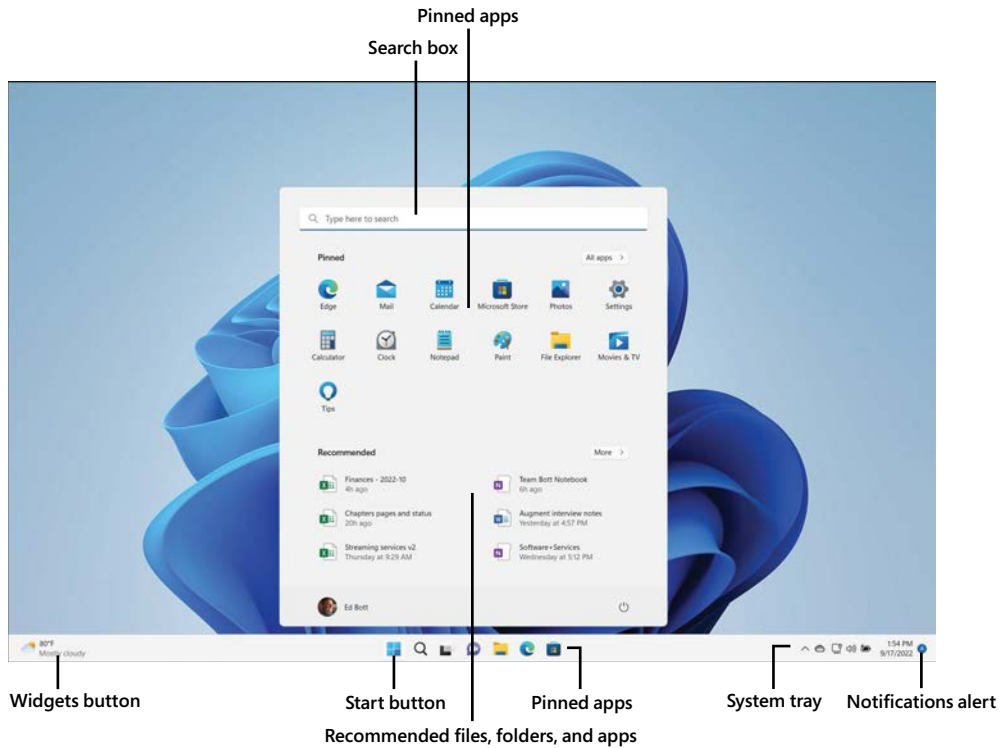


Figure 3-1 Compared to its predecessor, the Windows 11 Start menu is radically simplified.

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

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

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

- The Power button, user profile picture, and shortcuts to common data folders are in a row along the bottom of the Start menu rather than in a thin vertical strip on the left side.
- The Windows 11 Start menu is a fixed size. You can't drag its borders to change its dimensions, and there's no option to use it in full-screen mode.
- A search box appears at the top of the Start menu, above the grid containing pinned apps. Tapping the Start button and then typing a search term (or clicking in the search box or clicking the search button on the taskbar, just to the right of Start) opens a different view of the Start menu that includes suggested web searches.

MICROSOFT ACCOUNTS AND WINDOWS 11

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

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

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

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

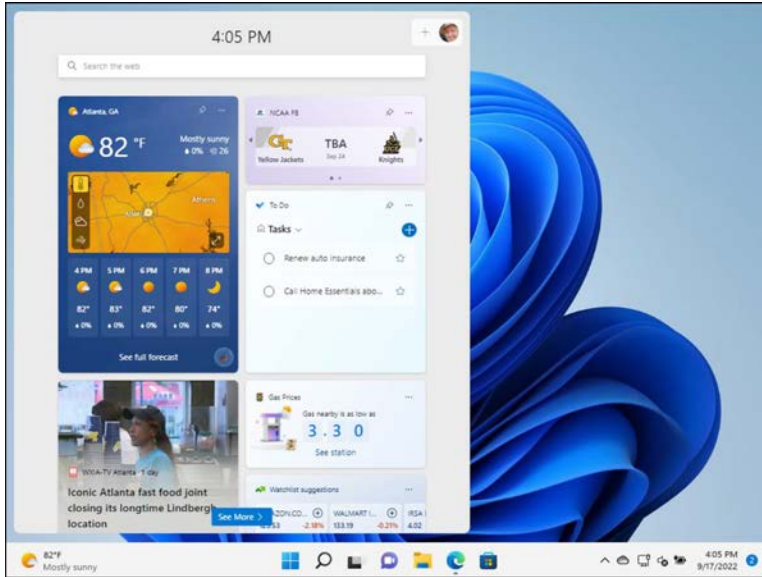


Figure 3-2 The Widgets pane displays news headlines, sports scores, weather, and other tidbits of information. It's customizable, and its button can be removed from the taskbar if you find it distracting.

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

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

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

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

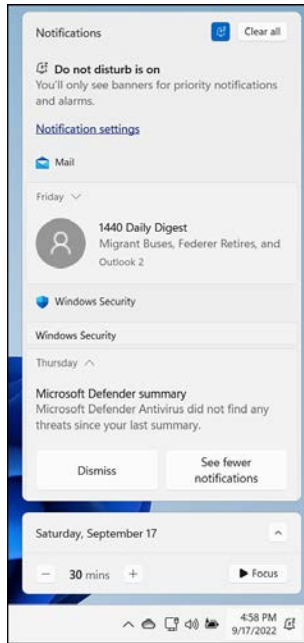


Figure 3-3 You can curate the list of apps and services allowed to interrupt you with notifications in this pane. You can also turn on a pair of features to temporarily suppress those interruptions and allow you to focus on work.

Using and customizing the Start menu

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

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

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

At the very bottom of the Start menu is a horizontal region that, by default, contains only two controls. On the left is a picture (and username) that matches the account with which you

signed in to Windows. Click that picture to display a shortcut menu allowing you to change the settings for your account, lock the PC, sign out of Windows, or switch to another user account.

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

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

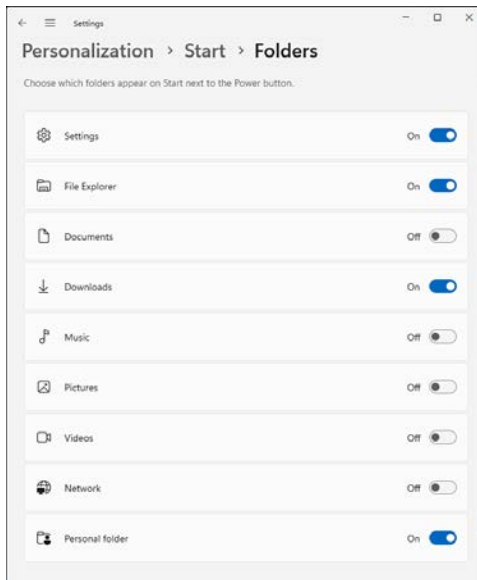


Figure 3-4 Use the switches on this Settings page to tell Windows which folder shortcuts you want to see on the bottom of the Start menu.

Inside OUT

Change your Start picture

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

Customizing the contents of the Start menu

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

Inside OUT

Using Start to search

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

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

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

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

Initially, the Pinned and Recommended regions are configured to be roughly the same size, with three rows of shortcuts in each. You can change the relative allocation of space by going to Settings > Personalization > Start and choosing More Pins or More Recommendations from the Layout section at the top of the page, as shown in Figure 3-5. (You can also get to this page by opening the Start menu, right-clicking the blank area at the bottom of the menu, and choosing Start Settings.)

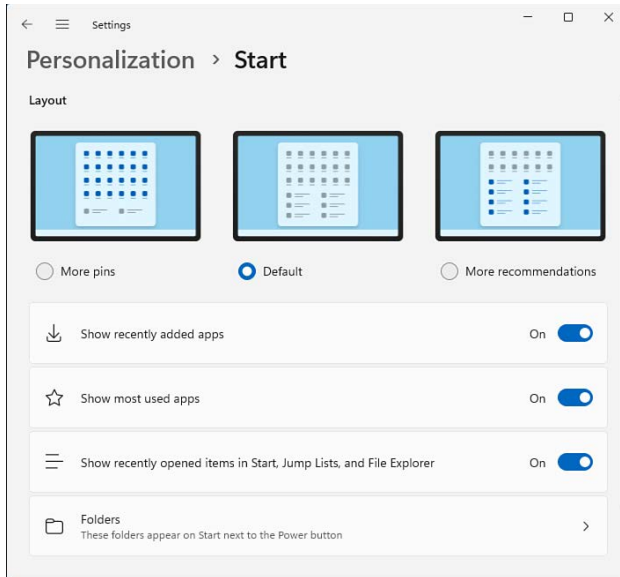


Figure 3-5 The Start menu is divided into two sections. You can't make either one go away, but you can change the relative allocation of space.

You can't hide the Recommended section, but you can make it shrink to almost nothing. If you prefer to use the Start menu exclusively for app shortcuts, choose the More Pins option and then turn the three switches on that page to the Off position. That configuration hides all shortcuts from the Recommended section and shrinks it to a minimal size.

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

Inside OUT

Use the powerful "other" Start menu

Every Windows power user knows the maxim: **When in doubt, right-click.** Testing that principle on the Start button is especially rewarding, as it reveals the hidden Quick Link menu. (You can also summon this menu using the keyboard shortcut Windows key+X.)

Figure 3-6 shows the options available as of Windows 11 version 22H2.

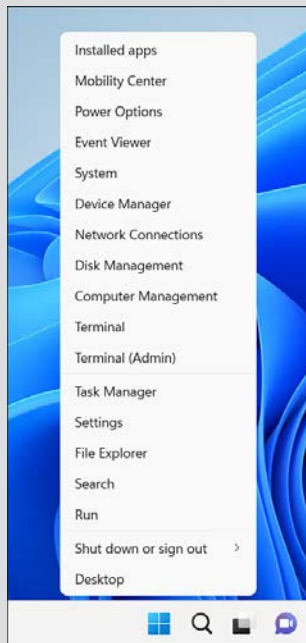


Figure 3-6 The Quick Link menu, which appears when you right-click Start, contains an impressive assortment of system management tools.

Alas, the Quick Link menu isn't customizable, but it's still exceptionally useful. Most of the major system management and troubleshooting tools are on this menu, including Disk Management, Event Viewer, and the Computer Management console. At the top of the list is a useful shortcut to the Installed Apps page in Settings.

Windows traditionalists will appreciate the fact that the Shut Down Or Sign Out menu item is here, along with links to Settings and Task Manager. The menu also includes links to Windows Terminal, where you can use your favorite command-line shell: Windows PowerShell or Command Prompt.

Arranging pinned apps into folders

Pinned apps can be combined into folders, with or without folder names. A folder containing two or more pinned apps takes up the same space as a single app, with miniature versions of the first four app icons displayed in the folder.

To create a folder, drag one app icon and drop it on top of another. To give a folder a descriptive name, click the heading at the top of any open folder and start typing. To drop additional apps into the folder, drag them to the existing folder. When you click or tap a folder, the folder opens to reveal the individual apps contained within. You can click any pinned app in the folder to open that app.

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

Using the Start menu to search

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

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

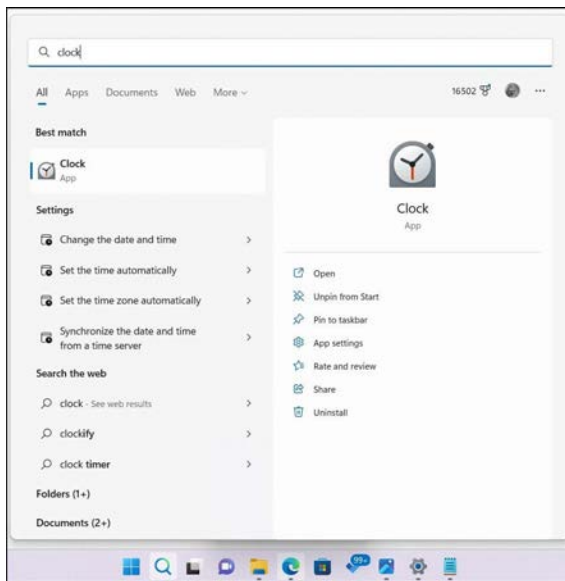


Figure 3-7 Type a word or phrase in the search box, and you get a categorized list of results that match the search term, including apps and settings. Use the options at the top to change the search scope.

The list on the left shows search results by category, including results from the web, with a Best Match item at the top if Windows believes it knows exactly what you're looking for; the larger pane to its right shows details for the currently selected item from the results list. That list also includes local files available to the currently signed-in user as well as files stored in OneDrive or OneDrive for Business. Click the profile icon in the top right to search using a different OneDrive account.

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

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

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

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

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

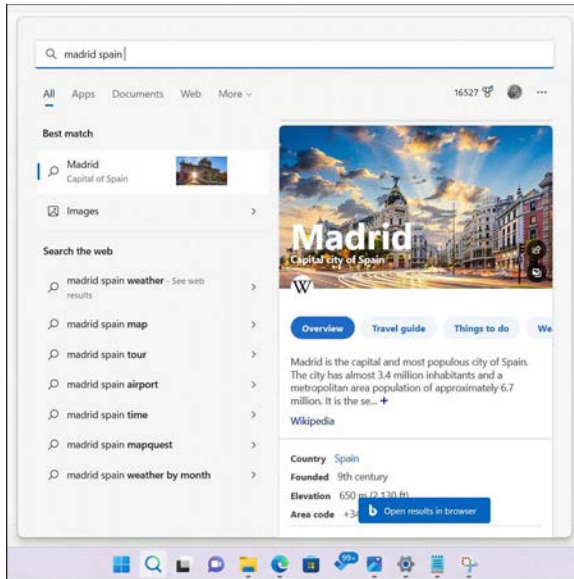


Figure 3-8 When the best match for a search term is on the web, you might see a detailed info box like this one to the right of the results list.

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

- **Dates and times** Use the search box to check the dates of upcoming holidays and events. (“When is Thanksgiving this year?” and “What time does the Super Bowl start?”)
- **Biographical details** If someone is famous enough or holds a public office, you can ask for more information. (“How old is Bill Gates?” or “Who is Governor of New Mexico?”)
- **Definitions** Not sure of the meaning of an unfamiliar word? You can view a definition in the results pane, with an option to hear the word’s pronunciation or jump to an online dictionary. (“What does phlegmatic mean?”)
- **Sports scores** You can see scores and standings for any team or league, even for games that are in progress.
- **Stock prices** To get the current price and a chart for any stock or index on a major exchange, enter a dollar sign followed by the ticker symbol: \$MSFT, \$DJIA.
- **Weather** Type **weather** followed by a city name to see a five-day forecast that can help you decide whether to pack an umbrella or extra sunscreen for an upcoming trip.

The expanded results pane can also display interactive controls. Enter an arithmetic problem, and Windows search shows the result in a calculator where you can continue your number-crunching. If you ask how to convert units of measurement, the resulting display enables you

to choose from an enormous number of conversions, including length, volume, and even fuel efficiency. Figure 3-9 shows a conversion that might not be as practical as gallons to liters but could help settle a bet over your favorite space opera.

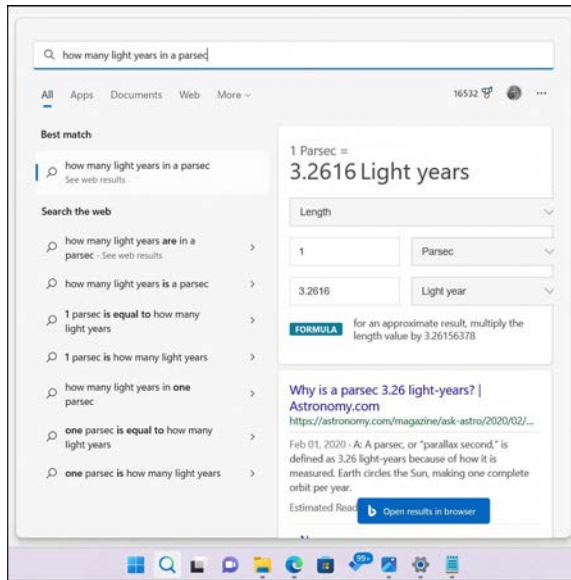


Figure 3-9 An interactive widget appears in the search results when you ask a question that involves calculation or conversion.

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

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

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

Using and customizing the taskbar

The taskbar is the valuable strip of real estate along the bottom of the screen. The taskbar made its debut in Windows 95, and in the years since, it has added features and buttons without changing its basic shape.

In Windows 11, Microsoft has rewritten the taskbar code from scratch, stripping away nearly three decades' worth of cruft and starting fresh with a design that is deliberately clean and simple. Its initial arrangement contains a group of buttons in the center, with (from left to right) the Start button, a group of system shortcuts, and then a group of buttons representing apps; the Widgets button is on the far left and a group of notification icons and a clock are on the far right.

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

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

WHAT YOU CAN'T DO WITH THE WINDOWS 11 TASKBAR

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

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

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

- You can no longer move the taskbar from its default position at the bottom of the screen. If you prefer to dock the taskbar at the top (a configuration that’s similar to Apple’s macOS) or to either side, you need to use a third-party utility.
- Previous Windows versions allowed you to expand the height of the taskbar to accommodate two or more rows of buttons. That option is not available in Windows 11.
- There’s no longer an option to use smaller taskbar buttons.

- A legacy taskbar option, one that dates back to the earliest days of Windows, allowed the addition of optional toolbars that were hosted entirely within the taskbar, in a space just to the left of the notification area. Windows 11 does not support additional toolbars.
- When you have multiple windows open for an app, earlier Windows versions allowed you to configure the taskbar so that each of those windows has its own button. Windows 11 always combines those Windows into a single taskbar button, without labels.
- You can't drag file or folder icons from File Explorer and drop them onto the taskbar to pin them to a taskbar icon's Jump List, as you could in Windows 10.

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

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

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

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

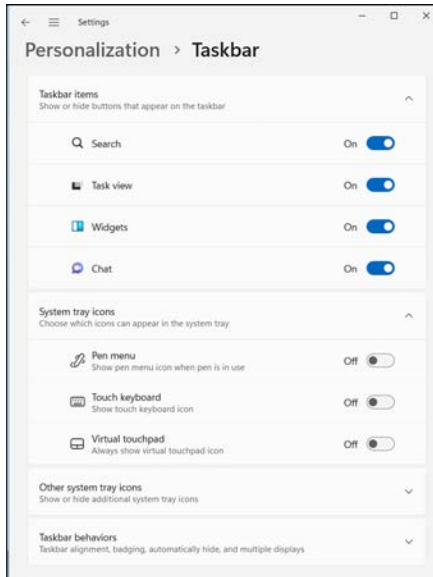


Figure 3-10 Taskbar settings are organized into four collapsible groups, including these options to show or hide buttons and icons.

Here's a rundown of the available taskbar customization options:

- Taskbar Items** The four items in this group allow you to show or hide items that appear on the taskbar independently of app buttons: Search, Task View, Widgets, and Chat. If you don't use one or more of these features, it might make sense to suppress their appearance on the taskbar. In the interest of saving space, you might even choose to hide the button for a feature you use occasionally and just rely on its keyboard shortcut instead. For example, you can hide the Widgets button and press Windows key+W when you feel the need to check news headlines or see the local weather forecast.
- System Tray Icons** On systems that are equipped with the requisite hardware (a pen and/or touchscreen), you can configure Windows so that the Pen Menu, Touch Keyboard, and Virtual Touchpad icons are always visible. We cover these features in more detail later in this chapter.
- Other System Tray Icons** Third-party apps (including some from Microsoft) can add their own icons to the system tray, which is the region just to the left of the clock in the taskbar. By default, most of these icons are hidden and available only in an overflow area visible when you click the upward-pointing arrow at the left of the system tray, as shown in Figure 3-11. You can drag icons from the overflow area onto the system tray (or vice versa), or use the switches on this Settings page to show or hide individual icons.

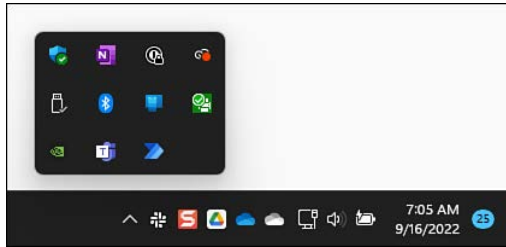


Figure 3-11 Drag icons out of this overflow area and onto the system tray to make them always available for notifications and access to shortcut menus.

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

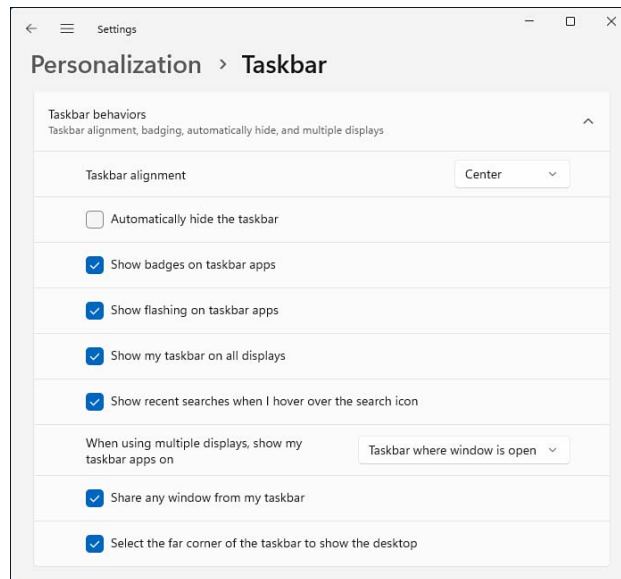


Figure 3-12 Use the Taskbar Alignment setting to move the Start button to the left. Note that some options shown here are available only on PCs with multiple displays.

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

- **Taskbar Alignment** By default, the Windows 11 taskbar buttons are centered at the bottom of the display, with the Start button on its left. Change this option to Left if you want the Start button to appear in the lower-left corner, with taskbar buttons appearing to its right, as in previous Windows versions.

- **Automatically Hide The Taskbar** By default, the taskbar remains visible at all times. If that's inconvenient for any reason, you can tell it to get out of the way. With this option set, the taskbar retreats into the bottom edge of the desktop whenever a window has the focus. To display the hidden taskbar, move the mouse pointer to the bottom of the desktop. On a touchscreen, swipe from that edge toward the center of the screen.
- **Show Badges On Taskbar Apps** Badges are small circular notifications that can appear over taskbar buttons to indicate that something in that app needs your attention. Badges on the Clock icon, for example, indicate that an alarm has been set, while badges over the To Do and Mail buttons indicate that you have overdue tasks and unread messages, respectively.
- **Show Flashing On Taskbar Apps** This option allows Windows to flash a taskbar button when it requires immediate action on your part to proceed. If you turn this option off, the taskbar button changes color to alert you, without calling any additional attention to itself.
- **Show My Taskbar On All Displays** If your PC is configured to use multiple displays, you can choose whether you want each display to have its own taskbar. If this option is off, the taskbar appears only on the main display. (You specify the main display in Settings > System > Display. For details, see "Configuring displays and graphics adapters" in Chapter 13, "Managing hardware and devices.")
- **When Using Multiple Displays, Show My Taskbar Apps On** If you've chosen to show taskbars on all displays, you can choose whether you want buttons for running apps to appear on all taskbars, on the main taskbar and the window where the window is open, or only on the taskbar where the window is open. Note that the last option can be confusing if you have an app's button pinned to the main taskbar, but it's open on a secondary window.
- **Share Any Window From My Taskbar** This option allows you to share a window in a Microsoft Teams meeting using a menu on the taskbar icon. Note that this feature works with the Microsoft 365 version of Teams, not the free consumer-focused version included with Windows.
- **Select The Far Corner Of The Taskbar To Show The Desktop** With this option (called Peek in previous Windows versions) on, clicking in the lower-right corner of the display (beyond the Notification Center button) hides all open windows, giving you the opportunity to see the underlying desktop. Click again to restore the previous arrangement.

Pinning apps to the taskbar

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

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

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

Changing the order of taskbar buttons

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

Inside OUT

Use shortcut keys for taskbar buttons

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

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

Note that when you change the order of a taskbar button, you also change the Windows key+*number* combination that starts that particular app.

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

Using Jump Lists for quick access to documents and folders

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

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

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

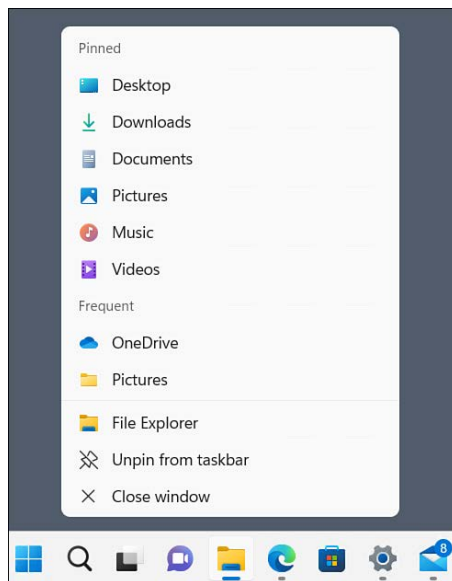


Figure 3-13 Right-click a taskbar button, such as File Explorer, to see a Jump List showing recently opened files and folders with the option to pin items for quick access.

Individual files and folders can't be pinned directly to the taskbar, but you can add them to Jump Lists on any program that supports this feature. Opening a file or folder from File Explorer adds an entry for that to the Recent list in the app where it opened. Right-click the taskbar button, point to its entry, and click the pushpin icon to move the file or folder to the Pinned section of the Jump List:

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

Customizing the Quick Settings pane

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

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

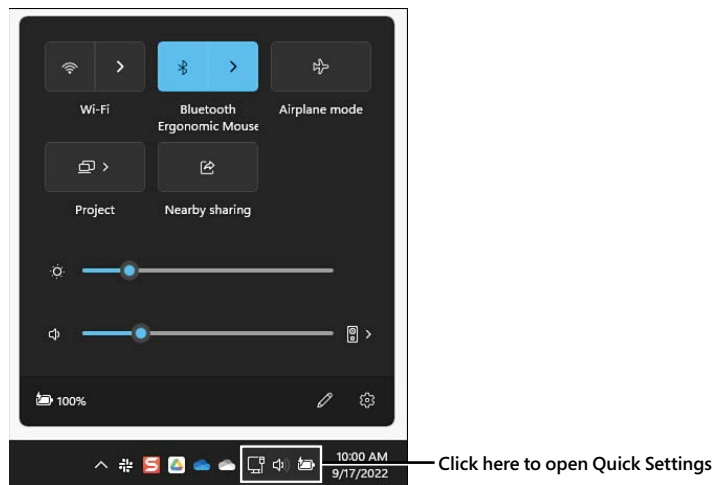


Figure 3-14 The Quick Settings pane includes a wide-ranging assortment of tools for efficiently managing common system settings.

This compact pane packs an impressive collection of controls into its small space. On the example shown in Figure 3-14, each of the five buttons at the top of the pane allows direct control

over common system settings without having to open the full Settings app. Two slider controls below that control screen brightness and system volume, respectively. Clicking the battery icon opens the Power & Battery page in Settings, where you can change the power mode or turn on Battery Saver mode.

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

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

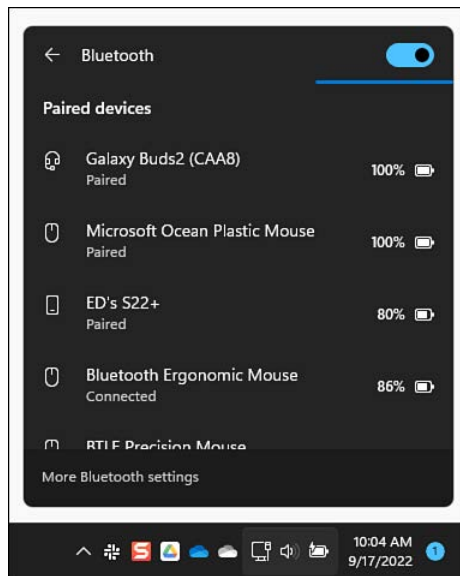


Figure 3-15 Click the arrow to the right of the Bluetooth button in Quick Settings to open this list and connect to a previously paired device.

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

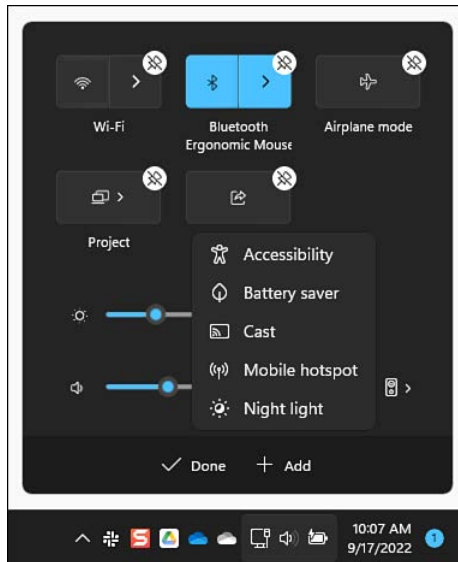


Figure 3-16 You can add, remove, or rearrange controls on the Quick Settings pane using these options.

Managing notifications and eliminating distractions

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

Figure 3-17 shows the notification center with two notifications and Do Not Disturb turned on. Notifications are grouped under headings corresponding to the notifying applications.

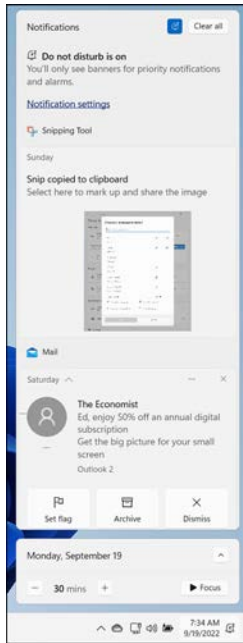


Figure 3-17 Notifications are a useful way to stay on top of events. To lessen their potential as a source of distraction, use the Do Not Disturb feature (top) or start a Focus session (bottom).

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

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

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

Customizing notifications

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

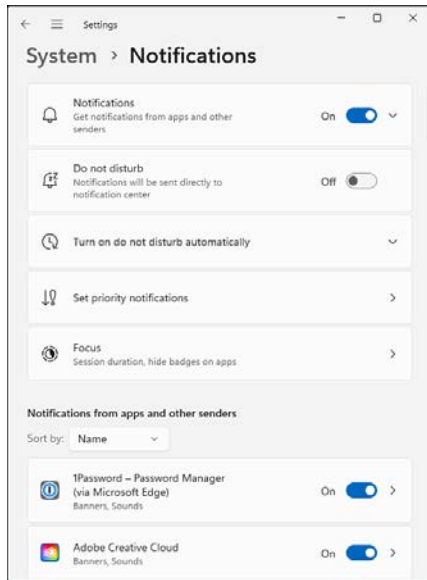


Figure 3-18 Use the switch at the top of this page to suppress all notifications.

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

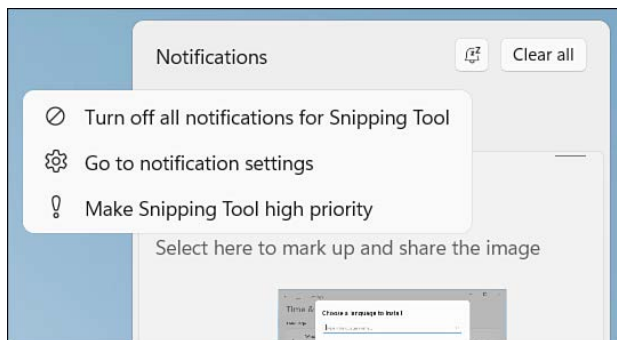


Figure 3-19 Use this Settings menu to quickly adjust notification options for a group that's currently visible in the notification center.

If you decide you don't really need to see notifications from Snipping Tool, for example, click its Settings button and then choose Turn Off All Notifications For Snipping Tool. If, on the other hand, you want those notifications to be treated with high priority so that you see them above other notifications, even when Do Not Disturb is turned on, choose Make Snipping Tool High Priority.

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

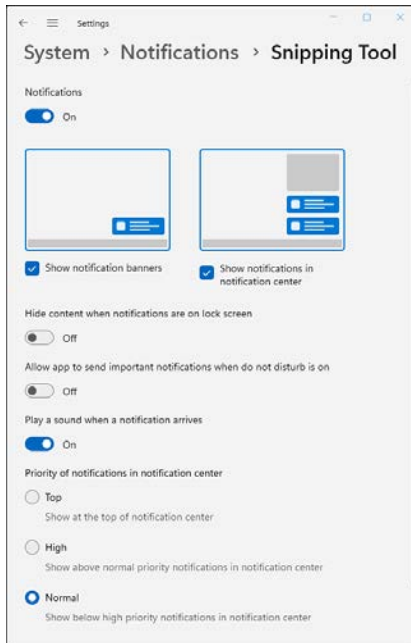


Figure 3-20 Every app, service, and system function capable of sending notifications can be fine-tuned using settings like the ones shown here.

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

The three options under the Priority of Notifications In Notification Center heading allow you to roughly sort the contents of this pane by importance. Set your must-see notifications to the Top option; use High for those you want to see near the top; everything else is categorized as Normal.

On a well-used Windows 11 PC, dozens of apps and services, as well as Windows features such as USB and Bluetooth, are capable of sending you notifications. You can curate what you see in the notification center by scrolling through the entire list at the bottom of Settings > System > Notifications. Turn the switch to Off for any app you never want to hear from, and then go through the individual settings to adjust the behavior of alerts from those that are allowed to send notifications.

Eliminating distractions

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

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

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

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

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

The Focus feature (which was known as Focus Assist and before that as Quiet Hours in Windows 10) is a productivity-focused feature designed to minimize interruptions from your computer for a specific period of time while you concentrate. The idea is that you will focus your attention, uninterrupted, for a burst of productive activity.

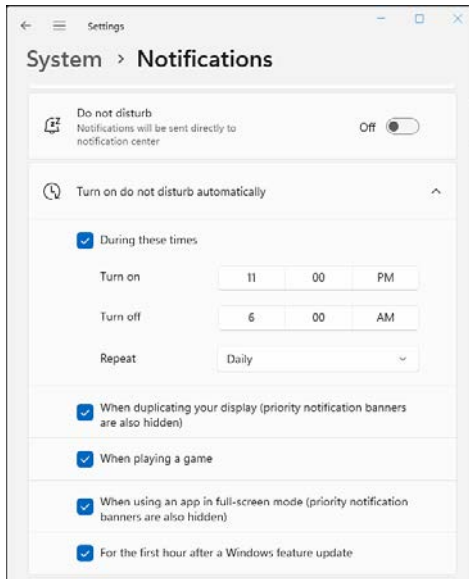


Figure 3-21 Windows turns on Do Not Disturb automatically when it senses you don't want to be bothered. You can set your own "quiet hours" here.

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

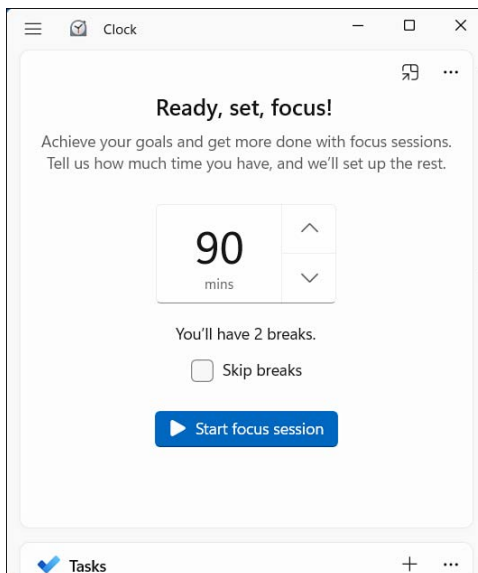


Figure 3-22 Use focus sessions to increase your productivity by hiding notifications and other distractions for a set period of time.

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

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

Managing and arranging windows

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

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

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

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

An even easier window-snapping technique, new in Windows 11, allows you to quickly snap a window into one of several predetermined layouts by pointing and clicking—no dragging and dropping required. To get started, hover the mouse pointer over the maximize button on the window you want to rearrange. That displays a list of available layouts like the one shown in Figure 3-24.

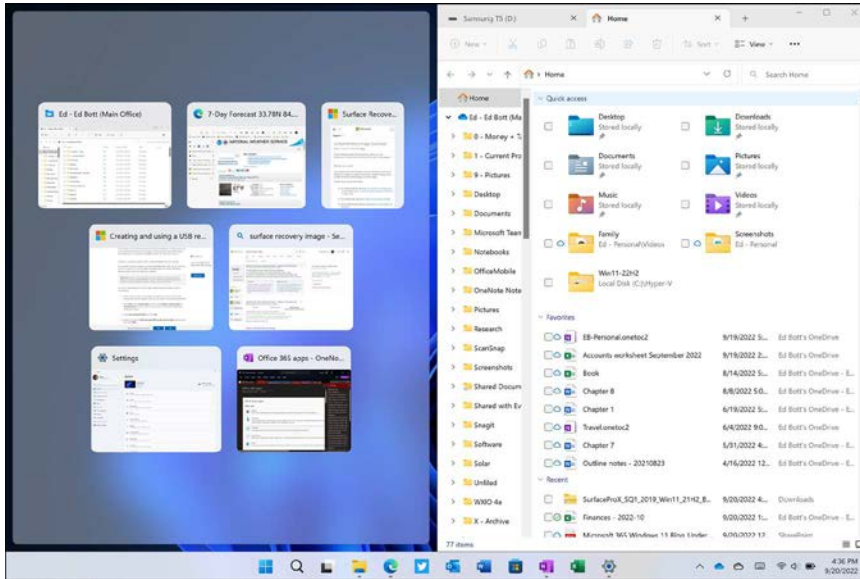


Figure 3-23 When you snap a window to one edge of the display, Windows shows other open windows in thumbnails alongside the snapped window for easy side-by-side arrangement.

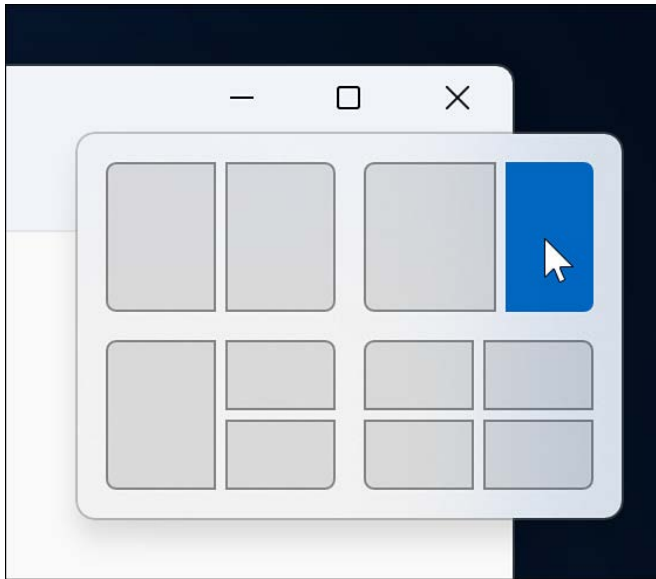


Figure 3-24 Hover the mouse pointer over the maximize button to expose this menu of available snap layouts. Click to immediately snap the window into the chosen position.

A variation of this feature, first available in Windows 11 version 22H2, makes window snapping easier on a touchscreen device. Drag the title bar up until you see a menu of available layouts drop down from the center of the display's upper edge, as shown in Figure 3-25.



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

Inside OUT

Expand your selection of window-snapping layouts

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

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

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

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

Inside OUT

Snap side-by-side Windows at different widths

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

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

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

Inside OUT

Shake to minimize distractions

An ancient Windows feature called Aero Shake, introduced with Windows Vista, survives in Windows 11. Grab the window's title bar and quickly move it back and forth a few times. Suddenly, all windows retreat to the taskbar except the one whose title bar you just shook. This move takes a bit of practice, but it's worth learning. It requires only three smooth "shakes"—a left, right, left motion is best—not maniacal shaking. If this feature isn't working, you might need to turn it on. Go to Settings > System > Multitasking and turn the Title Bar Window Shake switch to the On position.

Windows 11 includes keyboard shortcuts that correspond with the preceding mouse gestures. These (and a few extras) are shown in Table 3-1.

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

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

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

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

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

Switching between tasks and desktops

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

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

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

Using Task View to switch between windows

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

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

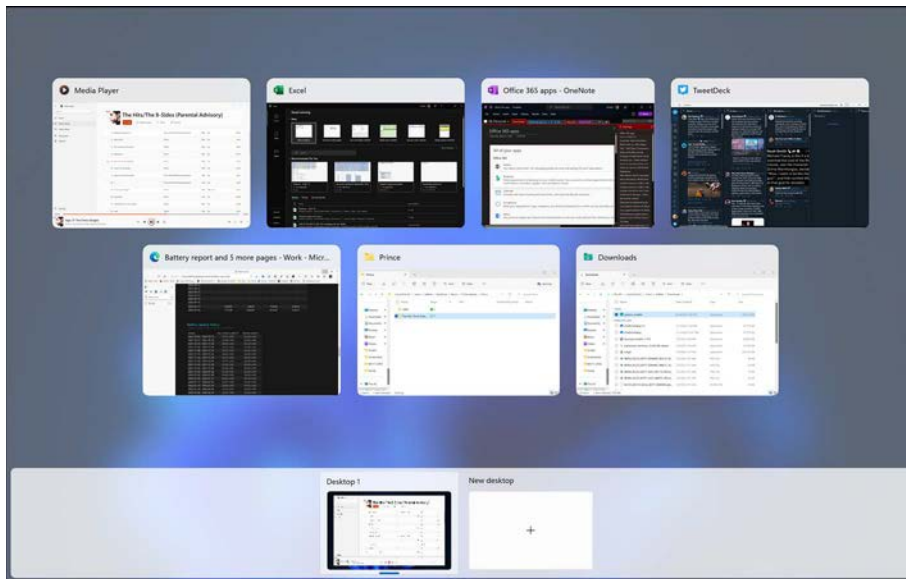


Figure 3-26 Opening Task View shows running programs using their windowed dimensions. Clicking or tapping any thumbnail opens it in its current position.

Those thumbnails remain open until you do something, usually by clicking or tapping a thumbnail to switch to that window or by pressing Esc to return to the current window.

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

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

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

Switching between virtual desktops

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

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

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

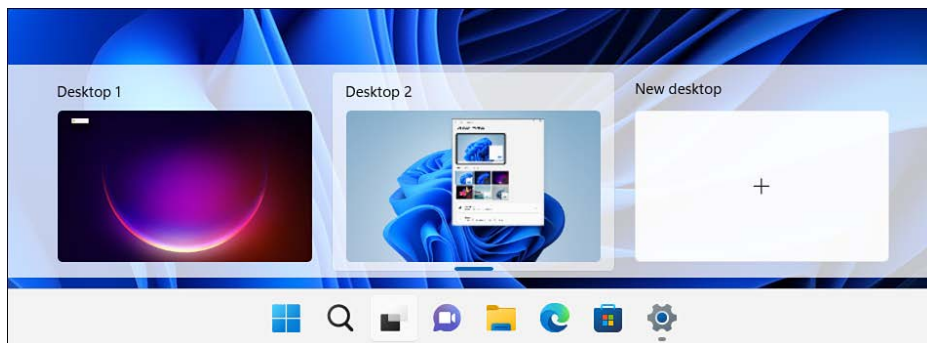


Figure 3-27 Arranging groups of open windows into separate virtual desktops can help you focus on specific tasks without being overwhelmed by unrelated windows.

Right-click a virtual desktop to give it a new name or background.

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

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

Using a keyboard and voice input in Windows 11

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

Customizing and using a physical keyboard

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

The repeat delay—the amount of time Windows waits as you hold down a key before repeating that key—is set, by default, a bit long for the tastes of some proficient typists. You can make it shorter by dragging the slider to the right. On the other hand, if you sometimes find that Windows gives you an unwanted string of repeated characters, you can drag the slider left. You might also then want to reduce the repeat rate.

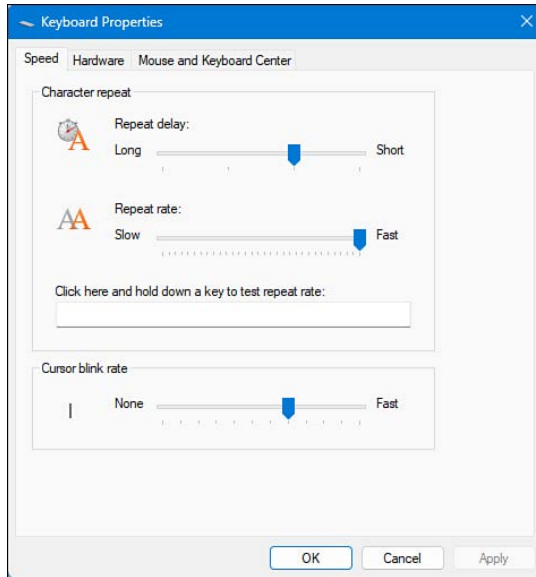


Figure 3-28 Adjust these options if you find that your keyboard occasionally repeats characters without your permission.

Inside OUT

Reconfigure the Caps Lock key to avoid shouting

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

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

Increasing productivity with keyboard shortcuts

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

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

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

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

A shortcut for emojis and more

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

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

NOTE

For a full list of officially supported Windows-compatible emoji characters, see <https://emojipedia.org/microsoft-emoji-list/>.

- **GIF** Use this tool to search for animated GIFs and insert them into social media posts or presentations.
- **Kaomoji** These are combinations of text characters that take on expressive facial characteristics, with one of the most famous being the shruggie: `_(ツ)_/`.
- **Symbols** This panel is extraordinarily useful when you need to enter unusual forms of punctuation, currency symbols, Latin characters with diacritic marks, and other characters that would otherwise require obscure keyboard shortcuts or the ancient Character Map utility.
- **Clipboard History** If you've enabled this feature, the 25 most recent items copied to the Clipboard appear here. To open this panel directly, use the keyboard shortcut Windows key+V; you can then scroll through the list and click any item to paste it at the current insertion point.

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

Using alternative keyboard layouts

Windows 11 offers keyboard support for more than 300 languages. Most of these languages are available as full language packs, and installing a language pack changes the entire Windows user interface—menus, dialogs, and all—to the selected language. But you can also simply install a keyboard layout for another language, without changing the user interface. This might prove handy if you work in an international environment and occasionally need to dash off an email to, say, a Ukrainian-speaking colleague or customer.

To install another keyboard, go to Settings > Time & Language > Language & Region. When you click Add A Language, the entire set of available languages appears, as shown in Figure 3-29, and you can make your choice. When the keyboard is installed, it becomes available through the Input Indicator system icon, which typically lives on the taskbar, adjacent to the clock. Clicking there pops up a menu of available keyboards, along with a Language Preferences command.

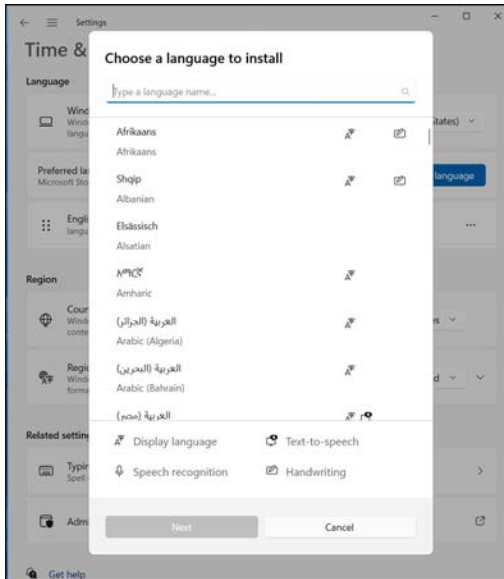


Figure 3-29 After you install an additional language, you can switch the keyboard layout to support that language.

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

Inside OUT

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

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

To display the emoji panel above the Touch Keyboard, click on the heart icon in the upper-left corner, above the Esc key. To enter a character with a diacritical mark, click and hold the unadorned character; your choices will appear in a pop-up window. Hold the *n*, for example, and the option to type ñ will appear. Hold the *o*, and you'll have the

opportunity to enter variants like ò, ö, ô, and even œ. If you've ever labored to memorize ANSI codes or wandered through Character Map in search of the accent you need, you'll certainly appreciate this feature.

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

Using the Touch Keyboard

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

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

Figure 3-30 shows the standard Touch Keyboard layout.



Figure 3-30 Use the gear icon in the upper-left corner of the Touch Keyboard to change the layout.

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

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

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

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

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

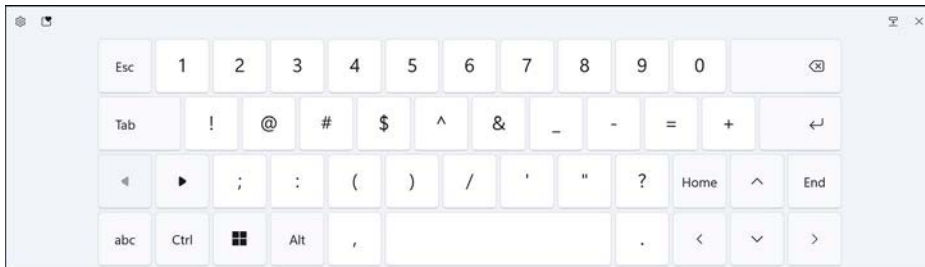


Figure 3-31 Tap the abc key in the lower-left corner to switch to the standard QWERTY keys and this alternative view of symbols and numbers.

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

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

Windows key and then tap E. (To open the Start menu when the Touch Keyboard is covering the taskbar, tap the Windows key twice.)

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

Inside OUT

Swipe to type

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

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

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

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

Using voice commands and dictating text

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

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

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

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

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

Using a pen with Windows 11

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

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

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

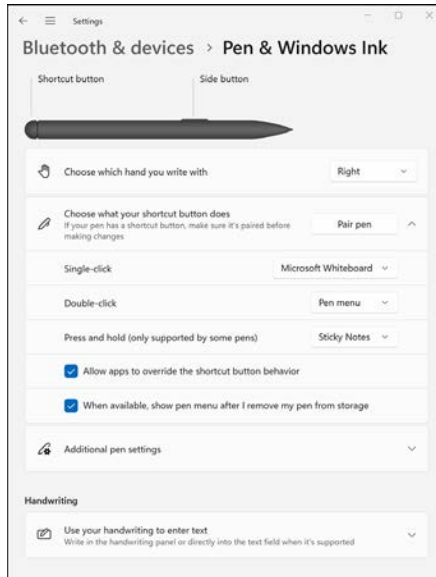


Figure 3-32 You can train your pen to launch a program, perform a screen capture, or open the Pen menu when you use one of its shortcut buttons.

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



Index

Symbols

- * (asterisk) wildcard in searches, 322, 332
- @ mentions in email messages, 184
- | (pipe symbol) in Command Prompt, 620
- ? (question mark) wildcard in searches, 332
- ~ (tilde) wildcard in searches, 333
- 3D Objects folder, 305
- 802.11ac Wi-Fi standard, 393
- 802.11ax Wi-Fi standard, 393
- 802.11g Wi-Fi standard, 393
- 802.11n Wi-Fi standard, 393

A

- AAC audio format, 195
- abbreviating parameter names in PowerShell, 607
- accent colors, changing, 119-120
- access control, 366, 368-369
- access control lists (ACLs), 369-370
- accessibility settings, 132-135
- access points (Wi-Fi), security, 397
- accounts in Mail and Calendar apps. *See also* user accounts
 - adding new, 179
 - deleting, 180
 - linking Mail account inboxes, 182
 - managing, 178-179
 - pinning to Start, 182
 - renaming, 179
 - syncing, 177, 180-181
- ACLs (access control lists), 369-370
- activating Windows 11
 - advanced license management, 60-61
 - antipiracy checks, 50-52
 - corporate licensing, 59-60
 - licensing options, 52-53
 - managing activation, 55-56
 - product keys, 53-55
 - troubleshooting activation, 56-59
- Active Directory domain accounts, signing in with, 343
- Active Directory Domain Services (AD DS), 691-693
- adapters for networking, 372-373
- adding
 - Calendar app accounts, 179
 - calendars to taskbar, 131
 - clocks to taskbar, 131
 - contacts in People app, 187-188
 - events in Calendar app, 186-187
 - to Favorites list (Microsoft Edge), 237
 - folders in Photos app, 198
 - hard disks to existing Windows installations, 256-259
 - Mail app accounts, 179
 - registry values, 627
 - secondary user accounts, 361-363
 - virtual disks to VMs, 675-676
- Address Space Layout Randomization (ASLR), 457
- AD DS (Active Directory Domain Services), 691-693
- administrator access. *See also* UAC (User Account Control)
 - registry virtualization and, 631
 - running desktop apps with, 156
- Administrator account, 344
- administrator accounts, 336, 343-344
- Advanced Query Syntax (AQS), 321
- Aero Shake, 98
- airplane mode, enabling, 374
- Alarms & Clock app, 175
- aliases
 - for Microsoft accounts, 339
 - in PowerShell, 606
- alignment of taskbar, 80, 83
- alternate IP configuration, 381
- alternative keyboard layouts, 105-106
- Amazon Appstore, 685-686
- Android apps, running on Windows, 685-688
- Android phones, linking to PCs, 681-685
- antipiracy checks, 50-52
- antivirus programs
 - Microsoft Defender Antivirus, 22, 455
 - configuring, 455-456
 - Controlled Folder Access feature, 457

- dealing with threats, 457
- exploit protection settings, 457-458
- manual scans, 456
- security intelligence updates, 436
- Microsoft Defender for Business, 22
- Microsoft Defender for Endpoint, 713
- Microsoft Defender SmartScreen, 458-459
- APIPA (automatic private IP addressing), 381, 384, 425**
- app shortcuts on Start menu, 73-74**
- AppData folder, 305**
- applications. *See* apps**
- appointments. *See* events**
- apps. *See also* names of specific apps**
 - Android, running on Windows, 685-688
 - backing up, 26
 - desktop apps, 18, 139-141
 - compatibility issues, 157
 - installing, security issues, 141-142
 - in Microsoft Store, 141-142, 148-151
 - running as administrator, 156
 - uninstalling, 155-156
 - Efficiency Mode, 519
 - included with Windows 11, 172
 - installed apps, 176-177
 - provisioned Windows apps, 172-176
 - system apps, 172
 - Jump Lists for, 86-87
 - managing with Microsoft Intune, 716
 - Microsoft Store
 - free apps, 151
 - installing, 151-153
 - managing, 154
 - reinstalling, 152-153
 - searching, 149-151
 - security features, 147-149
 - troubleshooting, 155
 - uninstalling, 155
 - updating, 152-153
 - opening from taskbar, 85
 - optional Windows features, enabling/disabling, 167-168
 - pinning
 - to Start menu, 73
 - to taskbar, 85
 - PWAs (Progressive Web Apps), 19, 140, 143-144
 - managing, 157-158
 - pinning to Start menu, 232
 - setting defaults, 164-166
 - Settings app versus Control Panel settings, 140
 - startup apps
 - managing, 160-164
 - suspending/removing, 161-163
 - in Task Manager
 - terminating, 159
 - viewing detailed information, 159
 - types of, 18-20, 139-140
 - desktop apps, 140-142
 - PWAs, 143-144
 - Windows apps, 143
 - viewing list of, 144-147
 - Windows apps, 143
 - distinguishing from desktop apps in Microsoft Store, 151
 - security features, 147
 - WindowsApps folder, viewing contents, 148
- AQS (Advanced Query Syntax), 321**
- Arm processors, 23**
- arranging**
 - desktop icons, 128
 - windows, 14, 95-99
- ASLR (Address Space Layout Randomization), 457**
- aspect ratios, locking, 201**
- assigned access, 366**
- assigning drive letters, 277-278**
- asterisk (*) wildcard in searches, 322, 332**
- attaching files to email messages in Mail app, 184**
- audio. *See also* sound**
 - file formats in Media Player app, 192-193
 - hardware devices, configuring settings, 505-507
 - playing/ripping CDs, 194-196
 - ratings, 299
 - troubleshooting, 194
- authentication credentials, 335, 347**
 - Ctrl+Alt+Delete non-keyboard alternatives, 348
 - password resets for local accounts, 340
 - types of, 348-350
 - multifactor authentication, 350
 - passwords, 355-357

- physical security keys, 358
- picture passwords, 355
- Windows Hello, 351-354
- for Wi-Fi connections, 391-392
- autofill information, clearing, 246**
- automatic private IP Addressing (APIPA), 381, 384, 425**
- automatic start/stop actions (Hyper-V Manager Settings), 678**
- automatic updates, 434-435**
- automating tasks**
 - batch programs, 632
 - Task Scheduler, 632
 - Windows Script Host, 632-633
- AutoPlay settings, 168-169**
- AutoRun with Command Prompt, 617**
- Autoruns utility, 163-164**
- available storage, troubleshooting, 557**
- available Wi-Fi networks, viewing, 375**
- Azure, 420**
- Azure AD (Azure Active Directory) accounts**
 - saving recovery keys to, 461
 - signing in with, 341-342
 - Windows 11 licensing, 52
 - Windows Insider Program for Business, 732
- Azure AD-based networks, 693-695**
- Azure AD Join operations, 710**
- Azure VMs (virtual machines), 679, 711-712**

B

- backup and recovery options, 25-26**
 - cloud services as, 567
 - configuring for services, 532-533
 - File History, 571
 - configuring, 572-574
 - folder management in, 574-575
 - keyboard shortcuts, 579
 - restoring from, 575-578
 - troubleshooting, 574
 - OEM recovery images, 570
 - recovery drives, 570-571
 - recovery tools, 7
 - Reset This PC option, 579-582
 - for settings, 26
 - System Restore, 486, 588-591
 - configuring, 589-591
 - rolling back to previous restore point, 591-592
 - types of, 567-570
 - Windows 7 Backup and Restore tool, 582
 - creating system images, 583-585
 - restoring from system images, 582, 586-588
 - troubleshooting empty backup folders, 588
 - for Windows registry, 627-628
- backward compatibility of Windows 11, 3**
- badges, 84**
- basic disks, 253**
- basic volumes, 253**
- batch programs, 632**
- battery-life management**
 - for peripheral devices, 539
 - for portable PCs, 536-538
 - Battery Saver feature, 539-540
 - generating battery report, 540-541
 - powercfg command, 541
 - power plans, 540
 - in Settings app, 537-539
- battery report, generating, 540-541**
- Battery Saver feature, 539-540**
- Bcdedit, 63-64**
- Beta channel (Windows Insider Program), 734**
- Bing search engine, help resources, 741-742**
- biometric sign-ins, 353-354**
- BitLocker, wiping data with, 284**
- BitLocker Disk Encryption, 22**
- BitLocker Drive Encryption, 459-461**
- BitLocker To Go, 459-462**
- bit rates, 193**
- blocking cookies (Microsoft Edge), 247**
- blogs from Microsoft, 749-750**
- Blue Screen of Death (BSOD). See Stop errors**
- Bluetooth devices, 482-484**
- Boolean operators in searches, 331-332**
- bootable drives, creating, 30-32**
- Boot Configuration Data store, 63-64**
- boot images, 702**
- booting**
 - from recovery drives, 570-571
 - VMs (virtual machines), troubleshooting, 663

boot loader (NTLDR), 44

brightness, adjusting in Photos app, 202

Bring Your Own Device (BYOD), 701

browser settings

- changing default web browser, 164-165, 211
- customizing, 221
 - installing and managing extensions, 224-225
 - new tab page, 226
 - performance, 228-229
 - restoring defaults, 229
 - startup page, 227
 - user interface, 222-224
- syncing, 113, 215-216

browsing history (Microsoft Edge), clearing, 245

BSOD (Blue Screen of Death). *See* Stop errors

bugchecks. *See* Stop errors

built-in devices, troubleshooting missing drivers, 473

built-in troubleshooters, 544

business email addresses as Microsoft accounts, 338

BYOD (Bring Your Own Device), 701

C

cached information (Microsoft Edge), clearing, 244-246

Calculator app, 175

Calendar app, 174

- accounts
 - adding new, 179
 - deleting, 180
 - managing, 178-179
 - renaming, 179
 - syncing, 177, 180-181
- advantages of, 178
- events
 - adding new, 186-187
 - inviting people to, 187
 - printing from, 187
 - settings options, 187
 - setup, 178-179
 - specialty calendars, adding, 186
 - user interface, 184-186

calendars

- adding to taskbar, 131
- for Windows updates, 441

Camera app, 176

Caps Lock key, disabling, 103

categories in Start menu searches, 77-79

CDs (audio), playing/ripping, 194-196

cellphones (Android)

- Dynamic Lock and, 359-360
- linking to PCs, 681-685

changing. *See also* configuring; customizing; editing; personalization settings

- accent colors, 119-120
- column headings in Details view (File Explorer), 296
- date/time settings, 130-131
- default save locations, 275
- default search provider in Microsoft Edge, 234-236
- default web browser, 211
- desktop background, 114-118
- desktop icons, 127-128
- drive letters, 277-278
- file/folder sharing permissions, 415
- Group Policy settings, 700
- lock screen, 120-122
- mouse pointers, 123-126
- passwords, 355-356
- regional settings, 130-132
- Remote Desktop app settings, 405
- repeat delay/repeat rate, 102
- scope of searches, 330
- system sounds, 122-123
- taskbar button order, 85
- user account picture, 72
- user account settings, 344-346
- VM settings, 671
 - automatic start/stop actions, 678
 - firmware, 671
 - hard disks, 674-677
 - memory, 672-674
 - network adapter, 677
 - processor, 674
 - security, 671-672

- volume labels, 277
- width of snapped windows, 98
- Windows Insider Program channels, 736
- channels in Windows Insider Program, 734-735**
 - changing, 736
- checkboxes, selecting files/folders in File Explorer, 320**
- checkpoints, 645, 669-671**
- Chkdsk.exe, 565-566**
- choosing**
 - file systems, 259-261
 - files/folders in File Explorer, 320
 - multiple tabs (Microsoft Edge), 230
- Chrome, 15, 209-210**
 - setting as default, 164
- CIDR (classless inter-domain routing) addresses, 385**
- clean installs, 41-48**
 - drivers for, 474
- clearing. *See also* deleting; removing**
 - cached information (Microsoft Edge), 244-246
 - cookies (Microsoft Edge), 245, 247
 - notifications, 90
 - Recent Files section (File Explorer), 294-295
- ClearType, 137-138**
- client computers (Remote Desktop), 398**
 - installing client software, 399
- Client Hyper-V. *See* Hyper-V**
- Clipboard**
 - piping output to, 621
 - viewing history, 105
- Clipchamp app, 175, 204-205**
- Clock app. *See* Alarms & Clock app**
- clocks, adding to taskbar, 131**
- closing tabs (Microsoft Edge), 230**
- cloud-based services, 708**
 - Azure AD-based networks, 693-695
 - Azure VMs (virtual machines), 711-712
 - as backup and recovery option, 567
 - connecting to, 419-420
 - Microsoft 365 Enterprise, 709-710
 - Microsoft Defender for Endpoint, 713
 - OneDrive, 17-18, 251
 - disabling, 270-271
 - File Explorer integration, 310-315
 - moving local storage folder, 312
 - Personal Vault, 271
 - saving recovery keys to, 461
 - setting up, 267-271
 - storage space available in, 265
 - user interface, 266-267
 - OneDrive Backup, 268-270
 - OneDrive for Business
 - setting up additional accounts, 270
 - storage space available in, 266
 - user interface, 266-267
 - running VMs from, 679
 - saving recovery keys to, 461
 - in Windows 11, 17-18
 - Windows 365, 712
- cloud licenses, 52**
- Cloud PCs, 679**
- cmdlets (PowerShell), 601-602**
 - aliases, 606
 - finding correct, 611
 - network location profiles, 390
 - network troubleshooting, 422
 - pipeline usage, 602-606
 - filtering output, 605
 - graphical table output, 604-605
 - list output, 603-604
 - redirecting to printer, 606
 - sorting output, 605-606
 - table output, 604
- codecs, 192-193**
- Collections feature (Microsoft Edge), 16, 239-240**
- colors**
 - for desktop background, 115
 - personalization settings, 118-120
- column headings in Details view (File Explorer), changing, 296**
- combining hard disks with Storage Spaces, 261-265**
- command history in PowerShell, 607**
- command-line**
 - Command Prompt
 - AutoRun, 617
 - command symbols, 618-621
 - commands in PowerShell, 600-601

- disk management from, 255
- editing command line, 618
- opening session, 616
- running with elevated privileges, 616
- starting from folder, 616
- starting/running command immediately, 617
- PowerShell, 599-600
 - advantages of, 600
 - cmdlets, 390, 422, 601-602, 611
 - Command Prompt commands in, 600-601
 - documentation, 616
 - help resources, 611-612
 - installing, 599
 - managing VMs, 648
 - pipeline usage, 602-606
 - providers, 607-611
 - scripts, 612-615
 - simplifying keyboard entry, 606-607
 - uninstalling apps, 155
 - versions of, 599
 - WMI cmdlets in, 515
- tools for, 595
- Windows Terminal, 596-599
- Command Prompt**
 - AutoRun, 617
 - command symbols, 618-621
 - commands in PowerShell, 600-601
 - disk management from, 255
 - editing command line, 618
 - opening session, 616
 - running with elevated privileges, 616
 - starting from folder, 616
 - starting/running command immediately, 617
- command symbols with Command Prompt, 618-621**
- compatibility issues with desktop apps, 157**
- compressing files in zipped folders, 302**
- compression types, 192**
- computer access, sharing, 360-361**
 - adding secondary accounts, 361-363
 - assigned access, 366
 - family settings, 363-365
- conditional access, 693**

- configuration notes for VMs (virtual machines), 646**
- configuring. *See also* changing; customizing; Settings app**
 - audio devices, 505-507
 - display settings, 497-501
 - File History, 572-574
 - Group Policy settings with Local Group Policy Editor, 698-700
 - kiosk devices, 719
 - local network sharing, 408-411
 - Microsoft Defender Antivirus, 455-456
 - multiple displays, 503-505
 - multiple graphics adapters, 499-501
 - printers/print queues, 494-497
 - print server properties, 416
 - privacy options, 445-448
 - services, 531-534
 - recovery options, 532-533
 - startup options, 531-532
 - viewing dependencies, 533-534
 - System Restore, 589-591
 - UAC (User Account Control) settings, 452-455
 - update options, 437-438
 - Windows Defender Firewall, 467-469
 - Windows Terminal, 597-599
- connecting. *See also* networking**
 - to cloud-based resources, 419-420
 - to network printers, 419
 - to printers, 494-497
 - with Remote Desktop, 398
 - changing settings, 405
 - enabling inbound connections, 399-400
 - ending remote sessions, 404
 - installing client software, 399
 - Microsoft Remote Desktop app usage, 401-404
 - over internet, 398-399
 - Remote Desktop Connection app, 405-406
 - troubleshooting connection problems, 422-425
 - to Wi-Fi, 390-392
 - hidden networks, 393-395
 - security options, 395-397
- consoles (MMC), 633-635**

contacts, adding/editing in People app, 187-188

Contacts folder, 305

Controlled Folder Access feature, 457

Control Panel

network settings, 378

Settings app versus, for app settings, 140

for user accounts, 337

converting

FAT32 to NTFS volumes, 283

MBR to GPT, 257

virtual disks in VMs, 677

cookies (Microsoft Edge)

blocking, 247

clearing, 245, 247

managing, 246-247

copying FileRepository folder, 474

corporate licensing, 59-60

Cortana app, 6, 173

CPU details (Task Manager), 519

viewing, 33

Crash Analyzer tool, 559

crash dump files, 556-558

credentials, 335, 347

Ctrl+Alt+Delete non-keyboard alternatives, 348

password resets for local accounts, 340

types of, 348-350

multifactor authentication, 350

passwords, 355-357

physical security keys, 358

picture passwords, 355

Windows Hello, 351-354

for Wi-Fi connections, 391-392

cropping images in Photos app, 200-201

Ctrl+Alt+Delete nonkeyboard alternatives, 348

custom configurations, saving to system images, 583

customizing. See also changing; configuring; personalization settings

browser settings, 221

installing and managing extensions, 224-225

new tab page, 226

performance, 228-229

restoring defaults, 229

startup page, 227

user interface, 222-224

Event Viewer report views, 553-554

notification settings, 91-93

Do Not Disturb feature, 93-94

Focus feature, 93-95

pen settings, 110-111

physical keyboards, 102-103

PowerShell, 614-615

Quick Settings pane, 87-89

Send To menu, 306

Start menu

app shortcuts on, 73-74

changing user account picture, 72

folder shortcuts on, 72, 75

Stop error handling, 556-558

taskbar, 81-83

alignment options, 80, 83

changing button order, 85

Jump Lists, 86-87

pinning apps to, 85

restoring Windows 10 options, 81

unavailable options, 80-81

Task Manager views, 517

cycling tabs (Microsoft Edge), 230

D

Darik's Boot And Nuke (DBAN), 284

Dark mode, 118-119

DaRT (Microsoft Diagnostics and Recovery Toolset), 559

data

preserving when deleting user accounts, 347

wiping, 261, 283-284

Data Execution Prevention (DEP), 457

data types in registry, 624-626

date navigator, filtering with, 320

dates in searches, 333

date/time settings, changing, 130-131

DBAN (Darik's Boot And Nuke), 284

default apps, setting file-type associations, 164-166

default AutoPlay actions, setting, 168-169

default browser settings, restoring, 229

default gateways, 380

default save locations, changing, 275

default search provider, changing in Microsoft Edge, 234-236

default settings, restoring in Windows Defender Firewall, 469

Default user profile, 303

default web browser, changing, 164-165, 211

defense-in-depth security strategy, 431-432

deferring Windows updates, 439-441

deleted files in Recycle Bin, 315-317

purging, 317

restoring, 317

deleting. *See also* clearing; removing

Calendar app accounts, 180

libraries, 310

Mail app accounts, 180

partitions, 46

registry data, 630

registry values, 627

storage spaces, 265

unneeded files, 275-276

user accounts, 346-347

volumes, 283

DEP (Data Execution Prevention), 457

dependencies for services, viewing, 533-534

deployment tools for enterprise deployments, 701

Microsoft Deployment Toolkit, 702-703

Microsoft Endpoint Configuration Manager, 701-702

Windows Autopilot, 705

Windows Server Update Services, 706

Windows System Image Manager, 704

Windows Update for Business, 707-708

Desktop App Installer, 173

desktop apps, 18, 139-141

compatibility issues, 157

installing, security issues, 141-142

in Microsoft Store, 141

distinguishing from Windows apps, 151

security features, 148-149

security issues, 141-142

running as administrator, 156

uninstalling, 155-156

desktop background

changing, 114-118

fitting images to screen, 116

on multiple displays, 117

restoring Windows images, 116

Desktop folder, 305

desktop icons, changing, 127-128

desktops (virtual), switching, 101-102

desktop systems, power management, 541-542

Details pane (File Explorer), 298

changing column headings, 296

Dev channel (Windows Insider Program), 734

device encryption, 459

Device Manager, 66

advanced settings, 481-482

enabling/disabling devices, 480-481

user interface, 476-480

devices. *See* hardware

DHCP, 381

diagnostic data, 445-448, 546-547

Diagnostic Data Viewer, 22

dictating text, 110

digital licenses, 53-56

digital media

audio

file formats in Media Player app, 192-193

hardware devices, configuring settings, 505-507

playing/ripping CDs, 194-196

ratings, 299

troubleshooting, 194

Media Player, 20, 171, 175, 192

file formats in, 192-193

playing/ripping CDs, 194-196

user interface, 193-194

photo ratings, 299

Photos app, 175

editing in, 200-202

integration with iCloud app, 198

user interface, 196-200

Photos Legacy app, 197

video

editing in Clipchamp app, 204-205

file formats in Media Player app, 192-193

playing in Movies & TV app, 202-204

ratings, 299

regional encoding (DVDs), 482

directions in Maps app, 207

disabling

- Caps Lock key, 103
- Files On-Demand feature, 312
- hardware devices, 480-481
- OneDrive, 270-271
- S Mode, 723
- startup apps, 161-163
- unauthorized Windows Insider Program access, 733
- Wi-Fi, 375-376
- Windows features, 167-168

Disk Cleanup utility, 276**disk details (Task Manager), 523-524****disk errors, checking for, 564-566****Disk Management, 251-252, 564**

- capabilities of, 253
- drive letters, changing, 277-278
- hard disk setup, 255
 - adding to existing Windows installation, 256-259
 - choosing file system, 259-261
- running, 252
- storage spaces in, 262
- terminology, 253-254
- user interface, 254
- virtual hard disks, 284-286
- volumes
 - changing labels, 277
 - converting FAT32 to NTFS, 283
 - deleting, 283
 - mapping to NTFS folders, 278-280
 - shrinking/extending NTFS volumes, 280-283

DiskPart, 252

- running, 255

disk partitions

- in clean installs, 43-47
- creating, 46
- deleting, 46
- extending, 46
- formatting, 258-259
 - choosing file system, 259-261
 - wiping data, 261, 283-284
- multiboot systems, 61-65

- shrinking, 47
- types of, 253-256

DisplayFusion, 117**displays, 497**

- configuring settings, 497-501
- effective resolution, 97
- multiple, 503-505
- Night Light feature, 505
- resolution in VMs (virtual machines), 667-668
- scaling, 501-503

DNS (Domain Name System), 380

- troubleshooting, 427

DNT (Do Not Track) standard, 243**documentation. *See also* resources for information**

- creating with Steps Recorder, 157
- for PowerShell, 616
- for Windows Insider Program builds, 737-739

domain-based networking, 389, 691-693**domain machine accounts, signing in with, 343****domains versus workgroups, 388****Do Not Disturb feature, 93-94****Do Not Track (DNT) standard, 243****download history (Microsoft Edge), clearing, 245****downloading**

- installation files, 26-27
- ISO image files, 27
- maps in Maps app, 208
- recovery images, 571

drawing on Touch Keyboard, 109**drive letters, changing, 277-278****drivers**

- for built-in devices, troubleshooting, 473
- for clean reinstalls, 474
- Device Manager, 477-478, 485
- Driver Verifier, 492-494
- hardware device interaction, 473-475
- installing, 474
- Plug and Play devices, installing, 472-473
- for printers, 497
- reinstalling, 561
- rolling back, 486, 489-490
- signed, 475
- as Stop error cause, 560-561

uninstalling, 486, 490-491

updating, 436, 485-489

Driver Verifier, 492-494

drives. *See* **Disk Management; hard disks; storage management**

dual boot systems

installing Windows 11 in, 61-65

text-based boot menu, 62

virtual machines versus, 62

duplicating tabs (Microsoft Edge), 230

DVD drives, mounting/unmounting virtual drives, 652

DVD Player app, 203

DVDs

playing, 203

regional encoding, 482

dynamic disks, 253

Dynamic Lock, 359-360

dynamic memory in VMs (virtual machines), 649-650, 672-674

E

Ease of Access Center, 133-135

edge:\ syntax, 222

Edge, 15-17, 173

browser settings, 221

installing and managing extensions, 224-225

new tab page, 226

performance, 228-229

restoring defaults, 229

startup page, 227

Collections feature, 239-240

default search provider, changing, 234-236

Favorites feature, 237-239

form fill-in information, 220-221

History feature, 236-237

history of, 209

Immersive Reader, 232-234

Internet Explorer (IE) mode, 248-249

password management, 216-220

PDF files, managing, 249

pop-ups, avoiding, 233

privacy management, 241

clearing cached information, 244-246

cookies, 246-247

InPrivate browsing, 243-244

site permissions, 244

Tracking Prevention feature, 241-243

profiles, 214-216

release channels, 212

syncing browser settings, 113

syncing browsing data, 215-216

tabs

managing, 229-230

muting, 230

pinning, 231

sleeping, 229

Vertical Tabs feature, 231

updates, 212-213

URL shortcuts, 222

user interface

customizing, 222-224

overview, 209-211

zooming in, 232

editing. *See also* **changing**

Command Prompt command line, 618

contacts in People app, 187-188

file properties/metadata, 300-302

images in Photos app, 200-202

video in Clipchamp app, 204-205

Windows registry, 621-622

adding/deleting values, 627

finding values, 626

keyboard shortcuts, 626

reg command, 627

Registry Editor hierarchy, 622-624

values and data types, 624-626

with .reg files, 628-631

editions of Windows 11, 723-724

for educational institutions, 729-730

for organizations, 727-729

for retail and OEM, 724-727

edition upgrades, 48-49

educational editions of Windows 11, 729-730

effective resolution, 97

Efficiency Mode

apps, 519

Microsoft Edge, 229

EFI System Partition (ESP), 254

EFS (Encrypting File System), 459, 463-465
 elapsed time since restart, viewing, 520
 elevated privileges. *See* **UAC (User Account Control)**

email addresses as Microsoft accounts, 338

email messages. *See also* Mail app

- attaching files, 184
- creating/sending, 184
- flagging, 190
- @ mentions in, 184

emoji library, 105

emptying Recycle Bin, 317

enabling

- airplane mode, 374
- hardware devices, 480-481
- Hyper-V, 641-644
- inbound Remote Desktop connections, 399-400
- network discovery, 388
- Windows features, 167-168

Encrypting File System (EFS), 459, 463-465

encryption

- BitLocker Drive Encryption, 460-461
- BitLocker To Go, 461-462
- EFS (Encrypting File System), 459, 463-465
- in File History, 574
- lost passwords and, 356
- types of, 459
- on Wi-Fi networks, 395-397
- wiping data with, 284

ending remote sessions, 404

Endpoint Configuration Manager, 582, 701-702

endpoint security

- Endpoint Configuration Manager, 582, 701-702
- Microsoft Defender for Endpoint, 713

Enhanced Mitigation Experience Toolkit, 458

enhanced sessions for VMs (virtual machines), 663, 666-668

enrolling devices in Windows Insider Program, 733-737

enterprise deployment tools, 701

- Microsoft Deployment Toolkit, 702-703
- Microsoft Endpoint Configuration Manager, 701-702
- Windows Autopilot, 705

- Windows Server Update Services, 706

- Windows System Image Manager, 704

- Windows Update for Business, 707-708

enterprise licensing in Microsoft 365, 709-710

entertainment apps, 20

errors. *See* troubleshooting

ESP (EFI System Partition), 254

Ethernet, 372-373

Event Viewer, 548-550

- customizing report views, 553-554
- exporting from, 553
- filtering report views, 554-555
- types of events, 550-551
- user interface, 549-550
- viewing events/logs, 551-553

events, 548

- in Calendar app
 - adding new, 186-187
 - inviting people to, 187
- types of, 550-551
- viewing, 551-553

excluding

- files/folders in search index, 325-327
- folders from File History, 574-575

execution policy for PowerShell scripts, 613-614

exFAT (Extended File Allocation Table) file system, 259-261

- access control, 367

existing Windows installations, adding hard disks to, 256-259

expanding virtual disks in VMs, 677

exploit protection settings, 457-458

ExplorerPatcher, 81

exporting

- from Event Viewer, 553
- registry file, 627-628
- saved passwords, 220
- VMs (virtual machines), 678

exposure, adjusting in Photos app, 202

Extended Stable channel (Microsoft Edge), 213

extending

- NTFS volumes, 280-283
- partitions, 46

extensions (browser), installing and managing, 224-225

extensions (filename), searches by, 329-330

F

facial recognition, 353-354

family members, user accounts for, 363-365

FancyZones utility, 97

FAT32 partitions, 30

converting to NTFS, 283

FAT (File Allocation Table) file system, 259-261

access control, 367

Favorites

File Explorer, 294

Microsoft Edge, 237-239

Favorites folder, 305

feature updates, 7-10, 435, 707

Feedback Hub app, 9-10, 173, 547, 738-740

feedback to Microsoft, 546-547, 739-740

FEK (file encryption key), 463

File Explorer, 289. *See also* files; folders

keyboard shortcuts for

folder views, 297

navigation, 292-293

opening File Explorer, 290

libraries, 308-310

new features, 4-6

OneDrive integration

Files On-Demand feature, 310-311

sharing files/folders, 313-315

syncing files/folders, 312-313

restoring files/folders, 575-576

searches in, 321-324

advanced searches, 328-329

with Boolean operators, 331-332

changing scope, 330

by item property, 330-331

by item type, 329-330

operators in, 323

relative dates in, 333

rules for, 322

saving, 333

Search Options menu, 322-323

wildcards in, 322, 332-333

user interface, 289-293

file properties/metadata, 298-302

folder views, 295-297

Home page, 294-295

navigation pane, 293-294

right-clicking in, 291-292

zipped folders, 302

user profile locations, 303

file extensions, searches by, 329-330

file formats in Media Player app, 192-193

File History, 315, 567-568, 571

configuring, 572-574

folder management in, 574-575

keyboard shortcuts, 579

restoring from, 575-578

troubleshooting, 574

FileRepository folder, copying, 474

files. *See also* File Explorer

attaching to email messages in Mail app, 184

backing up, 25-26

compressing in zipped folders, 302

deleted files

purging, 317

in Recycle Bin, 315-317

restoring, 317

deleting unneeded, 275-276

encrypting, 465

folder views in File Explorer, 295-297

including/excluding in search index, 325-327

opening

from libraries, 310

in non-default apps, 167

pinning to Jump Lists, 87

preserving when deleting user accounts, 347

properties/metadata

editing, 300-302

removing, 300-301

viewing, 298-299

restoring

with File History, 575-578

with system images, 587

saving, changing default locations, 275

selecting in File Explorer, 320

- sharing
 - over local network, 411-415
 - in OneDrive, 267, 313-315
- syncing with OneDrive, 312-313
- in user profiles, 303-306
- Files On-Demand feature (OneDrive), 310-311**
- file systems**
 - access control and, 367
 - choosing, 259-261
 - list of supported, 259
 - PowerShell and, 608-609
 - types of, 253, 256
- file-type associations, setting, 164-166**
- fill-in form information, clearing, 246**
- filtering**
 - apps list, 146
 - Event Viewer data, 554-555
 - Event Viewer report views, 554-555
 - folders in File Explorer, 318-320
 - output in PowerShell, 605
- filters in Photos app, 202**
- finding**
 - apps in Microsoft Store, 149-151
 - cmdlets (PowerShell), 611
 - legacy desktop programs, 18
 - registry values, 626
 - shared resources, 417-418
 - Windows update technical information, 442-444
- fingerprint reader, 353-354**
- firewalls (Windows Defender Firewall), 389, 465**
 - advanced settings, 466
 - configuring settings, 467-469
 - network types, 466
 - restoring default settings, 469
- firmware, 561**
- Firmware section (Hyper-V Manager Settings), 671**
- fitting desktop background images to screen, 116**
- flagging email messages, 190**
- flighting, 733**
- Focused Inbox feature (Mail app), 183**
- Focus feature, 93-95**
- folders. *See also* File Explorer**
 - adding in Photos app, 198
 - AppData contents, 305
 - encrypting, 463-464
 - excluding from File History, 574-575
 - filtering in File Explorer, 318-320
 - grouping in File Explorer, 320
 - including/excluding in search index, 325-327
 - libraries, 308-310
 - local storage folder, moving for OneDrive, 312
 - in Mail app
 - managing, 182
 - pinning to Start, 182
 - mapping network folders, 418-419
 - Network, 417-418
 - personal data folders, moving, 306-308
 - pinning to Jump Lists, 87
 - Public, 407-410
 - removing in Photos app, 198
 - restoring with File History, 575-578
 - selecting in File Explorer, 320
 - sharing
 - over local network, 411-415
 - in OneDrive, 313-315
 - sorting in File Explorer, 318
 - starting Command Prompt session from, 616
 - syncing with OneDrive, 312-313
 - in user profiles, 303-306
 - views in File Explorer, 295-297
 - zipped, 302
- folder shortcuts on Start menu, 72, 75**
- folder templates (File Explorer), 297**
- fonts, 135-136. *See also* text**
 - installing, 135-136
 - resizing text, 136-137
 - smoothing, 137-138
- formatting partitions, 258-259**
 - choosing file system, 259-261
 - wiping data, 261, 283-284
- form fill-in information**
 - clearing, 246
 - saving in Microsoft Edge, 220-221
- free apps in Microsoft Store, 151**
- free technical support from Microsoft, 748-749**
- full licenses, 52**

G

games, 20
generations (VMs), 648-649, 658
gestures, arranging windows, 99
Get-AppxPackage cmdlet, 155
Get Help app, 174, 748-749
Get Office app, 174
Get Started app, 174
Google Chrome, 15, 209-210
 setting as default, 164
GPOs (Group Policy Objects), 696
GPT (GUID Partition Table) file system, 30, 253, 256
GPU details (Task Manager), 525-526
GPUs. *See* **graphics adapters**
graphical table output in PowerShell, 604-605
graphics adapters. *See also* **displays**
 configuring multiple, 499-501
 Task Manager information, 525-526
grep searches, 324
Groove Music. *See* **Media Player app**
grouping folders in File Explorer, 320
Group Policy, 696-698
 changing settings, 700
 configuring UAC (User Account Control) settings, 454
 deferring Windows updates, 439-441
 with Local Group Policy Editor, 698-700
 privacy options, 447
 startup apps and, 161
 with Windows Update for Business, 707-708
Group Policy Objects (GPOs), 696
Guest account, 344
guest operating systems, 637
 troubleshooting installation, 673
GUID Partition Table (GPT) file system, 30, 253, 256

H

hard disks. *See also* **Disk Management; storage management**
 checking for errors, 564-566
 checking status of, 564

combining with Storage Spaces, 261-265
 disk size versus storage capacity, 273
 encrypting with BitLocker, 459-461
 setting up, 255
 adding to existing Windows installation, 256-259
 choosing file system, 259-261
 installing Windows, 255
 in Task Manager, 523-524
 VMs (virtual machines), 651, 660-661, 674-677
 wiping data, 261, 283-284

hardware

audio, configuring settings, 505-507
 Bluetooth, 482-484
 built-in, troubleshooting missing drivers, 473
 changes, troubleshooting activation, 56-59
 compatibility issues, bypassing in Windows 11, 34-35
 Device Manager
 advanced settings, 481-482
 enabling/disabling devices, 480-481
 user interface, 476-480
 displays, 497
 configuring settings, 497-501
 multiple, 503-505
 Night Light feature, 505
 scaling, 501-503
 drivers
 for clean reinstalls, 474
 Driver Verifier, 492-494
 installing, 474
 interaction of, 473-475
 for printers, 497
 rolling back, 486, 489-490
 signed, 475
 uninstalling, 486, 490-491
 updating, 485-489
 Plug and Play, 471-472
 installing, 472-473
 power management for peripherals, 539
 printers, installing/connecting to, 494-497
 as Stop error cause, 560
 supported configurations, 724
 USB (universal serial bus), 485

hardware designs for Windows 11, 22-24

hardware requirements

for Hyper-V, 642-643

for networking, 372-373

restoring system images, 587

for Windows 11, 3, 32-34

for Windows Subsystem for Android, 686

HDMI connections, display resolution, 499

headsets, configuring settings, 505-507

hearing accessibility settings, 133

help resources

from Microsoft, 744-746

in PowerShell, 611-612

searching for, 741-744

technical support, 746-749

Windows updates, 749-750

hidden Wi-Fi networks, connecting to, 393-395

hiding

OneDrive files in File Explorer, 311

taskbar, 84

high-DPI displays, scaling, 501-503

History feature (Microsoft Edge), 236-237

history of Microsoft Edge, 209

hive files (in registry), 621

HomeGroup, 372, 407

Home page (File Explorer), 294-295

host computers, 637

host names for printers, 496

hotspots, 385-387

hybrid devices, 22

hybrid networks, 692, 695-696

Hyper-V, 63, 637. *See also* Hyper-V Manager

enabling, 641-644

network adapters for, 652

troubleshooting installation, 644

VM components, 646-648

hard disks, 651, 660-661

machine generation, 648-649, 658

memory, 649-650, 659

networking, 652-653, 659-660

storage controllers, 650

hypervisors, 637

Hyper-V Manager (Virtmgmt.msc), 642. *See also*

Hyper-V

changing VM settings, 671

automatic start/stop actions, 678

firmware, 671

hard disks, 674-677

memory, 672-674

network adapter, 677

processor, 674

security, 671-672

New Virtual Machine Wizard, 656-662

Quick Create command, 654-656

troubleshooting computer name in console tree,

645

user interface, 644-646

I

iCloud app, integration with Photos app, 198

icons

changing desktop icons, 127-128

in system tray, 82-83

IDE controllers in VMs (virtual machines), 675

IE Mode (Microsoft Edge), 16

images

desktop background

changing, 114-118

fitting images to screen, 116

on multiple displays, 117

restoring Windows images, 116

editing in Photos app, 200-202

lock screen, changing, 120-122

opening in Photos app, 198-199

screen captures, 205-206

user account picture, changing, 72

Immersive Reader (Microsoft Edge), 232-234

importing

Favorites (Microsoft Edge), 239

registry file, 628

VMs (virtual machines), 678-679

inbound Remote Desktop connections, enabling,

399-400

inboxes, linking in Mail app, 182

index (for searches), 324, 325

- including/excluding files/folders, 325-327
- monitoring/tuning performance, 327-328
- pausing, 325
- rebuilding, 328
- skipping, 324
- storage location, 324
- troubleshooting, 328

Info pane (Photos app), 199-200**InPrivate browsing (Microsoft Edge), 243-244****Insider builds. See Windows Insider Program****Insider Flight Hub, 737****Inside Track site, 745****inspecting virtual disks in VMs, 677****installation media**

- downloading files, 26-27
- ISO image files, 29-32
- Media Creation Tool, 27-29
- troubleshooting, 31

installed apps, 176-177**installing**

- alternative keyboard layouts, 106
- browser extensions, 224-225
- desktop apps, security issues, 141-142
- drivers, 474
- fonts, 135-136
- guest operating systems, troubleshooting, 673
- Microsoft Store apps, 151-153
- operating systems in VMs (virtual machines), 661-662
- Plug and Play devices, 472-473
- PowerShell, 599
- printers, 494-497
- Remote Desktop client software, 399
- Windows 11, 6-7
 - bypassing hardware compatibility issues, 34-35
 - checklist, 65-66
 - clean installs, 41-48
 - downloading installation files, 26-27
 - ISO image files, 29-32
 - Media Creation Tool, 27-29
 - in multiboot system, 61-65
 - on new hard disk, 255
 - Setup program, 36-37

- troubleshooting installation media, 31

- upgrading from Windows 10, 38-41

- Windows Subsystem for Android, 686

- WSL 2, 689

InstantGo, 459**integrity levels, 448****interaction accessibility settings, 133****internet, Remote Desktop connections over, 398-399****Internet Explorer, 15-16, 209****Internet Explorer (IE) mode (Microsoft Edge), 248-249****Intune**

- app management, 716
- mobile device management, 713-715

inviting people to events in Calendar app, 187**IP addresses, 379-385**

- for printers, 496
- troubleshooting, 425-426

IP Configuration Utility (Ipconfig.exe), 421, 425**iPhone, 682****IPv4 addresses, 380-381****IPv6 addresses, 380-381****ISO image files**

- contents of, 26
- downloading, 27
- installing Windows 11 with, 29-32
- mounting/unmounting as virtual DVD drives, 652
- upgrading Windows from, 38

item properties, searches by, 330-331**item type, searches by, 329-330****J-K****Jump Lists, 86-87, 405****KB (Knowledge Base), 745**

- opening articles, 443

kernel-mode drivers, 475**keyboard entry, simplifying in PowerShell, 606-607****keyboards**

- Ctrl+Alt+Delete alternatives, 348
- physical
 - alternative layouts, 105-106
 - customizing, 102-103

- emoji library, 105
- general purpose shortcuts, 104
- Touch Keyboard, 106-109
- keyboard shortcuts**
 - arranging windows, 99
 - browser extensions, 225
 - Ctrl+Alt+Delete, 348
 - File Explorer
 - folder views, 297
 - navigation, 292-293
 - opening File Explorer, 290
 - File History, 579
 - general purpose, 104
 - locking computer, 359
 - Registry Editor, 626
 - screen captures, 205-206
 - signing out of user accounts, 359
 - switching user accounts, 359
 - taskbar buttons, 85-86
- keys (Registry Editor), 623**
- kiosk apps, assigned access setup, 366**
- kiosk devices, 718-719**
- Knowledge Base (KB), 745**
 - opening articles, 443
- KN versions of Windows 11, 725**

L

- language settings**
 - alternative keyboard layouts, 105-106
 - changing regional settings, 130-132
 - in Media Creation Tool, 28
- laptop PCs, power management, 536-538**
 - Battery Saver feature, 539-540
 - generating battery report, 540-541
 - powercfg command, 541
 - power plans, 540
 - in Settings app, 537-539
- launching. See opening; starting**
- legacy desktop apps, 18. See also desktop apps**
- legacy network adapters, 652**
- libraries, 308-310**
- licensing options for Windows 11, 723-724**
 - advanced license management, 60-61
 - corporate licensing, 59-60

- digital licenses, 55-56
- license agreement, 50-52
- options for, 52-53
 - educational institutions, 729-730
 - organizations, 727-729
 - retail and OEM, 724-727
- Light mode, 118, 119**
- limiting metered network connections, 385**
- Link To Windows app, 682**
- linking**
 - Android phones to PCs, 681-685
 - Mail account inboxes, 182
- Links folder, 306**
- Linux, 688-690**
 - in multiboot systems, 65
- list output in PowerShell, 603-604**
- lists, managing in To Do app, 188-190**
- Load value (Registry), 160**
- local accounts**
 - adding as secondary, 361-363
 - changing settings, 345-346
 - password hints, 356
 - password recovery, 357
 - password resets, 340
 - signing in with, 339-340
- Local Group Policy Editor, 698-700**
- local networks, sharing over, 406-407**
 - configuring settings, 408-411
 - file/folder sharing, 411-415
 - finding shared resources, 417-418
 - mapping network folders, 418-419
 - network paths for, 414
 - printer sharing, 415-419
 - security models for, 407-408
- Local Security Policy, configuring UAC settings, 454**
- local storage folder, moving for OneDrive, 312**
- local user accounts, upgrading Windows, 41**
- location tracking in Maps app, 206**
- lock screen, 10-11, 348**
 - changing, 120-122
 - notifications on, 122
- locking**
 - aspect ratios, 201
 - computer, 359-360

log files. See also Event Viewer

types of, 548-551

viewing, 551-553

logon scripts, startup apps and, 161**loops, avoiding in mounted drives, 279****lossless compression, 192****lossy compression, 192****lost passwords**

encrypted files and, 356

recovering, 357

LTSC (Long Term Servicing Channel), 8, 729**M****MAC (media access control) addresses, generating random, 377****Magnifier tool, 137****magnifying text with mouse, 599****Mail app, 174**

accounts

adding new, 179

deleting, 180

linking inboxes, 182

managing, 178-179

pinning to Start, 182

renaming, 179

syncing, 177, 180-181

advantages of, 178

email messages

attaching files, 184

creating and sending, 184

flagging, 190

@ mentions in, 184

Focused Inbox, 183

setup, 178-179

user interface, 181-182

Malicious Software Removal Tool (MSRT), 436**malware**

Microsoft Defender Antivirus, 455

configuring, 455-456

Controlled Folder Access feature, 457

dealing with threats, 457

exploit protection settings, 457-458

manual scans, 456

Microsoft Defender SmartScreen, 458-459

types of, 430

management tools

batch programs, 632

Command Prompt

AutoRun, 617

command symbols, 618-621

commands in PowerShell, 600-601

editing command line, 618

opening session, 616

running with elevated privileges, 616

starting from folder, 616

starting/running command immediately, 617

Device Manager

advanced settings, 481-482

enabling/disabling devices, 480-481

user interface, 476-480

MMC (Microsoft Management Console), 633-635

PowerShell, 595, 599-600

advantages of, 600

cmdlets, 601-602

Command Prompt commands in, 600-601

documentation, 616

help resources, 611-612

installing, 599

pipeline usage, 602-606

providers, 607-611

scripts, 612-615

simplifying keyboard entry, 606-607

versions of, 599

Registry Editor (Regedit.exe)

adding/deleting values, 627

backing up/restoring registry, 627-628

finding values, 626

hierarchy, 622-624

keyboard shortcuts, 626

reg command, 627

starting, 622

user interface, 626-627

values and data types, 624-626

Task Scheduler, 632

Windows Script Host, 632-633

Windows Terminal, 596-599

Mandatory Integrity Control, 448

manual driver updates, 487-489

manual scans (antivirus), 456

mapping

- network folders, 418-419
- volumes to NTFS folders, 278-280

Maps app, 174, 206

- directions in, 207
- downloading maps from, 208
- location tracking, 206
- searching in, 206-207
- updating, 208

MBR2GPT utility, 257

MBR (Master Boot Record) file system, 30, 253, 256

MDM (mobile device management) software, 701

- with Microsoft Intune, 713-715

MDT (Microsoft Deployment Toolkit), 702-703

media access control (MAC) addresses, generating random, 377

Media Creation Tool, 27-29, 571

Media Player, 20, 171, 175, 192

- file formats in, 192-193
- playing/ripping CDs, 194-196
- user interface, 193-194

meetings in Calendar app

- adding new, 186-187
- inviting people to, 187

memory

- in VMs (virtual machines), 649-650, 659
- Windows Memory Diagnostic tool, 560

Memory section (Hyper-V Manager Settings), 672-674

memory usage (Task Manager), 520-523

merging .reg files into registry, 631

metadata

- for files
 - editing, 300-302
 - removing, 300-301
 - viewing, 298-299
- in image files, 199-200

metered network connections, 375, 385-387

microphones, configuring settings, 505-507

Microsoft

- blogs from, 749-750
- free technical support, 748-749
- online reference material, 744-746

Microsoft 365

- enterprise licensing, 709-710
- Office app, 174

Microsoft 365 Business, 419

Microsoft 365 E3, 728

Microsoft 365 E5, 728

Microsoft 365 Enterprise, 419

Microsoft 365 F3, 728

Microsoft accounts

- adding as secondary, 361-363
- aliases, 339
- benefits of, 17-18
- changing settings, 345
- email addresses as, 338
- family settings, 363-365
- Microsoft Edge profiles and, 214-216
- password recovery, 357
- signing in with, 337-339
- syncing personalization settings, 69, 113
- syncing with OneDrive, 267-271
- upgrading Windows, 41

Microsoft Answer Desk, 748

Microsoft Authenticator, 217, 350

Microsoft Azure, 420

Microsoft Azure AD (Azure Active Directory) accounts

- saving recovery keys to, 461
- signing in with, 341-342
- Windows 11 licensing, 52
- Windows Insider Program for Business, 732

Microsoft Azure AD-based networks, 693-695

Microsoft Azure AD Join operations, 710

Microsoft Azure VMs (virtual machines), 679, 711-712

Microsoft Bing search engine, help resources, 741-742

Microsoft Community forums, 746-747

Microsoft Defender Antivirus, 22, 455

- configuring, 455-456
- Controlled Folder Access feature, 457

- dealing with threats, 457
- exploit protection settings, 457-458
- manual scans, 456
- security intelligence updates, 436

Microsoft Defender for Business, 22**Microsoft Defender for Endpoint, 713****Microsoft Defender SmartScreen, 458-459****Microsoft Deployment Toolkit (MDT), 702-703****Microsoft Diagnostics and Recovery Toolset (DaRT), 559****Microsoft Docs, 745****Microsoft Edge, 15-17, 173**

- browser settings, 221
 - installing and managing extensions, 224-225
 - new tab page, 226
 - performance, 228-229
 - restoring defaults, 229
 - startup page, 227
- Collections feature, 239-240
- default search provider, changing, 234-236
- Favorites feature, 237-239
- form fill-in information, 220-221
- History feature, 236-237
- history of, 209
- Immersive Reader, 232-234
- Internet Explorer (IE) mode, 248-249
- password management, 216-220
- PDF files, managing, 249
- pop-ups, avoiding, 233
- privacy management, 241
 - clearing cached information, 244-246
 - cookies, 246-247
 - InPrivate browsing, 243-244
 - site permissions, 244
 - Tracking Prevention feature, 241-243
- profiles, 214-216
- release channels, 212
- syncing browser settings, 113
- syncing browsing data, 215-216
- tabs
 - managing, 229-230
 - muting, 230
 - pinning, 231
 - sleeping, 229
 - Vertical Tabs feature, 231

updates, 212-213

URL shortcuts, 222

user interface

- customizing, 222-224

- overview, 209-211

- zooming in, 232

Microsoft Edge Insider program, 212**Microsoft Endpoint Configuration Manager, 701-702****Microsoft Intune**

- app management, 716

- mobile device management, 713-715

Microsoft Knowledge Base, 745

- opening articles, 443

Microsoft Learn, 746**Microsoft Management Console (MMC), 633-635****Microsoft Partner Program, ISO image files available, 27****Microsoft Photos Legacy app, 197****Microsoft PowerToys, 103****Microsoft Q&A, 747-748****Microsoft Recovery Partition, 44****Microsoft Remote Desktop, 398**

- changing settings, 405

- enabling inbound connections, 399-400

- ending remote sessions, 404

- installing client software, 399

- Microsoft Remote Desktop app usage, 401-404

- over internet, 398-399

- Remote Desktop Connection app, 399, 405-406

- user interface, 401-404

Microsoft reserved partition (MSR), 254**Microsoft Solitaire Collection, 175****Microsoft Store, 18-20, 173**

- desktop apps in, 141

- distinguishing from Windows apps, 151

- security features, 148-149

- security issues, 141-142

- free apps, 151

- installing apps, 151-153

- managing apps, 154

- reinstalling apps, 152-153

- searching, 149-151

- security features, 147-149

- troubleshooting apps, 155
- uninstalling apps, 155
- updating apps, 152-153
- Windows apps in, 143
- Microsoft Support hub for Windows, 744**
- Microsoft Teams, 20, 174, 190-191**
- Microsoft Volume Licensing (VL) program, 59-60**
- Minimize button, 14**
- missing drivers, troubleshooting, 473**
- MMC (Microsoft Management Console), 633-635**
- mobile device management (MDM) software, 701**
 - with Microsoft Intune, 713-15
- mobile hotspots, 375, 385-387**
- monitoring index performance, 327-328**
- monitors, 497**
 - configuring settings, 497-501
 - effective resolution, 97
 - multiple, 503-505
 - Night Light feature, 505
 - resolution in VMs (virtual machines), 667-668
 - scaling, 501-503
- mounted drives, 253**
 - creating, 278-280
 - troubleshooting loops, 279
 - viewing list of, 280
- mounting virtual DVD drives, 652**
- mouse, magnifying text, 599**
- mouse gestures, arranging windows, 99**
- mouse pointers, changing, 123-126**
- movement accessibility settings, 133**
- Movies & TV app, 175, 202-204**
- moving**
 - local storage folder for OneDrive, 312
 - personal data folders, 306-308
 - VMs (virtual machines), 679
- MP3 audio format, 195**
- Msconfig.exe, 65**
- Msinfo32.exe, 512-513**
- MSIX, 143**
- MSR (Microsoft reserved partition), 44, 254**
- MSRT (Malicious Software Removal Tool), 436**
- multiboot systems**
 - installing Windows 11 in, 61-65
 - text-based boot menu, 62
 - virtual machines versus, 62

- multifactor authentication, 22, 350**
- multiple displays**
 - configuring, 503-505
 - desktop background images, 117
 - snapping windows in, 98
 - taskbar on, 84
- multiple graphics adapters, configuring, 499-501**
- multiple system images on network, 586**
- multiple tabs (Microsoft Edge), selecting, 230**
- music. *See* audio; sound**
- Music Library (Media Player app), 193-194**
- muting**
 - computer, 123
 - tabs (Microsoft Edge), 230
- MXToolBox, 426**
- My Office. *See* Office app**

N

- Name Server Lookup (Nslookup.exe), 421, 426**
- naming VMs (virtual machines), 657-658**
- NAT (Network Address Translation), 384**
- navigating. *See* user interface**
- navigation pane (File Explorer), 293-294**
- Net services commands (Net.exe), 421**
- Network Adapter section (Hyper-V Manager Settings), 677**
- Network Command Shell (Netsh.exe), 422**
- network discovery, enabling, 388**
- Network folder, 417-418**
- networking. *See also* sharing**
 - airplane mode, 374
 - Azure AD-based, 693-695
 - checking network status, 374-377
 - domain-based, 691-693
 - enabling network discovery, 388
 - hardware requirements, 372-373
 - HomeGroup feature, 407
 - hybrid, 692, 695-696
 - management tools, 377-379
 - mobile hotspots, 375, 385-387
 - setting network location, 389-390
 - sharing network connections, 387
 - sharing over local network, 406-407
 - configuring settings, 408-411
 - file/folder sharing, 411-415

- finding shared resources, 417-418
- mapping network folders, 418-419
- network paths for, 414
- printer sharing, 415-419
- security models for, 407-408
- Task Manager information, 524-525
- TCP/IP configuration, 379-385
- troubleshooting, 420-421
 - connection problems, 422-425
 - DNS problems, 427
 - IP address problems, 425-426
 - Network Reset command, 421
 - repairing configuration, 426
 - tools for, 421-422
- types in Windows Defender Firewall, 466
- in VMs (virtual machines), 652-653, 659-660
- Wi-Fi
 - access point security, 397
 - connecting to, 390-392
 - disabling, 375-376
 - hardware requirements, 373
 - hidden networks, 393-395
 - mobile hotspots, 385-387
 - security options, 395-397
 - settings for, 376-377
 - standards, 393
 - viewing available networks, 375
- workgroups versus domains, 388
- network location, setting, 389-390**
- network paths for file/folder sharing, 414**
- Network Reset command, 421**
- network settings, viewing, 66**
- network status icon (on taskbar), 374**
- new features in Windows 11, 4-6**
 - release schedule, 67
- News app, 174**
- new tab page (Microsoft Edge), customizing, 226**
- New Virtual Machine Wizard (Hyper-V Manager), 656-662**
- Night Light feature, 505**
- NirSoft BlueScreenView utility, 559**
- non-default apps, opening files in, 167**
- non-paged pool, 522**

- notebook PCs, power management, 536-538**
 - Battery Saver feature, 539-540
 - generating battery report, 540-541
 - powercfg command, 541
 - power plans, 540
 - in Settings app, 537-539
- Notepad app, 176**
- notifications**
 - clearing, 90
 - customizing, 91-93
 - Do Not Disturb feature, 93-94
 - Focus feature, 93-95
 - on lock screen, 122
 - responding to, 90
 - in taskbar, 70
- notifications pane, 70-71, 89-95**
- Nslookup.exe, 421, 426**
- NTFS file system, 30, 259-261**
 - access control, 367
 - converting FAT32 volumes from, 283
 - shrinking/extending volumes, 280-283
- NTFS folders, mapping volumes to, 278-280**
- NTFS permissions, 369-370**
- N versions of Windows 11, 725**

O

- OEM (original equipment manufacturer)**
 - licenses, 52, 59
 - recovery images, 570
 - Windows 11 editions, 724-727
- OEM System Builder packages, 52**
- Office 365. See Microsoft 365**
- Office app, 174**
- OneDrive, 17-18, 251**
 - disabling, 270-271
 - File Explorer integration
 - Files On-Demand feature, 310-311
 - sharing files/folders, 313-315
 - syncing files/folders, 312-313
 - moving local storage folder, 312
 - Personal Vault, 271
 - saving recovery keys to, 461
 - setting up, 267-271

- storage space available in, 265
- user interface, 266-267
- OneDrive Backup, 268-270**
- OneDrive for Business**
 - setting up additional accounts, 270
 - storage space available in, 266
 - user interface, 266-267
- OneNote Web Clipper extension, 224**
- online reference material from Microsoft, 744-746**
- on-premises Active Directory, 692**
- OOBE (Out Of Box Experience), 37**
- opening. *See also* starting; running**
 - apps from taskbar, 85
 - Command Prompt session, 616
 - Device Manager, 476
 - Favorites (Microsoft Edge), 238
 - File Explorer, keyboard shortcuts, 290
 - files
 - from libraries, 310
 - in non-default apps, 167
 - images in Photos app, 198-199
 - KB (Knowledge Base) articles, 443
 - OneDrive files from File Explorer, 310
 - Resource Monitor, 526
 - Start menu, 71
 - tabs (Microsoft Edge), 230
 - Task Manager, 158, 516
 - web pages in Internet Explorer (IE) mode, 248-249
- OpenType fonts, 136**
- operating system images, 703**
- operating systems, installing in VMs (virtual machines), 661-662**
- operators in searches, 323**
- optional Windows features, enabling/disabling, 167-168**
- organizational editions of Windows 11, 727-729**
- organizing**
 - with collections (Microsoft Edge), 239-240
 - Favorites (Microsoft Edge), 238
- orientation of displays, 499**
- out-of-band releases, 441**
- Out Of Box Experience (OOBE), 37**

P

- paged pool, 522**
- paging file, 521-523**
 - size of, 557
- Paint app, 175, 197**
- pairing Bluetooth devices, 484**
- Parallels, 63**
- parameter names, abbreviating in PowerShell, 607**
- parity, 262**
- partitions**
 - in clean installs, 43-47
 - creating, 46
 - deleting, 46
 - extending, 46
 - formatting, 258-259
 - choosing file system, 259-261
 - wiping data, 261, 283-284
 - multiboot systems, 61-65
 - shrinking, 47
 - types of, 253-256
- Password Health icon (Microsoft Edge), 220**
- password hints, 356**
- password-protected sharing, 410-411**
- passwords**
 - alternatives to, 348-350
 - multifactor authentication, 350
 - picture passwords, 355
 - Windows Hello, 351-354
 - clearing in Microsoft Edge, 246
 - exporting saved, 220
 - managing in Microsoft Edge, 216-220
 - recovering lost, 357
 - resets for local accounts, 340
 - revealing, 220
 - setting/changing, 355-356
 - syncing, 217
- password stealers, 430**
- Patch Tuesday, 441**
- pausing**
 - services, 530
 - Windows Search service, 325
 - Windows updates, 438

payment information, saving in Microsoft Edge,
221

PC Health Check app, 33-34

PDF files in Microsoft Edge, 249

peer-to-peer networks, 388

pen settings, 110-111

People app, 174, 177, 187-188

performance management, 509

causes of performance problems, 510-511

Microsoft Edge settings, 228-229

with Resource Monitor, 526-528

saving system information, 513

search index, 327-328

for services, 528

configuring services, 531-534

pausing services, 530

Services console (Services.msc), 528-530

starting/stopping services, 530

Task Manager, 534-536

with Task Manager, 516-519

CPU details, 519

disk details, 523-524

GPU details, 525-526

memory usage, 520-523

network connections, 524-525

Processes page, 518-519

viewing system information

Settings app, 511

Systeminfo.exe, 514-515

System Information (Msinfo32.exe), 512-513

WMI (Windows Management Instrumentation),
515

peripheral devices. See hardware

permanently deleting files/folders, 316-317

permissions, 369-370

for Microsoft Store apps, 154

personal data folders, moving, 306-308

**personalization settings. See also changing; cus-
tomizing**

accessibility settings, 132-135

backing up, 26

colors, 118-120

desktop background, 114-118

desktop icons, 127-128

fonts, 135-138

lock screen, 120-122

mouse pointers, 123-126

regional settings, 130-132

sounds, 122-123

syncing, 69, 113

themes, 126-127

visual effects, 129

Personal Vault, 271

phishing attacks, 430

phone-line networks, 373

Phone Link app, 174, 681-685

phones (Android)

Dynamic Lock and, 359-360

linking to PCs, 681-685

photo ratings, 299

Photos app, 175

editing in, 200-202

integration with iCloud app, 198

user interface, 196-200

Photos Legacy app, 197

physical keyboards

alternative layouts, 105-106

customizing, 102-103

emoji library, 105

general purpose shortcuts, 104

physical security keys, 358

picture passwords, 355

pictures. See images

PIN for Windows Hello, 352-353

Ping.exe, 422-424

pinning

apps

to Start menu, 73

to taskbar, 85

files/folders to Jump Lists, 87

Mail accounts/folders to Start, 182

tabs (Microsoft Edge), 231

pipeline (PowerShell), 602-606

filtering output, 605

graphical table output, 604-605

list output, 603-604

redirecting to printer, 606

sorting output, 605-606

table output, 604

pipe symbol (|) in Command Prompt, 620

playing

audio CDs, 194-196

DVDs, 203

video in Movies & TV app, 202-204

Plug and Play devices, 471-472

installing, 472-473

printers, 494

uninstalling drivers, 490

USB (universal serial bus), 485

pointers, changing, 123-126

policy settings, startup apps and, 161

pop-ups, avoiding in Microsoft Edge, 233

portable PCs, power management, 536-538

Battery Saver feature, 539-540

generating battery report, 540-541

powercfg command, 541

power plans, 540

in Settings app, 537-539

positioning windows, 14

PostScript Type 1 fonts, 136

Power Automate app, 176

powercfg command, 541

powerline technology, 373

power management

desktop systems, 541-542

peripheral devices, 539

portable PCs, 536-538

Battery Saver feature, 539-540

generating battery report, 540-541

powercfg command, 541

power plans, 540

in Settings app, 537-539

power plans, 540

PowerShell, 595, 599-600

advantages of, 600

cmdlets, 601-602

finding correct, 611

network location profiles, 390

network troubleshooting, 422

Command Prompt commands in, 600-601

documentation, 616

help resources, 611-612

installing, 599

managing VMs (virtual machines), 648

pipeline usage, 602-606

filtering output, 605

graphical table output, 604-605

list output, 603-604

redirecting to printer, 606

sorting output, 605-606

table output, 604

providers, 607-611

scripts, 612-615

execution policy, 613-614

PowerShell ISE, 615

profile as, 614-615

running, 612-613

simplifying keyboard entry, 606-607

uninstalling apps, 155

versions of, 599

WMI cmdlets in, 515

PowerShell ISE, 615

PowerToys, 103

predefined keys (Registry Editor), 623

preserving data files when deleting user accounts, 347

preview builds. *See* Windows Insider Program

preview versions of Microsoft Edge, 212

Print Management console, 416-417

print servers, properties for, 416

printers

drivers for, 497

installing/connecting to, 494-497

PowerShell output to, 606

sharing over local network, 415-419

printing from Calendar app, 187

privacy, 22

configuring options, 445-448

in Microsoft Edge, 241

clearing cached information, 244-246

cookies, 246-247

InPrivate browsing, 243-244

site permissions, 244

Tracking Prevention feature, 241-243

removing file metadata, 300-301

private IP addresses, 384

private networks, 389

problem reporting. *See* Windows Error Reporting Processes page (Task Manager), 518-519

Processor section (Hyper-V Manager Settings), 674

production checkpoints, 670

productivity apps, 20

product keys

activating Windows 11, 53-55

upgrading Windows 11 editions, 49

profiles (Microsoft Edge), 214-216

profiles (PowerShell), customizing with, 614-615

programs. *See* apps

Progressive Web Apps (PWAs), 19, 140, 143-144

managing, 157-158

pinning to Start menu, 232

properties

of files

editing, 300-302

viewing, 298-299

for print servers, 416

searches by, 330-331

providers (PowerShell), 607-611

provisioned Windows apps, 172-176

Public folder, 407-410

public IP addresses, 384

public networks, 389

Public profile, 303

public release channels for Windows 11, 9

purging deleted files/folders from Recycle Bin, 317

PWAs (Progressive Web Apps), 19, 140, 143-144

managing, 157-158

pinning to Start menu, 232

Q

quality updates, 435, 707

question mark (?) wildcard in searches, 332

Quick Access in File Explorer, 294

Quick Assist, 176, 566-567

Quick Create command (Hyper-V Manager), 654-656

Quick Link menu, 74-75

Quick Settings pane, 23, 87-89

R

random hardware addresses, 377

ransomware, 430

Controlled Folder Access feature, 457

ratings for digital media files, 299

real-time protection (antivirus), 455

rebuilding search index, 328

Recent Files section (File Explorer), 294

recovering lost passwords, 357

recovery drives, booting from, 570-571

recovery images, downloading, 571

recovery keys, saving to cloud, 461

Recovery Media Creator (Recoverydrive.exe), 30, 570

recovery. *See* backup and recovery options

recovery tools partition, 254

recurring events in Calendar app, adding, 187

Recycle Bin

deleted files in, 315-317

purging, 317

restoring files, 317

space allocations for, 316

redirecting output to printer in PowerShell, 606

redirection symbols in Command Prompt, 619-620

ReFS file systems, access control, 367

reg command, 627

.reg files

backing up/restoring registry, 627-628

editing registry, 628-631

regional encoding of DVDs, 482

regional settings, changing, 130-132. *See also* language settings

registry

backing up/restoring, 627-628

editing, 621-622

adding/deleting values, 627

finding values, 626

keyboard shortcuts, 626

reg command, 627

with .reg files, 628-631

Registry Editor hierarchy, 622-624

values and data types, 624-626

- PowerShell and, 609-611
- virtualization, 631
- registry cleaners, 628**
- Registry Editor (Regedit.exe)**
 - adding/deleting values, 627
 - backing up/restoring registry, 627-628
 - finding values, 626
 - hierarchy, 622-624
 - keyboard shortcuts, 626
 - reg command, 627
 - starting, 622
 - user interface, 626-627
 - values and data types, 624-626
- regular expressions in PowerShell, 607**
- reinstalling**
 - drivers, 474, 561
 - Microsoft Store apps, 152-153
- relative dates in searches, 333**
- release channels for Microsoft Edge, 212**
- Release Preview channel (Windows Insider Program), 734**
- release schedule for Windows 11, new features and, 67**
- Reliability Monitor, 547-548**
- relocating personal data folders, 306-308**
- remote computers (Remote Desktop), 398**
- Remote Desktop, 398**
 - changing settings, 405
 - enabling inbound connections, 399-400
 - ending remote sessions, 404
 - installing client software, 399
 - Microsoft Remote Desktop app usage, 401-404
 - over internet, 398-399
 - Remote Desktop Connection app, 399, 405-406
 - user interface, 401-404
- Remote Desktop Connection, 399, 405-406**
- remote support. *See* Quick Assist; Remote Desktop**
- removable media, AutoPlay settings, 168-169**
- Remove-AppxPackage cmdlet, 155**
- removing. *See also* clearing; deleting**
 - file properties/metadata, 300-301
 - folders in Photos app, 198
 - hard disks from storage spaces, 265
 - startup apps, 161-163
 - virtual disks from VMs, 677
 - visual effects, 129
- renaming**
 - audio devices, 506-507
 - Calendar app accounts, 179
 - Favorites (Microsoft Edge), 238
 - Mail app accounts, 179
 - virtual desktops, 102
- repairing TCP/IP configuration, 426**
- repeat delay/repeat rate, changing, 102**
- replacing virtual disks in VMs, 677**
- Reset This PC option, 569, 579-582**
- resizing text, 136-137**
- resolution of display, 498-499**
 - effective, 97
 - in VMs (virtual machines), 667-668
- Resource Monitor, 509, 526-528**
- resources for information**
 - documentation
 - creating with Steps Recorder, 157
 - for PowerShell, 616
 - for Windows Insider Program builds, 737-739
 - from Microsoft, 744-746
 - in PowerShell, 611-612
 - searching for, 741-744
 - technical support, 746-749
 - Windows updates, 749-750
- restarts**
 - viewing elapsed time since, 520
 - after Windows updates, 438
- restore points**
 - file types in, 589
 - rolling back to, 591-592
- restoring. *See also* backup and recovery options**
 - default browser settings, 229
 - deleted files/folders from Recycle Bin, 317
 - right-click menus in File Explorer, 292
 - Windows 10 taskbar customization options, 81
 - Windows Defender Firewall default settings, 469
 - Windows desktop background images, 116
- retail editions of Windows 11, 724-727**
- revealing passwords, 220**
- right-clicking in File Explorer, 291-292**

ripping audio CDs, 194-196

rolling back

drivers, 486, 489-490

to restore points, 591-592

root keys (Registry Editor), 623

rootkits, 21

Rufus, 32

Run key (Registry), 160-161

Runas command, 156

running. *See also* opening; starting

Android apps, 685-688

Command Prompt session with elevated privileges, 616

desktop apps as administrator, 156

Disk Management, 252

DiskPart, 255

PowerShell scripts, 612-613

VMs (virtual machines)

with checkpoints, 669-671

from cloud, 679

in enhanced session mode, 666-668

in VMConnect windows, 663-666

RunOnce key (Registry), 160

RunOnceEx key (Registry), 160

RunServices key (Registry), 160

RunServicesOnce key (Registry), 160

S

Safe Mode, troubleshooting in, 561-564

saturation, adjusting in Photos app, 202

Saved Games folder, 306

saved passwords, exporting, 220

saving

custom configurations to system images, 583

files, changing default locations, 275

form fill-in information in Microsoft Edge, 220-221

payment information in Microsoft Edge, 221

personalization settings as themes, 126-127

recovery keys to cloud, 461

searches, 333

system information, 513

scaling

displays, 498

high-DPI displays, 501-503

scans (antivirus), 455-456

scareware, 430

scheduled tasks

batch programs, 632

startup apps as, 160

Task Scheduler, 632

Windows Script Host, 632-633

SCM (Service Control Manager), 528

scope of searches, changing, 330

screen captures, 205-206

screen savers, 121

screens. *See* displays

scripts

PowerShell, 612-615

execution policy, 613-614

PowerShell ISE, 615

profile as, 614-615

running, 612-613

Windows Script Host, 632-633

SCSI Controller section (Hyper-V Manager Settings), 674-677

search box, 12

search engines

changing default in Microsoft Edge, 234-236

help resources, 741-742

search index, 324-325

including/excluding files/folders, 325-327

monitoring/tuning performance, 327-328

pausing, 325

rebuilding, 328

skipping, 324

storage location, 324

troubleshooting, 328

Search Options menu (File Explorer), 322-323

Searches folder, 306

searching

in File Explorer, 321-324

advanced searches, 328-329

by item property, 330-331

by item type, 329-330

changing scope, 330

operators in, 323

relative dates in, 333

rules for, 322

- saving, 333
- Search Options menu, 322-323
- wildcards in, 322, 332-333
- with Boolean operators, 331-332
- for help resources, 741-744
- in Maps app, 206-207
- Microsoft Store, 149-151
- from Start menu, 73, 76-79
- secondary user accounts, adding, 361-363**
- secure attention sequence (Ctrl+Alt+Delete), 348**
- Secure Boot, 21**
- security**
 - access control, 366-369
 - authentication credentials, 335, 347. *See also* passwords
 - Ctrl+Alt+Delete non-keyboard alternatives, 348
 - multifactor authentication, 350
 - physical security keys, 358
 - picture passwords, 355
 - types of, 348-350
 - Windows Hello, 351-354
 - for Wi-Fi connections, 391-392
 - defense-in-depth strategy, 431-432
 - encryption
 - BitLocker Drive Encryption, 460-461
 - BitLocker To Go, 461-462
 - EFS (Encrypting File System), 463-465
 - types of, 459
 - features included in Windows 11, 21-22
 - Group Policy, 696-698
 - changing settings, 700
 - with Local Group Policy Editor, 698-700
 - hidden Wi-Fi networks, 394
 - installing desktop apps, 141-142
 - Microsoft Defender Antivirus, 455
 - configuring, 455-456
 - Controlled Folder Access feature, 457
 - dealing with threats, 457
 - exploit protection settings, 457-458
 - manual scans, 456
 - Microsoft Defender for Endpoint, 713
 - Microsoft Defender SmartScreen, 458-459
 - Microsoft Edge profiles, 214
 - Microsoft Store, 147-149
 - monitoring with Windows Security, 432-433
 - network location settings, 389-390
 - new features, 6
 - passwords
 - alternatives to, 348-355
 - clearing in Microsoft Edge, 246
 - exporting saved, 220
 - managing in Microsoft Edge, 216-220
 - recovering lost, 357
 - resets for local accounts, 340
 - revealing, 220
 - setting/changing, 355-356
 - syncing, 217
 - privacy management (Microsoft Edge), 241
 - clearing cached information, 244-246
 - cookies, 246-247
 - InPrivate browsing, 243-244
 - site permissions, 244
 - Tracking Prevention feature, 241-243
 - privacy options, 22, 445-448
 - removing file metadata, 300-301
 - for sharing over local network, 407-408
 - types of threats, 429-430
 - UAC (User Account Control), 368-369, 448
 - with Command Prompt, 616
 - configuring settings, 452-455
 - dealing with prompts, 450-452
 - limitations of, 450
 - MMC consoles and, 635
 - registry virtualization and, 631
 - triggers for prompts, 449-450
 - Wi-Fi networks, 395-397
 - Windows Defender Firewall, 465
 - advanced settings, 466
 - configuring settings, 467-469
 - network types, 466
 - restoring default settings, 469
 - Windows Update, 65
 - automatic updates, 434-435
 - calendar for, 441
 - checking for updates, 433-434
 - configuring options, 437-438
 - deferring updates, 439-441
 - driver updates, 486-487

- finding technical information about, 442-444
- pausing updates, 438
- troubleshooting, 444-445
- types of updates, 435-437
- security identifiers (SIDs), 347, 367**
- security intelligence updates, 436**
- security keys (physical), 358**
- Security section (Hyper-V Manager Settings), 671-672**
- security updates for Windows 11, 7**
 - severity ratings, 443-444
- selecting**
 - file systems, 259-261
 - files/folders in File Explorer, 320
 - multiple tabs (Microsoft Edge), 230
- Send To menu, customizing, 306**
- sending email messages in Mail app, 184**
- SendTo folder, 306**
- Service Control Manager (SCM), 528**
- service management, 528**
 - configuring services, 531-534
 - recovery options, 532-533
 - startup options, 531-532
 - viewing dependencies, 533-534
 - pausing services, 530
 - with Services console (Services.msc), 528-530
 - starting/stopping services, 530
 - with Task Manager, 534-536
- service set identifier (SSID), 393**
- Services.exe, 528**
- Services.msc, 528-530**
 - configuring services, 531-534
 - recovery options, 532-533
 - startup options, 531-532
 - viewing dependencies, 533-534
 - starting/stopping services, 530
- servicing stack updates, 436**
- settings. See personalization settings**
- Settings app, 13-14**
 - accessibility settings, 132-135
 - audio devices, 505-507
 - battery-life management, 537-539
 - Bluetooth devices, 482-484
 - Control Panel versus, 140
 - displays, 497-501
 - file location, 172
 - IP configuration, 382
 - kiosk devices, 719
 - network location profiles, 389
 - network management tools, 377-379
 - personalization settings
 - accessibility settings, 132-135
 - backing up, 26
 - colors, 118-120
 - desktop background, 114-118
 - desktop icons, 127-128
 - fonts, 135-138
 - lock screen, 120-122
 - mouse pointers, 123-126
 - regional settings, 130-132
 - sounds, 122-123
 - syncing, 69, 113
 - themes, 126-127
 - visual effects, 129
 - privacy options, 446-448
 - search box, 742
 - static IP addressing, 383
 - system power management, 541-542
 - UAC (User Account Control), configuring, 452-455
 - user accounts, 336-337, 344-346
 - viewing system information, 511
 - Wi-Fi settings, 376-377
 - Windows Security, 432-433
 - Windows Subsystem for Android, 687-688
 - Windows Update, 433-434
- Settings dialog (Hyper-V Manager), 671**
 - automatic start/stop actions, 678
 - Firmware section, 671
 - Memory section, 672-674
 - Network Adapter section, 677
 - Processor section, 674
 - SCSI Controller section, 674-677
 - Security section, 671-672
- Setup Information files, 474-475**
- Setup program, 6-7, 36-37**
 - clean installs, 42-48
 - upgrading Windows with, 38-41
- Set Up School PCs app, 729**

severity ratings for security updates, 443-444

shaking windows, 98

shared PC mode, 717

sharing. *See also* networking

collections (Microsoft Edge), 240

computer access, 360-361

adding secondary accounts, 361-363

assigned access, 366

family settings, 363-365

files/folders in OneDrive, 267, 313-315

network connections, 387

over local network, 406-407

configuring settings, 408-411

file/folder sharing, 411-415

finding shared resources, 417-418

mapping network folders, 418-419

network paths for, 414

printer sharing, 415-419

security models for, 407-408

Sharing Wizard, 411-414

SharpKeys, 103

shells. *See* PowerShell; Windows Terminal

shortcut keys. *See* keyboard shortcuts

shortcuts

in Microsoft Edge, 222

on Start menu

for apps, 73-74

for folders, 72, 75

shrinking

NTFS volumes, 280-283

partitions, 47

SIDs (security identifiers), 347, 367

sign-in screen, lock screen background on, 121

signed drivers, 475

signing in

with Azure AD account, 341-342

with credentials, 347

Ctrl+Alt+Delete nonkeyboard alternatives, 348

multifactor authentication, 350

passwords, 355-357

physical security keys, 358

picture passwords, 355

types of credentials, 348-350

Windows Hello, 351-354

with domain machine account, 343

with local account, 339-340

with Microsoft account, 337-339

to VMs (virtual machines), troubleshooting, 668

signing out of user account, 359

simple volumes, 253

Single Language versions of Windows 11, 725

site permissions (Microsoft Edge), 244

clearing, 246

skipping search index, 324

sleeping tabs (Microsoft Edge), 229

slideshows

desktop background, 115

lock screen, 121

Slmgr command, 60-61

SLP (System Locked Preinstallation), 54

Smart App Control, 459

smartphones (Android)

Dynamic Lock and, 359-360

linking to PCs, 681-685

S Mode, 141-142, 723-724

smoothing fonts, 137-138

snap-ins (MMC), 633-635

snapping windows, 95-98

snapshots (checkpoints), 645, 669-671

Snipping tool, 176, 205-206

software. *See* apps

software incompatibilities in Windows 11, 34

Software Protection Platform, 50

sorting

apps list, 145

folders in File Explorer, 318

output in PowerShell, 605-606

sound. *See also* audio

changing system sounds, 122-123

muting in Microsoft Edge, 230

troubleshooting, 194

volume settings, 123

Sound Recorder. *See* Voice Recorder app

spanned volumes, 254

speakers

configuring settings, 505-507

troubleshooting audio, 194

special-purpose computers

- kiosk devices, 718-719
- shared PC mode, 717

specialty calendars, adding to Calendar app, 186**Splashtop Business Access, 399****SSID (service set identifier), 393****standard checkpoints, 670****standard error, 620****standard output, 620****standard user accounts, 343****Start11, 81****Start button, 10-11, 68****Start menu, 10-12, 68, 71-79**

- customizing
 - app shortcuts on, 73-74
 - changing user account picture, 72
 - folder shortcuts on, 72, 75
- new features, 68-69
- opening, 71
- pinning
 - Mail accounts/folders to, 182
 - PWAs to, 232
- search box, 12, 742-743
- searching from, 73, 76-79

starting. *See also* opening; running

- Command Prompt session
 - from folder, 616
 - running command immediately, 617
- Registry Editor, 622
- services, 530
- in Windows Recovery Environment, 561

startup apps

- managing, 160-164
- suspending/removing, 161-163

Startup Boost feature (Microsoft Edge), 228**startup options, configuring for services, 531-532****startup page (Microsoft Edge), customizing, 227****stateless autoconfiguration, 382****static IP addressing, 381-383****status of network, checking, 374-377****Steps Recorder, 157****Sticky Notes app, 174****Stop errors, 555-556**

- contents of, 558-559
- creating, 559

- customizing handling of, 556-558

- isolating cause of, 560-561

- tools for troubleshooting, 559

stopping

- file/folder sharing, 415
- services, 530

storage controllers in VMs (virtual machines), 650**storage devices. *See* Disk Management; storage management****storage locations**

- for search index, 324
- for VMs (virtual machines), 657-658

storage management, 272-274

- categories of usage, 274
- changing default save locations, 275
- deleting unneeded files, 275-276
- disk sizes versus storage capacity, 273
- viewing storage available, 272-273

Storage Sense, 275-276**Storage Spaces, 261-265****Store. *See* Microsoft Store****Store Purchase app, 173****straightening images in Photos app, 200-201****striped volumes, 254****strong passwords, automatically creating, 220****subkeys (Registry Editor), 623****submitting feedback in Windows Insider Program, 739-740****subnet masks, 425****Surface devices, 22****suspending**

- startup apps, 161-163
- Windows Insider Program build delivery, 737

Swift Pair for Bluetooth, 484**swipe to type (Touch Keyboard), 109****switching**

- Calendar views, 185
- Microsoft Edge profiles, 216
- tasks, 70, 100-101
- user accounts, 359
- virtual desktops, 101-102

syncing

- browser settings, 113
- Calendar app accounts, 177, 180-181

- files/folders with OneDrive, 267-271, 312-313
- Mail app accounts, 177, 180-181
- Microsoft Edge browsing data, 215-216
- passwords, 217
- settings with Microsoft accounts, 69, 113
- Wi-Fi settings, 377

system apps, 172

System Configuration utility, 65

system images, 569, 582

- creating, 583-585
- for custom configurations, 583
- multiple on network, 586
- restoring from, 582, 586-588
- troubleshooting empty backup folders, 588

Systeminfo.exe, 514-515

system information

- saving, 513
- viewing
 - in Settings app, 511
 - in Systeminfo.exe, 514-515
 - in System Information (Msinfo32.exe), 512-513
 - in WMI (Windows Management Instrumentation), 515

System Information (Msinfo32.exe), 512-513

System Locked Preinstallation (SLP), 54

system partition, 254

System Restore, 486, 588-591

- configuring, 589-591
- rolling back to previous restore point, 591-592

system sounds, changing, 122-123

system tray

- icons in, 82-83
- network status icon, 374

T

Tab expansion in PowerShell, 607

table output in PowerShell, 604

tabs (Microsoft Edge)

- managing, 229-230
- muting, 230
- pinning, 231
- sleeping, 229
- Vertical Tabs feature, 231

Take A Test app, 730

task automation

- batch programs, 632
- Task Scheduler, 632
- Windows Script Host, 632-633

taskbar, 10-11, 68-70, 79-87

- adding calendars to, 131
- adding clocks to, 131
- customizing, 81-83
 - alignment options, 80, 83
 - changing button order, 85
 - Jump Lists, 86-87
 - pinning apps to, 85
 - restoring Windows 10 options, 81
 - unavailable options, 80-81
- hardware settings in, 23
- hiding, 84
- keyboard shortcuts for, 85-86
- network status icon, 374
- pinning tabs (Microsoft Edge) to, 232
- Widgets pane, 13

Task Manager, 509

- new features, 4-5
- opening, 158, 516
- performance management, 516-519
 - CPU details, 519
 - disk details, 523-524
 - GPU details, 525-526
 - memory usage, 520-523
 - network connections, 524-525
 - Processes page, 518-519
- service management with, 534-536
- startup apps in, 161
- terminating apps, 159
- user interface, 158-159
- viewing detailed app information, 159

tasks

- managing in To Do app, 188-190
- switching, 70, 100-101

Task Scheduler, 632

- startup apps, 160

Task View, 100-101

TCP/IP

- configuring, 379-385

- troubleshooting

- connection problems, 422-425

- DNS problems, 427

- IP address problems, 425-426

- repairing configuration, 426

- TCP/IP Ping (Ping.exe), 422-424**

- TCP/IP Traceroute (Tracert.exe), 422, 424**

- Teams, 20, 174, 190-191**

- technical information about updates, finding, 442-444**

- technical support, 746-749**

- telemetry data, 445-448**

- temperature, adjusting in Photos app, 202**

- templates, folder templates in File Explorer, 297**

- temporary folders, created by Setup program, 37**

- terminating apps in Task Manager, 159**

- tethering, 385**

- text. *See also* fonts**

- dictating, 110

- magnifying with mouse, 599

- resizing, 136-137

- zooming in Microsoft Edge, 232

- text-based boot menu, 62**

- themes, 126-127**

- threats**

- Microsoft Defender Antivirus, 455

- configuring, 455-456

- Controlled Folder Access feature, 457

- dealing with threats, 457

- exploit protection settings, 457-458

- manual scans, 456

- Microsoft Defender SmartScreen, 458-459

- types of, 429-430

- three-way mirrored systems, 262**

- tilde (~) wildcard in searches, 333**

- time zone settings, 130**

- tint, adjusting in Photos app, 202**

- Tips app, 742-744**

- To Do app, 174, 177, 188-190**

- Touch Keyboard, 106-109**

- touchscreens, 22-23**

- TPM (Trusted Platform Module), 21, 33**

- Tracert.exe, 422, 424**

- tracking feedback in Windows Insider Program, 739-740**

- Tracking Prevention feature (Microsoft Edge), 241-243**

- Trojans, 430**

- troubleshooters, built-in, 544**

- troubleshooting**

- audio, 194

- booting VMs, 663

- with built-in troubleshooters, 544

- checking disks for errors, 564-566

- configuring UAC (User Account Control) settings, 454

- creating system images, 584

- desktop app compatibility issues, 157

- Device Manager unknown devices, 479

- display resolution, 499

- with Driver Verifier, 492-494

- drivers for built-in devices, 473

- empty backup folders, 588

- with Event Viewer, 548-550

- customizing report views, 553-554

- exporting from, 553

- filtering report views, 554-555

- types of events, 550-551

- user interface, 549-550

- viewing events/logs, 551-553

- family settings, 365

- with feedback and diagnostics, 546-547

- File History, 574

- guest operating system installation, 673

- Hyper-V installation, 644

- Hyper-V Manager, computer name in console tree, 645

- installation media, 31

- Microsoft Store apps, 155

- mounted drives in loops, 279

- networking, 420-421

- connection problems, 422-425

- DNS problems, 427

- IP address problems, 425-426

- Network Reset command, 421

- repairing configuration, 426
- tools for, 421-422
- paging file size, 557
- performance problems, causes of, 510-511
- with Quick Assist, 566-567
- registry cleaners, 628
- with Reliability Monitor, 547-548
- in Safe Mode, 561-564
- search index, 328
- signing in to VMs (virtual machines), 668
- with Steps Recorder, 157
- Stop errors, 555-556
 - contents of, 558-559
 - creating, 559
 - customizing handling of, 556-558
 - isolating cause of, 560-561
 - tools for, 559
- storage spaces, 263
- text-based boot menu, 62
- user accounts, user profile name mismatches, 304
- VM networking, 660
- Windows 11 activation, 56-59
- with Windows Error Reporting, 544-546
- Windows updates, 444-445

Trusted Platform Module (TPM), 21, 33

tuning index performance, 327-328

two-factor authentication, 22, 350

two-way mirrored systems, 262

U

UAC (User Account Control), 368-369, 448

- with Command Prompt, 616
- configuring settings, 452-455
- dealing with prompts, 450-452
- limitations of, 450
- MMC consoles and, 635
- registry virtualization and, 631
- triggers for prompts, 449-450

UEFI (Unified Extensible Firmware Interface), 21, 30, 253

UNC (Universal Naming Convention) names for printers, 496

uninstalling

- desktop apps, 155-156
- drivers, 486, 490-491
- installed apps, 177
- Microsoft Store apps, 155
- provisioned Windows apps, 176
- Windows Subsystem for Android, 688

Universal Windows Platform (UWP), 143

unknown devices in Device Manager, troubleshooting, 479

unmounting virtual DVD drives, 652

updating

- drivers, 485-489
- Maps app, 208
- Microsoft Edge, 212-213
- Microsoft Store apps, 152-153
- Windows. *See also* Windows Insider Program
 - automatic updates, 434-435
 - calendar for, 441
 - checking for updates, 433-434
 - configuring options, 437-438
 - deferring updates, 439-441
 - feature updates, 7-10
 - finding technical information about, 442-444
 - pausing updates, 438
 - public release channels, 9
 - resources for information, 749-750
 - security updates, 7
 - troubleshooting, 444-445
 - types of updates, 435-437
 - Windows Update for Business, 707-708

upgrading

- from Windows 10, 37-41
- Windows 11 editions, 48-49
- Windows 11 Pro to Windows 11 Enterprise, 709

URL shortcuts in Microsoft Edge, 222

USB (universal serial bus) devices, 485

- connections for VMs, 667
- network adapters, 372

User Account Control. *See* UAC (User Account Control)

user accounts

- access control, 366-369
- changing picture for, 72

- in Control Panel, 337
- credentials, 335, 347
 - Ctrl+Alt+Delete nonkeyboard alternatives, 348
 - multifactor authentication, 350
 - passwords, 355-357
 - physical security keys, 358
 - picture passwords, 355
 - types of, 348-350
 - Windows Hello, 351-354
- deleting, 346-347
- for family members, 363, 365
- local
 - adding as secondary, 361-363
 - changing settings, 345-346
 - password hints, 356
 - password recovery, 357
 - password resets, 340
 - signing in with, 339-340
- locking computer, 359-360
- Microsoft
 - adding as secondary, 361-363
 - aliases, 339
 - benefits of, 17-18
 - changing settings, 345
 - email addresses as, 338
 - family settings, 363-365
 - Microsoft Edge profiles and, 214-216
 - password recovery, 357
 - signing in with, 337-339
 - syncing personalization settings, 69, 113
 - syncing with OneDrive, 267-271
 - upgrading Windows, 41
- purpose of, 335
- security identifiers (SIDs), 367
- in Settings app, 336-337, 344-346
- sharing computer access, 360-361
 - adding secondary accounts, 361-363
 - assigned access, 366
 - family settings, 363, 365
- signing out, 359
- switching, 359
- troubleshooting user profile name mismatches, 304

- types of, 336
 - administrator, 343-344
 - Azure AD accounts, 341-342
 - domain machine accounts, 343
 - guest, 344
 - local accounts, 339-340
 - Microsoft accounts, 337-339
 - standard user, 343
- Whoami utility, 368

user interface

- Calendar app, 184-186
- Clipchamp app, 204
- Device Manager, 476-480
- Disk Management, 254
- Event Viewer, 549-550
- File Explorer, 289-293
 - file properties/metadate, 298-302
 - folder views, 295-297
 - Home page, 294-295
 - navigation pane, 293-294
 - right-clicking in, 291-292
 - zipped folders, 302
- File History app, 577-578
- Hyper-V Manager, 644-646
- Mail app, 181-182
- Media Player app, 193-194
- Microsoft Edge
 - customizing, 222-224
 - overview, 209-211
- Microsoft Remote Desktop app, 401-404
- Microsoft Teams, 191
- Movies & TV app, 203
- OneDrive/OneDrive for Business, 266-267
- Photos app, 196-200
- Registry Editor, 626-627
- Remote Desktop Connection app, 405-406
- Resource Monitor, 526-527
- Task Manager, 158-159
- Windows 11
 - notifications pane, 89-95
 - overview, 10-14, 67-71
 - pen settings, 110-111
 - physical keyboard settings, 102-106

- Quick Link menu, 74-75
- Quick Settings pane, 87-89
- Start menu, 71-79
- switching tasks, 100-102
- taskbar, 79-87
- Touch Keyboard, 106-109
- voice commands/dictation, 110
- window arrangement, 95-99
- Windows Recovery Environment, 561-562
- Windows Security, 432-433
- Windows Terminal, 596-599
- user profiles**
 - files/folders in, 303-306
 - moving personal data folders, 306-308
 - troubleshooting user account name mismatches, 304
- UWP (Universal Windows Platform), 143**
- V**
- values in registry, 624-626**
 - adding, 627
 - deleting, 627, 630
 - finding, 626
- variable length subnet mask (VLSM) addresses, 385**
- verifying network status, 374-377**
- versions**
 - of drivers, viewing, 489
 - of Windows 11, 8-9
- Vertical Tabs feature (Microsoft Edge), 231**
- VHDs (virtual hard disks), 284-286, 585**
- video**
 - editing in Clipchamp app, 204-205
 - file formats in Media Player app, 192-193
 - playing in Movies & TV app, 202-204
 - ratings, 299
 - regional encoding (DVDs), 482
- Video Library (Media Player app), 194**
- viewing**
 - app information in Task Manager, 159
 - app list, 144-147
 - Calendar views, 185
 - Clipboard history, 105
 - CPU details, 33

- driver versions, 489
- elapsed time since restart, 520
- events/logs, 551-553
- Event Viewer data, 553-554
- file properties/metadata, 298-299
- files/folders in File Explorer, 295-297
- History (Microsoft Edge), 236-237
- images in Photos app, 198-199
- mounted drives, 280
- network settings, 66
- OneDrive files in File Explorer, 310
- service dependencies, 533-534
- startup apps in Task Manager, 161
- storage available, 272-273
- system apps list, 172
- system information
 - in Settings app, 511
 - in Systeminfo.exe, 514-515
 - in System Information (Msinfo32.exe), 512-513
 - in WMI (Windows Management Instrumentation), 515
- Touch Keyboard, 107
- Wi-Fi network availability, 375
- WindowsApps folder contents, 148
- Windows version number, 8-9
- Virtmgmt.msc (Hyper-V Manager), 642. *See also* Hyper-V**
 - changing VM settings, 671
 - automatic start/stop actions, 678
 - firmware, 671
 - hard disks, 674-677
 - memory, 672-674
 - network adapter, 677
 - processor, 674
 - security, 671-672
 - New Virtual Machine Wizard, 656-662
 - Quick Create command, 654-656
 - troubleshooting computer name in console tree, 645
 - user interface, 644-646
- virtual adapters, 379**
- VirtualBox, 63**
- virtual desktops, switching, 101-102**

virtual DVD drives, mounting/unmounting, 652

virtual hard disks (VHDs), 284-286, 585

virtualization. *See also* VMs (virtual machines)

Hyper-V

enabling, 641-644

network adapters for, 652

troubleshooting installation, 644

VM components, 646-653

hypervisors, 637

Hyper-V Manager

changing VM settings, 671-678

New Virtual Machine Wizard, 656-662

Quick Create command, 654-656

troubleshooting computer name in console tree, 645

user interface, 644-646

options in Windows 11, 638-639

of registry, 631

virtual machine configuration files, 647-648

Virtual Machine Connection (Vmconnect.exe), 642, 663-666

virtual machines. *See* VMs (virtual machines)

virtual network adapters, 375, 652

virtual private networks (VPNs), 397

virtual switches, 652

vision accessibility settings, 132

visual effects, removing, 129

Visual Studio, ISO image files available, 27

VLC app, 203

VL (Microsoft Volume Licensing) program, 59-60

VLSM (variable length subnet mask) addresses, 385

Vmconnect.exe, 642, 663-666

VMs (virtual machines), 637

Azure VMs, 711-712

changing settings, 671

automatic start/stop actions, 678

firmware, 671

hard disks, 674-677

memory, 672-674

network adapter, 677

processor, 674

security, 671-672

components of, 646-648

hard disks, 651, 660-661

machine generation, 648-649, 658

memory, 649-650, 659

networking, 652-653, 659-660

storage controllers, 650

configuration notes, 646

creating

with New Virtual Machine Wizard, 656-662

with Quick Create command, 654-656

with Windows Sandbox, 639-641

exporting, 678

importing, 678-679

managing with PowerShell, 648

moving, 679

multiboot systems versus, 62

running

with checkpoints, 669-671

from cloud, 679

in enhanced session mode, 666-668

in VMConnect windows, 663-666

troubleshooting

booting, 663

sign-in, 668

VMware, 63

Voice Access app, 110

voice commands/dictation, 110

Voice Recorder app, 175

volume licenses, 52, 59-60

ISO image files available, 27

Volume Mixer, 123

volumes, 253

changing labels, 277

combining with Storage Spaces, 261-265

converting FAT32 to NTFS, 283

creating new, 257-259

deleting, 283

mapping to NTFS folders, 278-280

shrinking/extending NTFS volumes, 280-283

volume settings, 123

Volume Shadow Copy service, 588

VPNs (virtual private networks), 397

W

Weather app, 174

web browsers. *See also* browser settings;

Microsoft Edge

changing default, 164-165, 211

Google Chrome, 15, 209-210

setting as default, 164

Internet Explorer, 15-16, 209

in Windows 11, 15-17

Web Experience Client app, 173

WEP (Wired Equivalent Privacy), 396

Whoami utility, 368

Widgets icon, 69

Widgets pane, 13, 69-70

width of snapped windows, changing, 98

Wi-Fi

access point security, 397

connecting to, 390-392

hidden networks, 393-395

security options, 395-397

disabling, 375-376

hardware requirements, 373

mobile hotspots, 385-387

settings for, 376-377

standards, 393

viewing available networks, 375

Wi-Fi Protected Access (WPA), 396

Wi-Fi Protected Access 2 (WPA2), 396

Wi-Fi Protected Access 3 (WPA3), 396

wildcards

in PowerShell, 607

in searches, 322, 332-333

Win32 apps, 18, 139-141

compatibility issues, 157

installing, security issues, 141-142

in Microsoft Store, 141

distinguishing from Windows apps, 151

security features, 148-149

security issues, 141-142

running as administrator, 156

uninstalling, 155-156

windows

arranging, 95-99

positioning, 14

shaking, 98

snapping, 95-98

switching between, 100-101

Windows 7 Backup and Restore tool, 568-569, 582

creating system images, 583-585

restoring from system images, 582, 586-588

troubleshooting empty backup folders, 588

Windows 7 text-based boot menu, 62

Windows 10

taskbar, restoring customization options, 81

upgrading from, 37-41

Windows 11

access control, 366-369

activating

advanced license management, 60-61

antipiracy checks, 50-52

corporate licensing, 59-60

licensing options, 52-53

managing activation, 55-56

product keys, 53-55

troubleshooting activation, 56-59

apps included with, 172

installed apps, 176-177

provisioned Windows apps, 172-176

system apps, 172

types of, 18-20

backward compatibility, 3

cloud services, 17-18

editions and licensing options, 8-9, 723-724

for educational institutions, 729-730

for organizations, 727-729

for retail and OEM, 724-727

edition upgrades, 48-49

enterprise deployment tools, 701

Microsoft Deployment Toolkit, 702-703

Microsoft Endpoint Configuration Manager,
701-702

Windows Autopilot, 705

Windows Server Update Services, 706

Windows System Image Manager, 704

Windows Update for Business, 707-708

features, enabling/disabling, 167-168

hardware designs, 22-24

hardware requirements, 3, 32-34

installing

- bypassing hardware compatibility issues, 34-35
- checklist, 65-66
- clean installs, 41-48
- downloading installation files, 26-27
- ISO image files, 29-32
- Media Creation Tool, 27-29
- in multiboot system, 61-65
- on new hard disk, 255
- Setup program, 36-37
- troubleshooting installation media, 31
- upgrading from Windows 10, 38-41

new features, 4-6

- release schedule, 67

personalization settings

- accessibility settings, 132-135
- colors, 118-120
- desktop background, 114-118
- desktop icons, 127-128
- fonts, 135-138
- lock screen, 120-122
- mouse pointers, 123-126
- regional settings, 130-132
- sounds, 122-123
- syncing, 113
- themes, 126-127
- visual effects, 129

recovery tools, 7

reinstalling, drivers for, 474

security features, 21-22

Setup program, 6-7

S Mode, 141-142, 723-724

software incompatibilities, 34

supported file systems, 259

supported hardware configurations, 724

updating. *See also* Windows Insider Program

- automatic updates, 434-435
- calendar for, 441
- checking for updates, 433-434
- configuring options, 437-438
- deferring updates, 439-441
- feature updates, 7-10
- finding technical information about, 442-444
- pausing updates, 438

public release channels, 9

- resources for information, 749-750
- security updates, 7
- troubleshooting, 444-445
- types of updates, 435-437
- Windows Update for Business, 707-708

user interface

- notifications pane, 89-95
- overview, 10-14, 67-71
- pen settings, 110-111
- physical keyboard settings, 102-106
- Quick Link menu, 74-75
- Quick Settings pane, 87-89
- Start menu, 71-79
- switching tasks, 100-102
- taskbar, 79-87
- Touch Keyboard, 106-109
- voice commands/dictation, 110
- window arrangement, 95-99
- virtualization options, 638-639
- web browsing, 15-17

Windows 11 Education, 730**Windows 11 Enterprise, 728**

- upgrading from Windows 11 Pro, 709

Windows 11 Enterprise E3, 728**Windows 11 Enterprise E5, 728****Windows 11 Enterprise LTSC, 729****Windows 11 Home, 725**

- upgrading to Pro edition, 48-49

Windows 11 Installation Assistant, 26-27, 39**Windows 11 Media Creation Tool, 27-29****Windows 11 Pro, 726-727**

- upgrading to, 48-49

- upgrading to Windows 11 Enterprise, 709

Windows 11 Pro Education, 730**Windows 11 Pro for Workstations, 727****Windows 11 Release Information page, 749****Windows 11 SE, 730****Windows 365, 679, 712****Windows App Software Development Kit (SDK), 143****Windows apps, 143. *See also* Microsoft Store**

- distinguishing from desktop apps in Microsoft Store, 151
- security features, 147

WindowsApps folder, viewing contents, 148

Windows Autopilot, 705

Windows Check Disk utility (Chkdsk.exe), 565-566

Windows Communications App package, 174

Windows Configuration Designer, 729

Windows Defender Firewall, 389, 465

- advanced settings, 466
- configuring settings, 467-469
- network types, 466
- restoring default settings, 469

Windows Error Reporting, 544-546

Windows Event Log service, 548, 551

Windows Explorer. See File Explorer

Windows Hardware Abstraction Layer, 44

Windows Hello, 336

- biometric sign-ins, 353-354
- PIN setup, 352-353
- setting up, 351

Windows Hello for Business, 351

Windows Insider Program, 9, 731-733

- channels in, 734-735
 - changing, 736
- disabling unauthorized access, 733
- documentation for builds, 737-739
- enrolling devices in, 733-737
- submitting/tracking feedback, 739-740
- suspending build delivery, 737

Windows Insider Program for Business, 732

Windows Management Instrumentation (WMI), 515

Windows Media Player app, 20

Windows Media Player Legacy app, 192

Windows Memory Diagnostic tool, 560

Windows Package Manager, 153

Windows partition, 254

Windows PE (Windows Preinstallation Environment), 37

Windows Phone, 681

Windows PowerShell, 595, 599-600

- advantages of, 600
- cmdlets, 601-602
 - finding correct, 611
 - network location profiles, 390
 - network troubleshooting, 422

Command Prompt commands in, 600-601

documentation, 616

help resources, 611-612

installing, 599

managing VMs (virtual machines), 648

pipeline usage, 602-606

- filtering output, 605
- graphical table output, 604-605
- list output, 603-604
- redirecting to printer, 606
- sorting output, 605-606
- table output, 604

providers, 607-611

scripts, 612-615

- execution policy, 613-614
- PowerShell ISE, 615
- profile as, 614-615
- running, 612-613

simplifying keyboard entry, 606-607

uninstalling apps, 155

versions of, 599

WMI cmdlets in, 515

Windows Print Dialog app, file location, 172

Windows Recovery Environment (Windows RE), 32, 255, 582, 592

starting in, 561

user interface, 561-562

Windows registry

backing up/restoring, 627-628

editing, 621-622

- adding/deleting values, 627
- finding values, 626
- keyboard shortcuts, 626
- reg command, 627
- with .reg files, 628-631

Registry Editor hierarchy, 622-624

values and data types, 624-626

PowerShell and, 609-611

virtualization, 631

Windows Remote Assistance tool. See Quick Assist

Windows Sandbox, 639-641

Windows Script Host (WSH), 632-633

Windows Search service, 324-325

- including/excluding files/folders from index, 325-327
- index storage location, 324
- monitoring/tuning index performance, 327-328
- pausing, 325
- rebuilding search index, 328
- skipping search index, 324
- troubleshooting, 328

Windows Security, 21, 173

- user interface, 432-433

Windows Server Active Directory, 692**Windows Server Update Services (WSUS), 706****Windows Setup program, 36-37**

- clean installs, 42-48
- upgrading Windows with, 38-41

Windows Show/Hide Updates Tool, 491**Windows Software Licensing Management Tool (Slmgr.vbs), 60-61****Windows Spotlight, 115, 121****Windows Store. *See* Microsoft Store****Windows Subsystem for Android, 6, 685-688****Windows Subsystem for Linux (WSL), 6, 688-690****Windows System Image Manager (Windows SIM), 704****Windows Task Scheduler, 632**

- startup apps, 160

Windows Terminal, 176, 596-599**Windows UI Library (WinUI 3), 143****Windows Update, 65**

- automatic updates, 434-435
- calendar for, 441
- checking for updates, 433-434
- configuring options, 437-438
- deferring updates, 439-441
- driver updates, 486-487
- finding technical information about, 442-444

- pausing updates, 438
- troubleshooting, 444-445
- types of updates, 435-437

Windows Update for Business, 707-708**Windows Version Reporter app, 9****Winget, 153****Winlogon key (Registry), 161****wiping data, 261, 283-284****Wired Equivalent Privacy (WEP), 396****wireless networking. *See* Wi-Fi****WMI Command-Line Utility (Wmic.exe), 515****WMI (Windows Management Instrumentation), 515****workgroups versus domains, 388****WPA (Wi-Fi Protected Access), 396****WPA2-Enterprise, 396****WPA2-Personal, 396****WPA2 (Wi-Fi Protected Access 2), 396****WPA3-Enterprise, 396****WPA3-Personal, 396****WPA3 (Wi-Fi Protected Access 3), 396****WSH (Windows Script Host), 632-633****WSL (Windows Subsystem for Linux), 6, 688-690****WSL 2, 689-690****WSUS (Windows Server Update Services), 706****X-Y-Z****Xbox app, 175****Your Phone. *See* Phone Link app****Zero Touch installations, 704****zipped folders, 302****zooming**

- in Microsoft Edge, 232
- text with mouse, 599