Apple Pro Training Series

macOS Support Essentials 12

Supporting and Troubleshooting macOS Monterey

Benjamin G. Levy and Adam Karneboge
with Steve Leebove

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Apple Pro Training Series

macOS Support Essentials 12

Supporting and Troubleshooting macOS Monterey

Benjamin G. Levy and Adam Karneboge with Steve Leebove

macOS Support Essentials 12 – Apple Pro Training Series: Supporting and Troubleshooting macOS Monterey
Benjamin G. Levy and Adam Karneboge with Steve Leebove
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IMPORTANT: Some of the exercises contained in this guide can be temporarily disruptive, and some exercises, if performed incorrectly, could result in data loss or damage to system files. As such, it's recommended that you perform these exercises on a Mac computer that is not critical to your daily productivity.

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ScoutAutomatedPrintCode

My wife, Trang, encouraged me to take this project, and her love, kindness, and caring are on every page. My brother Remy is a fountain of thoughtful, practical advice and I am grateful for his love and support. My family and friends all helped convince me 14-hour days, 7 days a week are a perfectly reasonable price to pay for what you have before you. Thank you, reader, for your passion for all things Apple. I sincerely hope I have done well by you.

Finally, thank you to my father, Marc, who, while holding this book in his hands, will confidently assert that he understands his Mac better than I do. He's probably right.

—Benjamin G. Levy

This book is dedicated to my mother, Monica, and two sons, Daniel and Elijah, who give me their love, support, and encouragement each year. Their sacrifices make this book possible.

—Adam Karneboge

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Contents at a Glance

About This Guide xv

Installation and Configuration

Lesson 1 Introduction to macOS 3
Lesson 2 Update, Upgrade, or Reinstall macOS 13
Lesson 3 Set Up and Configure macOS 43
Lesson 4 Use the Command-Line Interface 91
Lesson 5 Use macOS Recovery 121
Lesson 6 Update macOS. 155

User Accounts

Lesson 7 Manage User Accounts 173
Lesson 8 Manage User Home Folders 211
Lesson 9 Manage Security and Privacy 237
Lesson 10 Manage Password Changes 297

File Systems

Lesson 11 Manage File Systems and Storage 325
Lesson 12 Manage FileVault 367
Lesson 13 Manage Permissions and Sharing 383
Lesson 14 Use Hidden Items, Shortcuts, and File Archives 409

Data Management

Lesson 15 Manage System Resources. 431
Lesson 16 Use Metadata, Siri, and Spotlight 449
Lesson 17 Manage Time Machine 479

Apps and Processes

Lesson 18 Install Apps 509
Lesson 19 Manage Files 547
Lesson 20 Manage and Troubleshoot Apps 609

Network Configuration

Lesson 21 Manage Basic Network Settings 667
Lesson 22 Manage Advanced Network Settings 691
Lesson 23 Troubleshoot Network Issues 731

Network Services

Lesson 24 Manage Network Services 753
Lesson 25 Manage Host Sharing and Personal Firewall 793

System Management

Lesson 26 Troubleshoot Peripherals 843
Lesson 27 Manage Printers and Scanners 863
Lesson 28 Troubleshoot Startup and System Issues 901

Index 943

Table of Contents

About This Guide xv

Installation and Configuration

Lesson 1 Introduction to macOS 3
Reference 1.1 macOS Monterey 12 3
Reference 1.2 What's New in macOS Monterey 4
Reference 1.3 Use macOS Help 10
Reference 1.4 Review macOS History 12

Lesson 2 Update, Upgrade, or Reinstall macOS 13
Reference 2.1 macOS Installation Methods 13
Reference 2.2 Prepare to Upgrade or Reinstall macOS 15
Reference 2.3 Upgrade or Install macOS 24
Reference 2.4 Troubleshoot Installation Issues 26
Exercise 2.1 Prepare a Mac for Upgrade 28
Exercise 2.2 Upgrade to macOS Monterey 33
Exercise 2.3 Erase a Mac and Install macOS Monterey 37
Exercise 2.4 Verify That macOS Is Installed Correctly 41

Lesson 3 Set Up and Configure macOS 43
Reference 3.1 Configure a Mac with a New Installation of macOS Monterey 43
Reference 3.2 Manage System Settings 55
Exercise 3.1 Configure a Mac for Exercises 70
Exercise 3.2 Configure System Preferences 73
Exercise 3.3 Download Student Materials 81
Exercise 3.4 Install a Configuration Profile 84
Exercise 3.5 Examine System Information 88

Lesson 4	Use the Command-Line Interface	91
Reference 4.1	CLI Basics	91
Reference 4.2	CLI Navigation	99
Reference 4.3	Manipulate Files in the CLI	103
Reference 4.4	Manage macOS from the CLI	106
Reference 4.5	Command-Line Tips and Tricks	107
Exercise 4.1	Command-Line Navigation	109
Exercise 4.2	Manage Files and Folders with Commands	113
Lesson 5	Use macOS Recovery	121
Reference 5.1	Elements of macOS Recovery	121
Reference 5.2	Start Up from macOS Recovery	122
Reference 5.3	Use macOS Recovery	127
Reference 5.4	Secure Startup	129
Reference 5.5	Create a Bootable Installer for macOS	140
Exercise 5.1	Use macOS Recovery	141
Exercise 5.2	Create a macOS Install Disk	148
Lesson 6	Update macOS	155
Reference 6.1	Software Updates	155
Reference 6.2	Use MDM to Install macOS Updates	165
Reference 6.3	Examine Installation History	165
Exercise 6.1	Use Software Update	166

User Accounts

Lesson 7	Manage User Accounts	173
Reference 7.1	User Accounts	173
Reference 7.2	Configure User Accounts	182
Reference 7.3	Restrict Local User Access with Screen Time	187
Reference 7.4	Configure Login and Fast User Switching	194
Exercise 7.1	Create a Standard User Account	202
Lesson 8	Manage User Home Folders	211
Reference 8.1	User Home Folders	211
Reference 8.2	Delete User Accounts and Preserve Their Home Folder Contents	219
Reference 8.3	Migrate and Restore Home Folders	220
Exercise 8.1	Restore a Deleted User Account	226

Lesson 9 Manage Security and Privacy 237
Reference 9.1 Password Security 237
Reference 9.2 Manage Secrets in Keychains 241
Reference 9.3 Use iCloud Keychain 248
Reference 9.4 Manage Systemwide Security 250
Reference 9.5 Manage User Privacy 253
Reference 9.6 Use Find My 262
Reference 9.7 Protect Your Mac with Activation Lock 270
Reference 9.8 Approve System Extensions 272
Reference 9.9 Approve Third-Party Kernel Extensions 274
Reference 9.10 Lock Your Screen 276
Exercise 9.1 Manage Keychains 277
Exercise 9.2 Allow Apps to Access Your Data 284
Exercise 9.3 Approve System Extension Loading 290

Lesson 10 Manage Password Changes 297
Reference 10.1 Change Known Passwords 297
Reference 10.2 Reset Lost Passwords 299
Reference 10.3 Manage User Keychains 305
Exercise 10.1 Reset Account Passwords in macOS Recovery 309
Exercise 10.2 Reset Account Passwords 312
Exercise 10.3 Observe Automatic Login Keychain Creation 315

File Systems

Lesson 11 Manage File Systems and Storage 325
Reference 11.1 File Systems 325
Reference 11.2 Mount, Unmount, and Eject Disks 338
Reference 11.3 Inspect File-System Components 342
Reference 11.4 Manage File Systems 346
Reference 11.5 Troubleshoot File Systems 350
Exercise 11.1 View Disk and Volume Information 355
Exercise 11.2 Erase a Storage Device 361
Exercise 11.3 Repair Volumes, then Containers, then Disks, in Recovery Mode 364

Lesson 12 Manage FileVault 367
Reference 12.1 FileVault Introduction 367
Reference 12.2 Turn On FileVault 370

Exercise 12.1 Restart a FileVault-Protected Mac 375
Exercise 12.2 Use a FileVault Recovery Key 377

Lesson 13 Manage Permissions and Sharing 383
Reference 13.1 File-System Permissions 383
Reference 13.2 Examine Permissions for Sharing 389
Reference 13.3 Manage Permissions 393
Exercise 13.1 Create Items with Default Permissions 399
Exercise 13.2 Test Permissions Changes 405

Lesson 14 Use Hidden Items, Shortcuts, and File Archives 409
Reference 14.1 Examine Hidden Items 409
Reference 14.2 Examine Packages 413
Reference 14.3 Use File-System Shortcuts 415
Reference 14.4 Use File Archives 421
Exercise 14.1 Navigate Hidden Items 426

Data Management

Lesson 15 Manage System Resources 431
Reference 15.1 macOS File Resources 431
Reference 15.2 System Integrity Protection 437
Reference 15.3 Manage Font Resources 439
Exercise 15.1 Manage Font Resources 440

Lesson 16 Use Metadata, Siri, and Spotlight 449
Reference 16.1 File-System Metadata 449
Reference 16.2 Siri and Spotlight 456
Exercise 16.1 Examine File Metadata 473

Lesson 17 Manage Time Machine 479
Reference 17.1 About Time Machine 479
Reference 17.2 Configure Time Machine 481
Reference 17.3 Restore Files 492
Exercise 17.1 Configure Time Machine 497
Exercise 17.2 Restore Using Time Machine 502

Apps and Processes

Lesson 18 Install Apps 509
Reference 18.1 The App Store 509
Reference 18.2 App Security 520
Reference 18.3 Install Apps Using Drag-and-Drop and Software Packages 526
Reference 18.4 Remove Installed Software 529
Exercise 18.1 Install an App from the App Store 530
Exercise 18.2 Use an Installer Package 535
Exercise 18.3 Drag and Drop to Install an App 538
Exercise 18.4 Remove Apps 544

Lesson 19 Manage Files 547
Reference 19.1 Open Files 547
Reference 19.2 Save Documents 561
Reference 19.3 Manage Automatic Resume 569
Reference 19.4 Store Documents in iCloud 571
Reference 19.5 Use iCloud File Sharing 585
Reference 19.6 Optimize Local Storage 589
Exercise 19.1 Use Alternate Apps 592
Exercise 19.2 Practice Automatic Save and Versions 597
Exercise 19.3 Manage Document Locking 601
Exercise 19.4 Store Documents in iCloud 602

Lesson 20 Manage and Troubleshoot Apps 609
Reference 20.1 Apps and Processes 609
Reference 20.2 Manage App Extensions 616
Reference 20.3 Monitor Apps and Processes 629
Reference 20.4 Troubleshoot Apps 634
Exercise 20.1 Force Apps to Quit 650
Exercise 20.2 Troubleshoot Preferences 655
Exercise 20.3 Examine Logs 661

Network Configuration

Lesson 21 Manage Basic Network Settings 667
Reference 21.1 Network Terminology 667
Reference 21.2 Network Activity 670

Reference 21.3 Configure Basic Network Settings. 674
Exercise 21.1 Connect to a Wi-Fi Network 683
Exercise 21.2 Monitor Network Connectivity 687

Lesson 22 Manage Advanced Network Settings 691
Reference 22.1 Manage Network Locations 691
Reference 22.2 Network Interfaces and Protocols 694
Reference 22.3 Manage Network Service Interfaces 698
Reference 22.4 Configure VPN Settings 702
Reference 22.5 Configure Advanced Network Settings 707
Exercise 22.1 Configure Network Locations 719
Exercise 22.2 Advanced Wi-Fi Configuration 725

Lesson 23 Troubleshoot Network Issues. 731
Reference 23.1 Troubleshoot General Network Issues 731
Reference 23.2 Use Terminal to Troubleshoot Network Issues 736
Exercise 23.1 Troubleshoot Network Connectivity. 745

Network Services

Lesson 24 Manage Network Services 753
Reference 24.1 Network Services 753
Reference 24.2 Configure Network Service Apps 757
Reference 24.3 Connect to File-Sharing Services. 768
Reference 24.4 Troubleshoot Network Services 778
Exercise 24.1 Use File-Sharing Services 786

Lesson 25 Manage Host Sharing and Personal Firewall 793
Reference 25.1 Turn On Host-Sharing Services. 793
Reference 25.2 Control Remote Computers 806
Reference 25.3 Share Files with AirDrop 817
Reference 25.4 Manage the Personal Firewall 821
Reference 25.5 Troubleshoot Shared Services 826
Exercise 25.1 Use Host-Sharing Services 828
Exercise 25.2 Configure a Personal Firewall 835

System Management

Lesson 26 Troubleshoot Peripherals 843
Reference 26.1 Peripheral Technologies 843
Reference 26.2 Manage Bluetooth Devices 850
Reference 26.3 Troubleshoot Peripheral Issues 857
Exercise 26.1 Examine Peripherals Using System Information. 860

Lesson 27 Manage Printers and Scanners 863
Reference 27.1 Printing in macOS 863
Reference 27.2 Configure Printers and Scanners. 865
Reference 27.3 Manage Print Jobs 880
Reference 27.4 Troubleshoot Print Issues 886
Exercise 27.1 Configure Printing. 888
Exercise 27.2 Manage Printing. 893
Exercise 27.3 Troubleshoot Printing 899

Lesson 28 Troubleshoot Startup and System Issues 901
Reference 28.1 System Initialization and Secure Boot 901
Reference 28.2 User Sessions. 911
Reference 28.3 Sleep Modes, Logout, and Shutdown 913
Reference 28.4 Modify Startup 922
Reference 28.5 Troubleshoot System Initialization 930
Reference 28.6 Troubleshoot User Sessions 935
Reference 28.7 Erase Assistant 936
Exercise 28.1 Use Safe Mode 940

Index 943

About This Guide

Audience

Whether you're an experienced system administrator or you just want to dig deeper into macOS, you'll learn to update, upgrade, reinstall, configure, maintain, diagnose, and troubleshoot macOS Monterey.

You should be comfortable using a Mac before you read this guide. If you're not sure about basic Mac use, refer to "Are you new to Mac?" at support.apple.com/guide/macbook-pro/are-you-new-to-mac-apd1f14ec646.

How to Use the Guide

Use the reference sections to get familiar with macOS Monterey. Then, use the exercises to practice what you've learned. After you've completed the guide, you should be able to:

- Explain how macOS Monterey works
- Explain the best practices for updating, upgrading, reinstalling, configuring, and using macOS Monterey
- Explain macOS Monterey troubleshooting and repair procedures
- Use appropriate tools and techniques in macOS Monterey to diagnose and resolve issues

Accessing the Web Edition and Lesson Files

Unless otherwise specified, references to macOS in this guide refer to macOS Monterey 12.1. When you buy this guide from Peachpit (in any format), you automatically get access to its Web Edition and the accompanying lesson files.

If you bought an ebook from peachpit.com, your Web Edition will appear under the Digital Purchases tab on your Account page. If you bought an ebook from a different vendor or you bought a print book, you must register your purchase on peachpit.com to access the online content:

1. Go to peachpit.com/macosMonterey.

2. Sign in or create a new account.

   The Register a Product page opens, with the book's ISBN already entered in the text field.

3. Click Submit.

4. Answer the challenge question as proof of purchase.

5. You can access the lesson files from the Registered Products tab on your Account page. Click the Access Bonus Content link below the title of your product to proceed to the download page.

6. Click the lesson file link(s) to download them to your computer, and when you are asked to allow downloads on www.peachpit.com, click Allow.

   The student materials for these exercises will be downloaded as a ZIP archive and automatically expanded into the StudentMaterials folder.

7. You can access the Web Edition from the Digital Purchases tab on your Account page. Click the Launch link to access the product.

Exercises

The exercises in this guide are designed for independent learners and require a dedicated Mac. If you use a Mac that is also used for daily productivity, the exercises will not work as expected and they might disrupt your Mac. To complete the exercises, ensure that you have the following:

- A Mac with Apple silicon or an Intel-based Mac that meets the requirements to install macOS Monterey
- macOS Monterey (see Exercise 2.3, "Erase a Mac and Install macOS Monterey")
- A high-speed internet connection
- Lesson files (see "Accessing the Web Edition and Lesson Files," earlier)
- An Apple ID dedicated to your independent learning (you don't need to provide credit card information to get free apps from the App Store)

The following items are not required, but they can be helpful:

- An iCloud account associated with the Apple ID you use for your independent learning
- An erasable external storage disk with a capacity of at least 14 GB for Exercise 5.2, "Create a macOS Install Disk"
- At least two Wi-Fi networks (one should be visible)
- A Mac with a solid state drive

Additional Materials

Apple Support

The Apple Support website (support.apple.com) includes the latest free online Apple Support articles.

Lesson 8

Manage User Home Folders

When you log in to your Mac, you can securely store documents in your home folder. You can also store and access documents in other locations, but this lesson focuses on your home folder. In macOS Catalina or later, your home folder is stored on the read-write APFS Data volume, technically separate from your read-only APFS System volume, but this separation doesn't make a difference in troubleshooting.

> **NOTE ►** Illustrations in this chapter show conditions when different users are logged in. Local Administrator is logged in in most illustrations, but the sidebar will show that John Appleseed is logged in with an Apple ID and is using iCloud Drive as well as backing up using Time Machine.

GOALS

- Describe user home folders
- Delete users' accounts and preserve their home folder contents
- Migrate and restore home folders

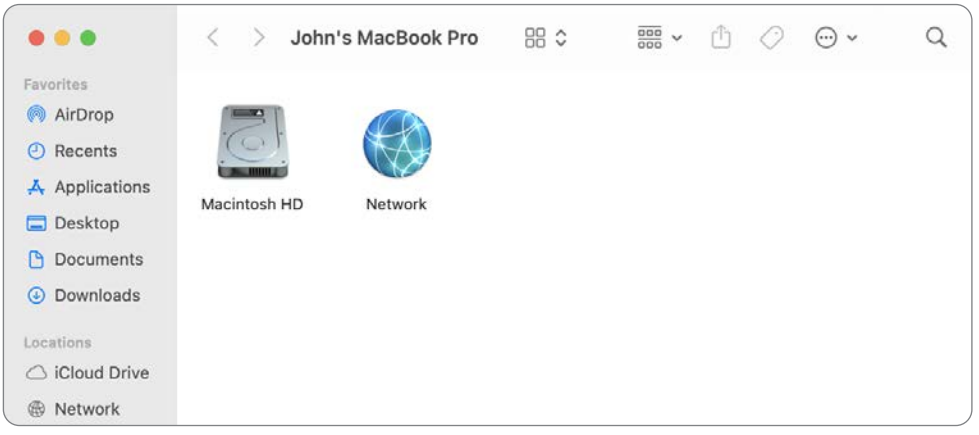
Reference 8.1
User Home Folders

The default location for a locally stored home folder is /Users/*name*, where *name* is the user account name.

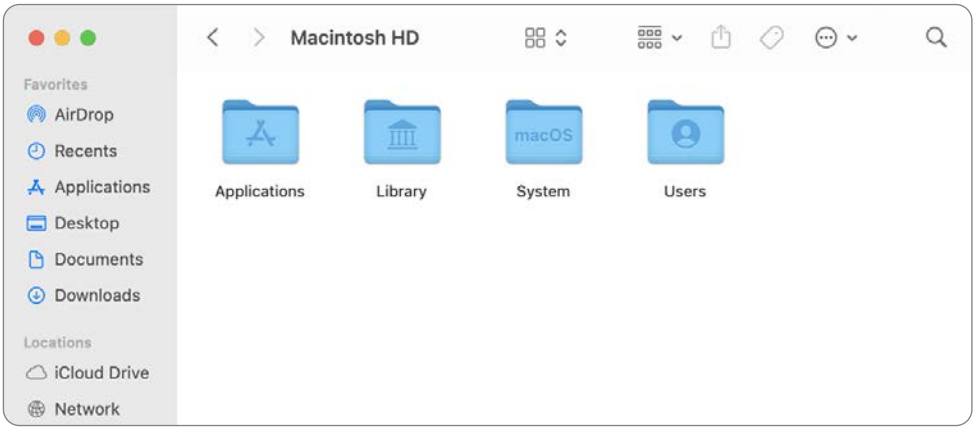
Many Mac users don't have much reason to think about files and folders outside of their home folder. But if you're going to share files with other users on your Mac, share files to other devices on your network, or help someone else troubleshoot their Mac, it helps to understand how the Users folder fits into the file system in general.

One way to start is with the Finder. Choose Go > Computer (or press Shift-Command-C). The Finder displays your startup disk, which is named Macintosh HD by default.

> **NOTE ►** The Finder might also display other storage devices if they are mounted. Additionally, macOS simplifies how it presents parts of the file system in Terminal and in the Finder; you'll find more details in Lesson 11, "Manage File Systems and Storage."

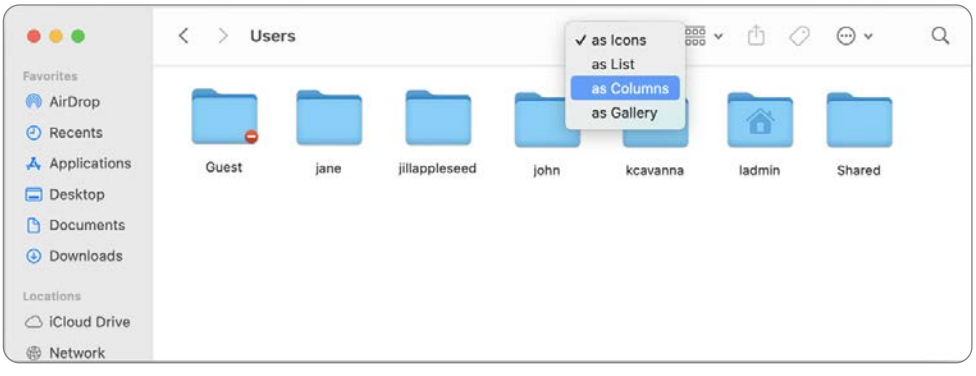


After you open your startup disk, the Finder displays folders, including the Users folder.



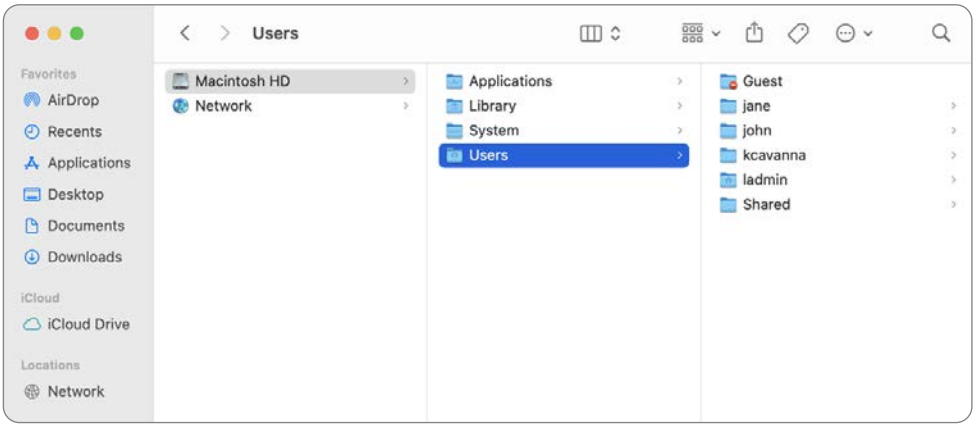
The Users folder contains home folders and the Shared folder. Additionally, if the Guest user was ever turned on, you'll also see the Guest folder. The Finder displays your home folder with an icon of a house. In the following example, jane, john, kcavanna, and ladmin are user account names.

In the Finder window toolbar, click the View As menu (it's circled in the previous figure), then choose "as Columns" (or choose View > As Columns) to change how the Users folder is presented.

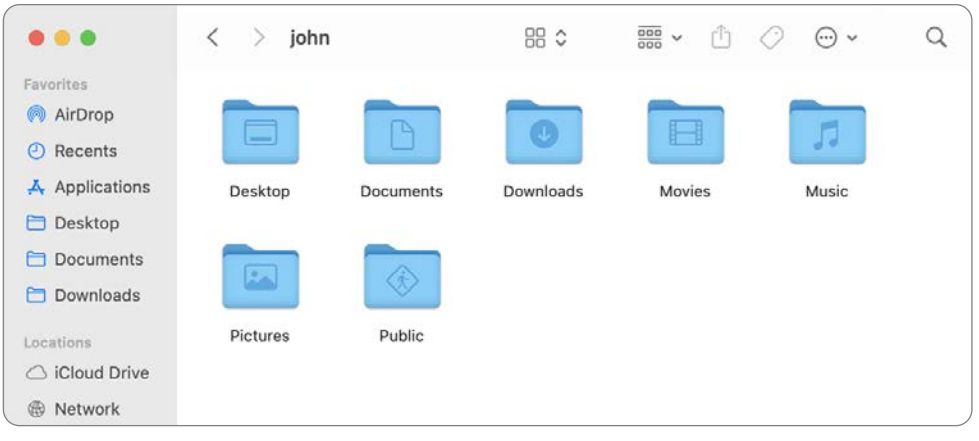


NOTE ► By default, the Finder window displays the View As menu, but if your Finder window is wide enough, it displays four View buttons (Icons, List, Columns, and Gallery) instead of the View As menu.

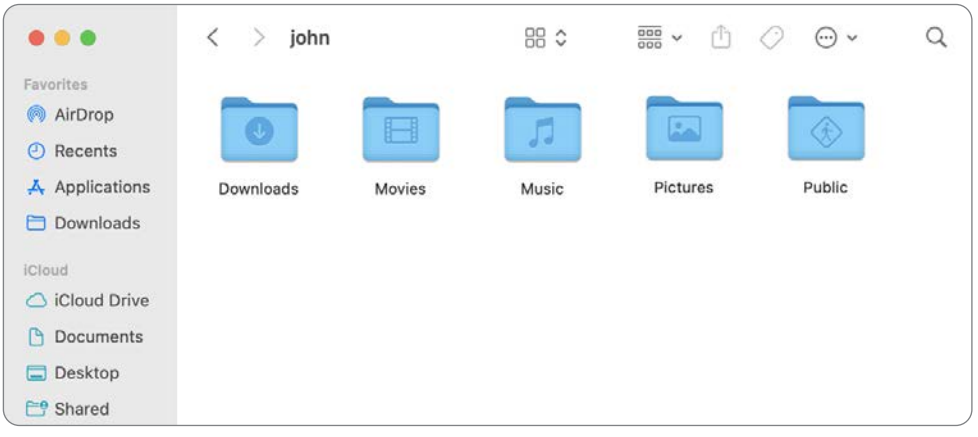
As the following figure illustrates, the Users folder appears to be contained inside your startup disk and the Users folder contains home folders.



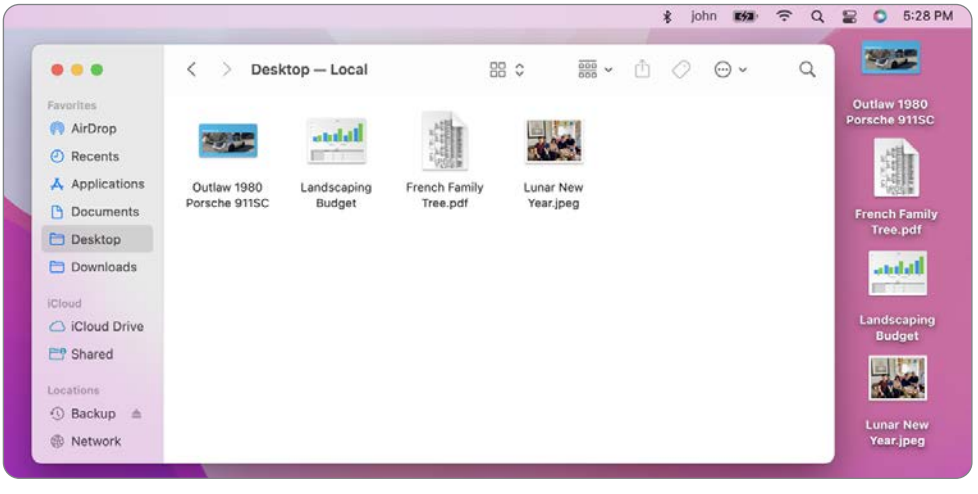
When you create a new user account, macOS generates a home folder for that account. The home folder contains these default visible home folders: Desktop, Documents, Downloads, Movies, Music, Pictures, and Public. In the Finder, you can open your home folder by choosing Go > Home or by pressing Shift-Command-H.



NOTE ► If you are signed in with your iCloud account and you have iCloud Drive turned on, with the Desktop & Documents Folders option enabled, then the Finder displays your Desktop and Documents folders only in the Finder window sidebar, in the iCloud section. Reference 19.4, "Store Documents in iCloud," covers this in detail.



Files you save to your desktop appear on your desktop and in the Desktop folder.



You can use stacks on the desktop to keep files neatly organized in groups. When you save a file to the desktop, it's automatically added to the appropriate stack. This helps you keep your desktop tidy. To turn on the Stacks feature, click the desktop to make the Finder the active app; then from the View menu, choose Use Stacks. Or at any point you can Control-click the desktop and choose Use Stacks.

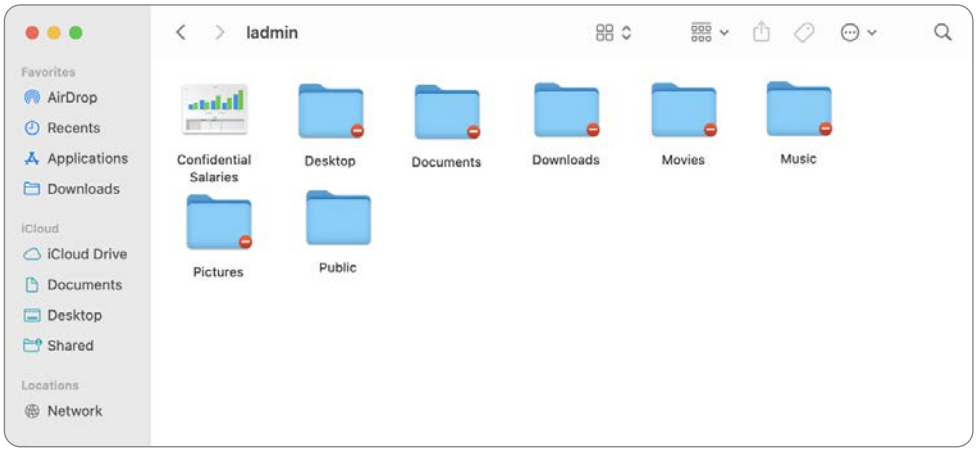
When you download content from the internet, it goes into the Downloads folder by default.

Your home folder also contains a folder called Library that includes user-specific preference files, fonts, contacts, keychains, mailboxes, favorites, screen savers, and other app resources. The Library folder is hidden in the default Finder view.

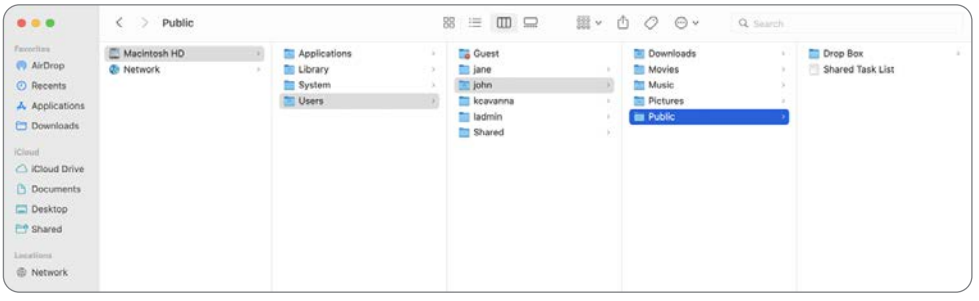
The Documents, Movies, Music, and Pictures folders are the default locations for document, movie, music, and picture files, respectively.

If you open other users' home folders, you can't see inside their default folders, except for their Public folders.

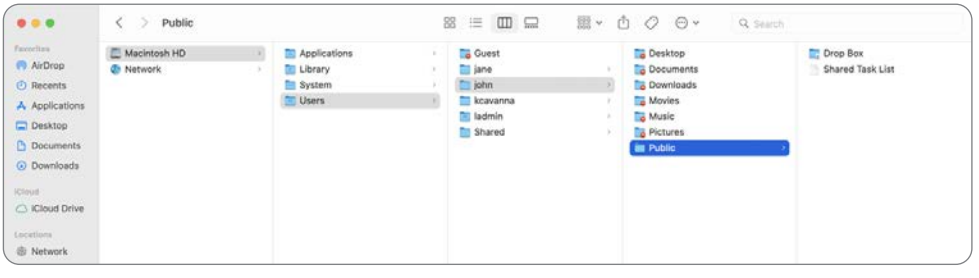
But if someone stores a file at the top level of their home folder—not inside a folder in their home folder—other users can see that file. You'll find more information about changing the permissions for a file in Lesson 13, "Manage Permissions and Sharing." The following figure illustrates that if John stores a file called Confidential Salaries in his home folder, another user on that Mac will be able to see and open that file (but not make any changes to it).



If you want to share items with other users on your Mac, put these items in your Public folder. If you turn on the File Sharing service, users who connect to your Mac can see files here, too. Lesson 25, "Manage Host Sharing and Personal Firewall," has more information about sharing files over the network. The following figure is from the perspective of John Appleseed, for a file named Shared Task List in John Appleseed's Public folder.



Other users can view the contents of your Public folder, and you can view the contents of any other user's Public folder. Continuing the example from the previous figure, the following figure illustrates how the Finder displays the contents of John Appleseed's home folder, including his Public folder, to other local users.



If you want to give a copy of a file to another user, you can use the other user's Drop Box folder. The Drop Box folder (not to be confused with a third-party service with a similar name) is a special folder. Every user has a folder named Drop Box that's inside that user's Public folder. You can put files into another user's Drop Box folder, but you can't remove the files once you put them there. And you can't see what's inside another user's Drop Box folder.

Except for putting items in Drop Box, other users can't add items or make changes to files in your Public folder.

You can change folder permissions as described in Lesson 13.

You might see an Applications folder in your home folder. When you are logged in as a standard user and install some apps, they automatically create an Applications folder in your home folder. For other apps, you can choose to place them there. Only you have access to the contents of your personal Applications folder (though someone with access to an administrator user account can take steps to access your personal Applications folder). See Reference 18.3, "Install Apps Using Drag-and-Drop and Software Packages," for more information.

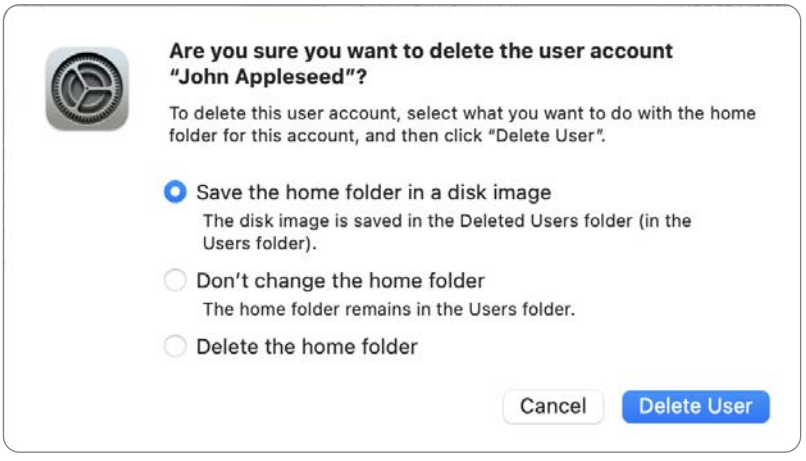
Reference 8.2
Delete User Accounts and Preserve Their Home Folder Contents

You might have to delete a user account. If you do, you must decide what to do with the user's home folder contents.

To delete a user:

1. Select the user from the list of users in Users & Groups preferences.
2. Click the Remove (–) button at the bottom of the list.

3 Select an option for the user's home folder contents:



► Select "Save the home folder in a disk image" to save a user's home folder as a disk image file. macOS saves the disk image file in the /Users/Deleted Users folder and gives it the user account name. You can copy it to other Mac computers or into another user's home folder. You must have enough local storage space to duplicate the home folder. The process might take several hours depending on how much storage the home folder uses.

NOTE ► As this guide went to press, this option wasn't available.

► Select "Don't change the home folder" to leave a user home folder unchanged. macOS appends "(Deleted)" to the home folder name to signify that the user no longer exists. The deleted user home folder keeps the same access restrictions as a normal user home folder. If you want to access the deleted home folder contents, you must change folder and file ownership and permissions. Read Lesson 13 to find out more.

► Select "Delete the home folder" to delete home folder contents. The content won't be stored in the Trash, so you can't easily restore it.

Reference 8.3
Migrate and Restore Home Folders

Migration Assistant enables you to copy settings, user accounts, and content from a Mac or Windows computer to your new Mac.

You can copy content over Wi-Fi, Ethernet, or an appropriate cable. If you have a lot of content, the copy could take several hours. If one or both computers are notebook computers, be sure to plug them into a power source before you start.

You can copy your content from a Time Machine backup too. If you don't have a Time Machine backup of the original Mac content, create one. Connect the external storage device that contains the Time Machine backup to your new Mac.

When you migrate content from another Mac, a Time Machine backup, or a startup disk, Migration Assistant scans the local network for Mac computers that are running Migration Assistant and are ready to transfer content.

Migration Assistant scans locally mounted disks and the local network looking for Time Machine backups. It scans locally mounted disks for a previous system as well. Previous systems include external disks, or Intel-based Mac computers in target disk mode, that are connected with an appropriate cable or adapter. Using target disk mode is detailed in Lesson 11. Refer to Apple Support article HT204350, "Move your content to a new Mac," for instructions.

When you migrate content from a Windows computer, Migration Assistant scans the local network for Windows computers that are running Windows Migration Assistant and are ready to transfer content. This enables you to migrate content from Windows 7 or later if the Windows computers are running Windows Migration Assistant. You can download Windows Migration Assistant from the Apple Support website. Refer to Apple Support article HT204087, "Move your data from a Windows PC to your Mac," for detailed instructions.

Migration Assistant runs as part of macOS Setup Assistant on new or newly reinstalled Mac computers. You can use Migration Assistant at any time. It's in /Applications/Utilities. You can search for it with Spotlight or Launchpad.

1. Before you use Migration Assistant, check for Apple software updates on the source and destination computers.

   This ensures that you're using the latest copy of Migration Assistant.

2. If any other users are also logged in, log out all other users.

3. Open Migration Assistant.

4. Click Continue to start Migration Assistant.

5 Authenticate as an administrator user.

Migration Assistant quits running apps and logs out users.

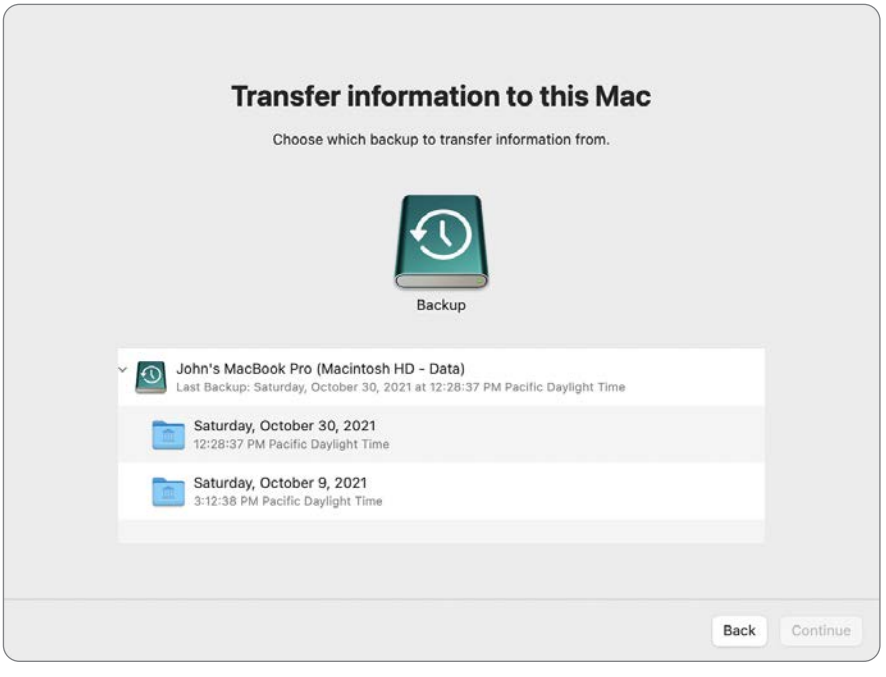
6 Select how you want to transfer information:

- From a Mac, Time Machine backup, or Startup disk
- From a Windows PC
- To another Mac

If you select "From a Mac, Time Machine backup, or Startup disk" or "From a Windows PC," Migration Assistant scans attached disks and the local network for migration sources. If you select "To another Mac," open Migration Assistant on the destination Mac as well.

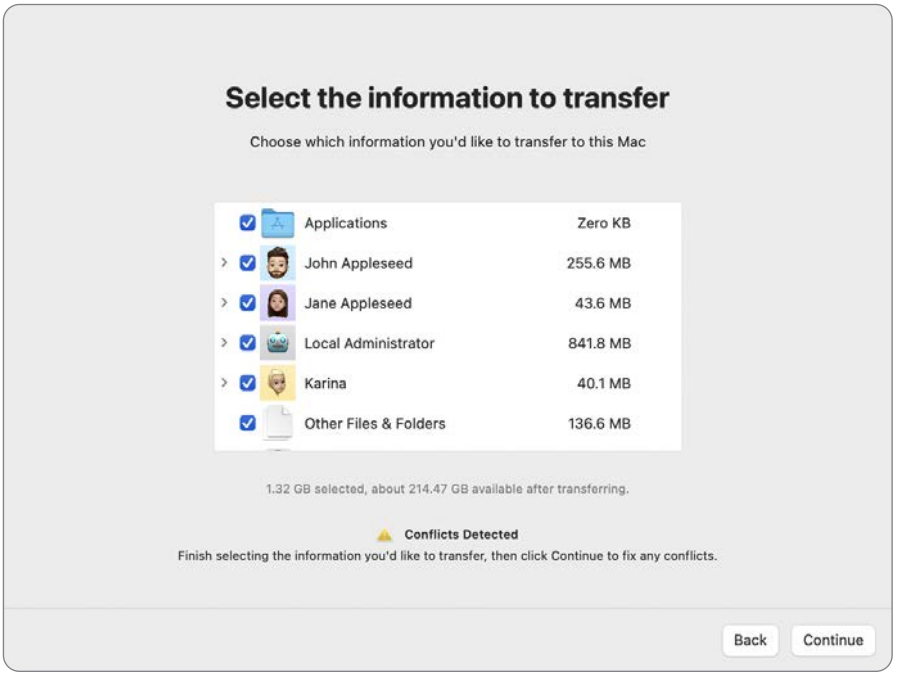
The rest of this list addresses the scenario where you select "From a Mac, Time Machine backup, or Startup disk."

7 Select the source external storage device. When you select a Time Machine backup, you can select a backup from a specific date and time.



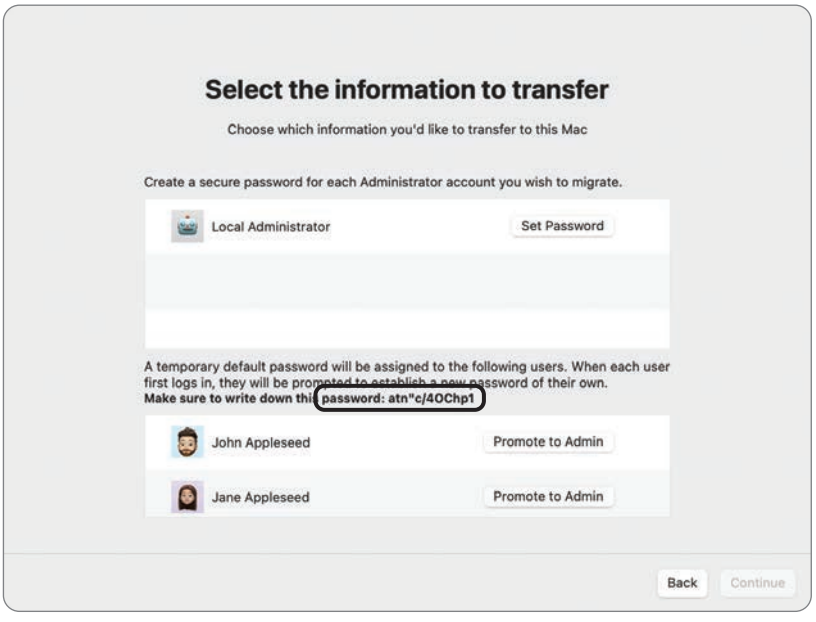
8 After you select a source, Migration Assistant scans the contents and presents you with a list of items you can migrate.

Migration Assistant doesn't create new volumes or partitions on the destination Mac. It creates folders that include the contents of the migrated source.



Select the information you want to transfer; this includes user accounts. Then click Continue.

9 After you make selections, record the temporary, random password that Migration Assistant assigns to all standard users that you will migrate. If you don't record the random password, you'll have to reset each user's password, which resets their login Keychain. This is covered in more detail in Reference 10.2, "Reset Lost Passwords." When a user first logs in using the temporary password that you provide them, macOS prompts them to change their password. If they provide their old password, their login Keychain will not be modified.



10 Click Set Password for an administrator user account.

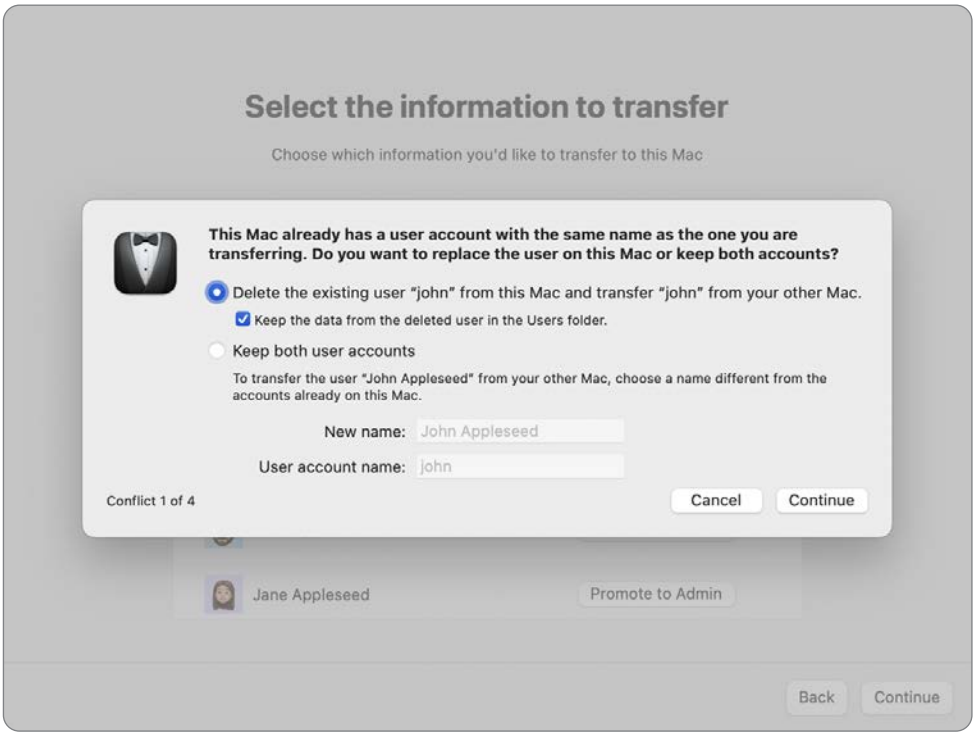
11 Enter and verify a password for the administrator account that you're migrating, then click Set Password.

12 Repeat steps 10 and 11 for any additional administrator accounts.

13 If you want to promote a standard user to an administrator user, click "Promote to Admin" next to the user, and then set and verify a new password for that user.

14 Click Continue.

15 If any user account that you selected to restore already exists on your Mac, Migration Assistant displays a prompt for each conflicting user account. You can replace the user account, optionally keeping its home folder, or keep both user accounts by entering a new name and user account name.



16 To add new users to your Mac, Migration Assistant must collect a password from an existing administrator user who is authorized to create new users. Next to an administrator user, click Authorize.

17 Enter the password for the user you selected, then click OK.

18 Click Continue to begin the transfer. The more content you transfer, the longer it takes.

Manually Restore a User Home Folder

See Exercise 8.1, "Restore a Deleted User Account," to learn how to restore a user's home folder after you delete that user.

Exercise 8.1
Restore a Deleted User Account

Prerequisite

- You must have created the Local Administrator account (Exercise 3.1, "Configure a Mac for Exercises").

In this exercise, you create a user account and create files in the user's home folder. Then, you delete the account, preserving the contents of the home folder. You also create a new account, ensuring that the new user gets the old user's home folder contents and changing the user account name. What you learn in this exercise provides an alternative to Migration Assistant for moving user accounts between Mac computers.

The scenario for this exercise is that Karina Rossi changed her name and now has the last name of Cavanna. The company she works for uses the account naming convention *first initial, last name*. So, you must change her account name from krossi to kcavanna.

Create Karina Rossi's Home Folder

1. Log in as Local Administrator.
2. Open Users & Groups preferences.
3. Authenticate as Local Administrator.
4. Click the Add (+) button under the user list.
5. Enter the account information for Karina Rossi:

   New Account: Standard

   Full Name: **Karina Rossi**

   Account Name: **krossi**

Password: **Apple321!**

Verify: **Apple321!**

Don't provide a password hint.

6 Click Create User.

You can optionally change the account picture.

7 Control-click Karina Rossi's account, then choose Advanced Options from the menu.

Take a screenshot of the System Preferences window to record Karina Rossi's account attributes for later reference.

8 Press Shift-Command-5, followed by the Space bar.

Your pointer changes to a camera icon, and the region of the screen it is over is highlighted in blue. If you see a crosshair, press the Space bar again.

9 Move the camera pointer over the System Preferences window, then click to record its contents.

This is one of several ways of taking screenshots in macOS. Shift-Command-3 records the entire screen, Shift-Command-4 enables you to select a rectangular region to record or a single window if you hold down the Space bar, and Shift-Command-5 gives you the ability to do timed captures, record the screen, and select destinations for your screenshots. Refer to support.apple.com/guide/mac-help/mh26782 in the macOS User Guide for more information on taking screenshots or screen recordings on a Mac.

The image is saved to your desktop and named "Screen Shot," followed by the date and time it was taken.

10 In the Advanced Options dialog, click Cancel, or press Command-Period, which is a way to select Cancel in most macOS dialogs.

11 Log out as Local Administrator.

12 Log in as Karina Rossi (password: **Apple321!**).

13 In the Accessibility pane, turn on any assistive needs, then click Continue. If you don't want to configure Accessibility at this time, click Not Now.

14 In the Data & Privacy pane, carefully review Apple's privacy policy, then click Continue.

15 In the Sign In with Your Apple ID pane, click Set Up Later, then click Skip in the confirmation dialog.

If the Find My pane appears, click Continue.

16 In the Screen Time pane, select Set Up Later.

17 If the Siri pane appears, deselect Enable Ask Siri, then click Continue.

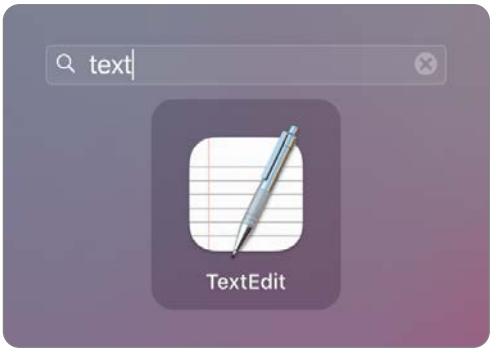
18 If you're asked to set up Touch ID, select Set Up Touch ID Later, then click Continue in the confirmation dialog.

19 At the Choose Your Look pane, choose your preferred appearance, then click Continue.

20 In the Dock, click the Launchpad icon.

21 In Launchpad, begin typing **text**.

TextEdit should become available.

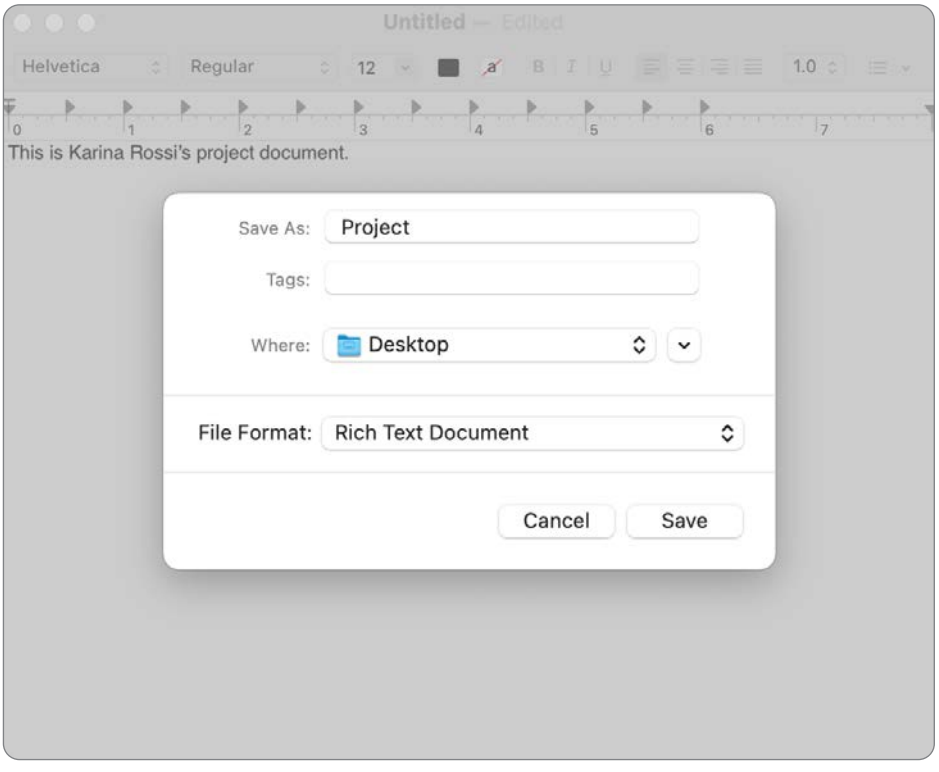


22 Click the TextEdit icon to open TextEdit.

23 In the Untitled document, type the text **This is Karina Rossi's project document.**

24 From the menu bar, choose File > Save (or press Command-S) to save the file.

25 Name the file **Project**, then save it to Karina Rossi's desktop. You can use the shortcut Command-D to select the desktop.



26 Quit TextEdit.

27 Open System Preferences, then click Desktop & Screen Saver preferences.

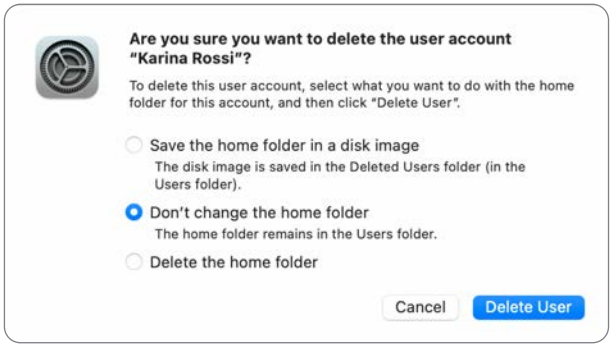
28 Select a different desktop picture.

29 Quit System Preferences, then log out of the Karina Rossi account.

Delete Karina Rossi's Account

Next, you delete Karina Rossi's account without removing the files in her home folder.

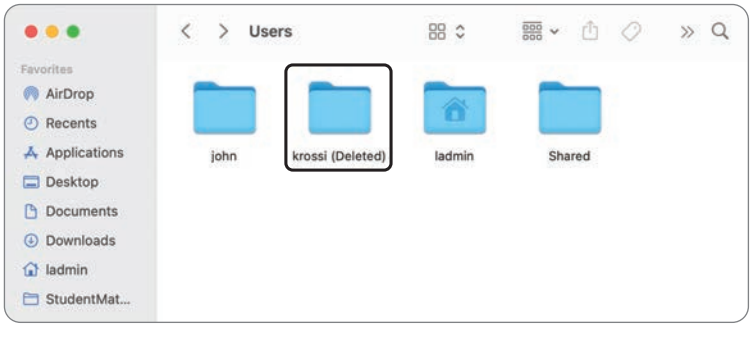
1. Log in as Local Administrator.
2. Open Users & Groups preferences, then unlock the pane.
3. Select Karina Rossi's account name, then click the Remove (–) button to remove her account.
4. In the dialog that appears, select "Don't change the home folder."



5. Click Delete User.

   Karina Rossi's account is no longer visible in the list.

6. Quit System Preferences.
7. Navigate to /Users. Open Macintosh HD from your desktop and open the Users folder.



   Karina Rossi's home folder still exists, and (Deleted) is appended to the end of the name.

Restore Karina Rossi's Account for Karina Cavanna

Karina Rossi's files (soon to be Karina Cavanna's files) still exist in the Users folder. Now you rename the home folder so that when you create the new account, she gets the files and settings from her previous account (the Karina Rossi account).

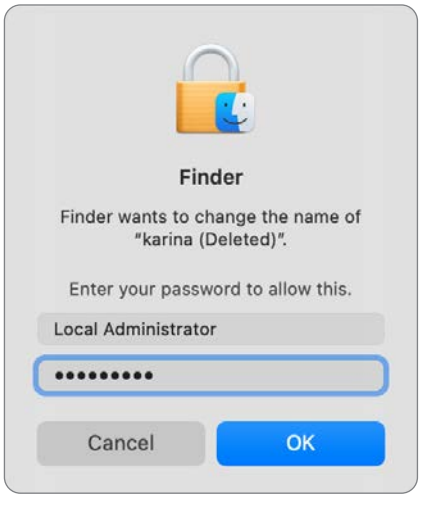
1 If necessary, navigate to the folder /Users.

2 Control-click the krossi (Deleted) folder, choose Rename, and change the folder name to **kcavanna**.

3 Press Return.

The file permissions in the /Users folder don't enable you to modify items within it. The Finder asks you to authenticate as an administrator to override the permissions.

4 Enter the Administrator password and click OK.

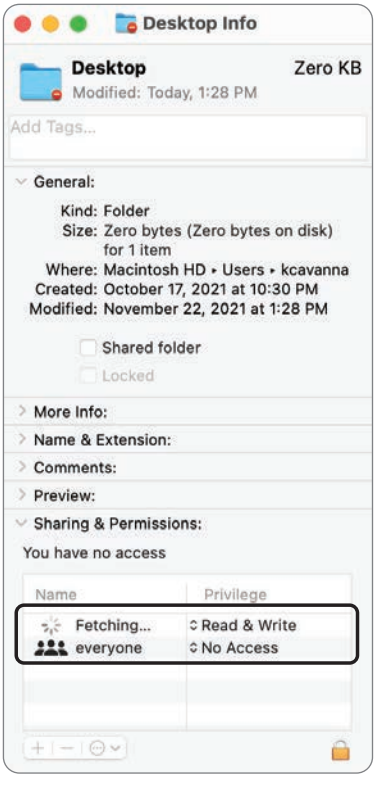


5 Open the kcavanna folder, and then attempt to open the Desktop folder.

You are prohibited from viewing the contents because the owner of the folder is still the old krossi account.

6 Control-click the Desktop folder and choose Get Info. Click the Sharing & Permissions disclosure triangle if necessary to inspect the item permissions.

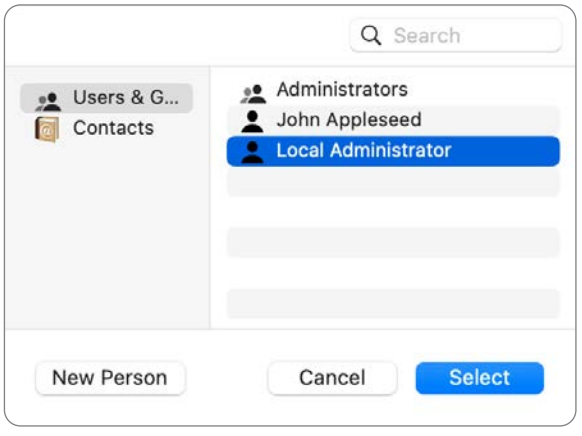
Notice that macOS attempts to find krossi (the process is shown as Fetching), who no longer exists. Also notice that no one but the old owner (who was krossi) has permissions to view anything inside the Desktop folder.



7 Click the lock and authenticate as Local Administrator.

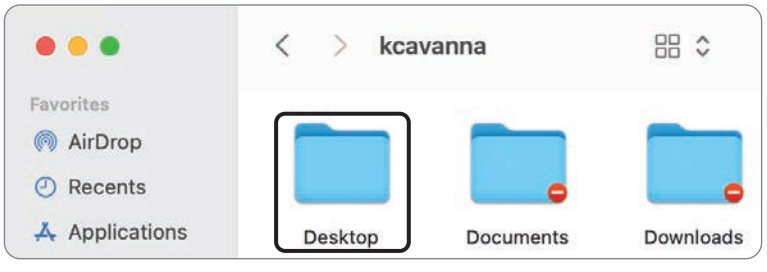
8 Click Add (+).

9 Choose Local Administrator, and click Select.



Notice that you are granted Read Only permissions by default. You could change this to Read & Write, or become the owner of the folder, but for the purposes of this exercise, Read Only is sufficient.

Also notice that the prohibitive badge is no longer displayed on the Desktop folder.



10 Open the Desktop folder.

You see Karina Rossi's Project document. After you create Karina Cavanna's account, she retains this document, along with all the other settings pertaining to her account.

Now you will remove Local Administrator's permissions to see the Desktop folder.

11 If necessary, right-click the Desktop folder and choose Get Info.

12 Authenticate as Local Administrator, and remove "ladmin (Me)."

It's no longer necessary for the Local Administrator user to have permissions to view the Desktop folder and its contents. If you leave Local Administrator's permissions to see Karina's Desktop folder, the user will be able to see files that are not intended for the Local Administrator to view.

Create and Verify Karina Cavanna's Account

Create the Karina Cavanna user account using the renamed home folder as her new account home folder.

1 Open Users & Groups preferences.

2 Authenticate as Local Administrator.

3 Click the Add (+) button to create another account:

New Account: Standard

Full Name: **Karina Cavanna**

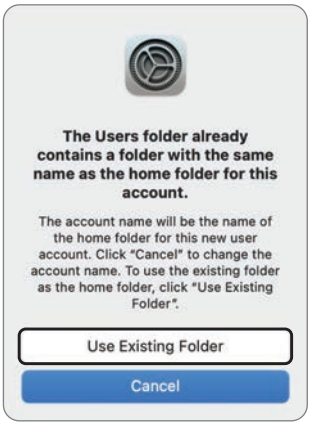
Account Name: **kcavanna**

Password: **Apple321!**

Don't provide a password hint.

4 Click Create User.

A dialog appears asking whether you want to use the kcavanna folder for this account.



5 Click Use Existing Folder.

6 Control-click Karina Cavanna's account, then choose Advanced Options from the menu.

7 Open the Screen Shot file on your desktop, then compare the account attributes of Karina Cavanna's new account with her original account (Karina Rossi).

macOS assigns each account a new UUID (Universally Unique Identifier) when you create it.

8 Quit Preview.

9 In the Advanced Options dialog, click Cancel, then quit System Preferences.

10 Try to reopen the Desktop folder in Karina Cavanna's home folder. If your Finder window is still displaying the Desktop folder, click the Back button, then double-click the Desktop folder. You no longer have permission to see the files because they are owned by Karina Cavanna's new account.

11 Close the Finder window.

Verify Karina Cavanna's Home Folder

Explore Karina Cavanna's home folder to confirm the files are available.

1 Log out as Local Administrator, then log in as Karina Cavanna.

2 Verify that the Project file is on the desktop and that the desktop picture is the one you chose previously.

3. In the Finder, open Karina Cavanna's home folder by choosing Go > Home (or by pressing Shift-Command-H).

4. Make sure you can see the default subfolders: Desktop, Documents, Downloads, Movies, Music, Pictures, and Public.

5. Open the Desktop folder, then verify that you see the Project document.

6. Navigate back to the home folder, then open the Public folder, where you see a Drop Box folder. For more information about these folders, read Lesson 13.

   In addition to the visible folders in Karina Cavanna's home folder, the folder should contain an invisible Library folder.

7. Press and hold the Option key, then choose Go > Library.

   The Library choice is hidden except when you hold the Option key.

   Karina Cavanna's Library folder contains many subfolders. For more information about this folder and its contents, read Reference 14.1, "Examine Hidden Items," and Lesson 15, "Manage System Resources."

8. Close the Library folder, then log out as Karina Cavanna.

Index

Numbers

64-bit mode, 610
6to4 service, 696
802.11 wireless, 667, 695
802.1X protocol, 713–715

Symbols

* (asterisk) wildcard, 104
\ (backslash), 101
._ (dot-underscore) files, 454–455
.. (double periods), 101
. (period), filenames with, 409, 547
? (question mark) wildcard, 104
[ ] (square brackets) wildcard, 104
~ (tilde), 101
>> (redirect), 103

A

About This Mac
    file-system inspection, 342
    setup with, 88–90
    viewing disks with, 355–356
absolute paths, 99, 110
Accent color, 58–59
access, account, 187–194
access control lists (ACLs), 387
Accessibility pane
    configuring, 63–67
    privacy and, 256
    setup and, 45–46
Accessibility Shortcuts, 63–64
Actions extensions, 619
Activation Lock, 270–271, 939
Activities, viewing, 643
Activity Monitor, 629–633, 941–942
administrator account
    app security and, 520
    CLI work, 91
    Console use as, 640
    creating, 50–51
    function of, 175–177
    local user, 173
    locked preferences and, 57–58
    password resets with, 299–300, 312–315
    privacy settings, 254
    sudo command, 107, 181
agents, 610
AirDrop, 817–821
AirPlay, 8
AirPrint, 863, 865–866
alerts, profile, 67
aliases
    creating, 416–417, 419
    function of, 186
    repairing, 420
Allowed Boot Media, 136, 138
analytics
    diagnostic reports, 637–644
    privacy and, 257–258
    sharing, 52–53

APFS (Apple File System)
backups, 483
layers of, 325
overview of, 328–338
APNs (Apple Push Notifications service), 765, 766, 780
App Store
browsing, 509–512
installs from, 509–517, 530–534
Monterey downloads, 33–34
updates, 162, 164
appearance
changing, 55
configuring, 58–59
Apple Advertising, 257
Apple Configurator 2, 126, 532, 533, 931
Apple Diagnostics, 122, 924–927
Apple Filing Protocol (AFP), 338, 768, 770, 773–774
Apple ID
Activation Lock and, 271
authenticating, 249–250
creating, 515–517
managing, 518
new setups and, 43, 47–50
password resets with, 300–303
user accounts and, 50–51
Apple Remote Desktop (ARD), 92, 797, 806
Apple silicon
APFS for, 334
apps, 31, 611–614
computers with, 4
encryption for, 54, 81
FileVault, 368
Find My and, 270
kext installs, 275
modified startup, 922–923
password resets, 377–379
Recovery for, 121–127
Rosetta for, 614–616
security policy, 133–134, 902–905
Startup Security Utility, 131
Apple Watch
authentication via, 16, 237, 251–252
reports from, 639
AppleDouble, 449, 454–455
Applications folder, 219, 432
apps
alternate file-opening, 592–597
App Store installs, 509–517, 530–534
automatic resumes, 569–570
compatibility of, 20, 29–32
data access, 254–258, 284–289
defined, 609
downloading, 592–593
drag-and-drop installs, 526–529, 538–544
extension management, 616–628
Family Sharing, 518
force quits, 635–636, 650–655
locking files with, 568–569
Mac preinstalls, 517
macOS Recovery, 143
monitoring, 629–633
Monterey installs, 149–150
network service, 757–767, 782–785
one-time opens, 593
peripherals and, 858–859
purchased, 519
registering, 550
removing, 544–546
Rosetta for, 614–616
sandboxed, 435–436, 520–521, 645
security of, 520–526
troubleshooting, 634–650
types of, 611–614
uninstalling, 295
updates, 520
archives, file, 421–425
arguments, 97
AssetCacheLocatorUtil, 662–664, 805
attributes, metadata, 449–450
audio devices, 858
authentication
methods of, 237
network service, 754, 770, 772
remote control and, 809–812
two-factor, 48, 249–250
user login, 911
Automated Device Enrollment, 44, 165, 275

automatic saves, 561, 570, 597–600
automatic updates, 156, 158, 163–164
automation, 257, 817

B

background processes, 610
backups, 21–22, 32
    See also Time Machine
bash shell, 94
Bluetooth, 848, 849, 850–856
Bonjour
    function of, 755
    network host ID via, 756
    network names, 795
    printers, 867, 888–893
    stealth mode and, 825, 839
bookmarks, 102
boot, safe, 927–929
boot, secure, 136–138, 901–911
Boot Camp, 338, 906
bootable installers, 140–141
booter
    defined, 902
    selection of, 906
    shortcuts and, 907
    system initialization, 907–908
    troubleshooting, 932–933
    verifying, 905
bundles, 413
bus connections, 843

C

Cache button, 633, 636, 801, 805
caching, 634, 800–805
Calendar, 762–764
cameras, 857
cat command, 103
cd command, 100, 110
cellular internet connections, 695
children's access, 191
CLI (command-line interface)
    accessing, 92–94
    file manipulation from, 103–106
    function of, 91–92
    management from, 106–107
    Manual pages, 98–99
    navigation in, 99–103, 109–113
    tips and tricks, 107–108
    work in, 94–98
code-signed apps, 521
color tags, 451
commands
    defined, 609
    management via, 113–120
    names of, 97
    network diagnostic, 736
    See also individual commands by name
comment metadata, 474–477
compression, 633
computer name, 76–77
configuration profiles
    installing, 67–70, 84–86
    removing, 87
Console, 639–644, 661–664
contacts, 607, 764–765
containers
    adding volumes to, 336
    APFS, 328
    app sandbox, 435–436
    defined, 325, 326
    group, 436
    macOS Monterey, 332, 333, 334
    new, 337
    repairing, 364–366
    system resources, 432
Content Caching, 800–805
contentions, 200, 434
Control Center, 62–63
copies
    file/folder, 115–117
    home folder, 220–226
    iCloud Drive, 583–584
corrupted preferences, 646, 660
country selection, 45
cp command, 105
CPU use, 632
crash reports, 641
Create a Computer Account, 50–51

CUPS, 864, 888, 899
current working directory, 110–112

D

daemons, 610
data
  app access to, 254–258, 284–289
  privacy and, 33
  protection, 240–241
  recovery, 354–355
  unrecoverable, 241
default apps, 594–597
deletions
  account, 219–220, 230
  local storage, 591
  restoring account, 226–236
  restoring files, 503–506
desktop
  Dynamic Desktop, 60–61
  iCloud storage of, 575–577, 581–583
  management, 216
  virtual access to, 806
device classes, 857
DHCP (Dynamic Host Configuration Protocol)
  configuring, 719–721
  function of, 670, 673
  network interface, 674
  service issues, 736
  settings confirmation, 707
  TCP/IP with, 697, 708
diagnostic reports
  app troubleshooting via, 634, 637–644
  Apple Diagnostics, 924–927
  examining, 661–664
Dictation, privacy and, 258–259
Directory install, 284–289
disk images, 421, 423–425
Disk Utility
  APFS and, 330, 336–337
  disk images, 421, 423–425
  erasing devices with, 361–363
  examining, 144–145
  file system first aid, 351–352
  function of, 128
  storage inspection, 342–345
  viewing disks with, 357–360
disks
  defined, 326
  erasing, 347–349
  formatting, 346–347
  mount/unmount/ejects, 338–341
  repairing, 364–366
  viewing info on, 355–360
DNS (Domain Name System), 672, 697, 736, 749
Dock & Menu Bar
  configuring, 61–62
  Fast User Switching, 197, 198
  layout, 83
  managed with profile, 84–86
documents
  automatic resumes, 569–570
  changing sharing options, 587
  Finder previews, 552–555
  iCloud sharing, 585–586
  iCloud storage, 571–584, 604–607
  locking, 601–602
  PDF, 883–884, 898
  revising, 586
  saving, 561–569
  Spotlight searches for, 477–478
drag-and-drop installs, 526–529, 538–544
drivers, printer, 864–865, 867, 872–875
Drop Box folder, 218–219
duplicates, saving, 564–565
Dynamic Desktop, 60–61
dynamic network service discovery, 754, 795

E

ejecting disks, 338–341
email, 254, 760–761
encryption
  backup, 482, 484–487
  external volume, 349–350
  FileVault, 53–54, 79–81
  TLS, 817
enrollment profiles, 67, 69
environment, user, 912–913

Erase Mac, 140, 936–940
erasures
  disk, 347–349
  Erase Assistant, 936–940
  file, 349
  Monterey, 37–41
  remote, 267–270
  startup disk, 14
  storage device, 361–363
  unsupported disk, 488–489
Ethernet
  connectivity issues, 733
  macOS built-in, 694
  manual configuration, 717–718
  network interface, 667
  prioritization of, 698
  protocols, 697
everyone permissions, 385
extensions
  filename, 547–549
  kernel, 274–275
  managing app, 616–628
  system, 272–274, 433, 858
extras, 97

F

FaceTime, 6, 766–767
Family Sharing, 191–192, 518
Fast User Switching, 195, 197–202, 911
file archives, 421–425
file command, 103, 104
file examination commands, 103–104
File Sharing service, 798–799
file systems
  APFS, 328–338
  failures, 350–355
  inspections, 342–346
  layers of, 325–328
  managing, 346–350
  metadata, 449–455
  network, 768–778, 785–792
  pathnames, 99
  permissions, 383–389
  repairing, 364–366
  root, 431
  shortcuts, 415–420
  third-party, 454–455
  troubleshooting, 350–355
  viewing info on, 355–360
files
  access to, 384–389
  AirDrop shares, 817–821
  apps to open, 592–597
  automatic resumes, 569–570
  commands managing, 113–120
  copying/moving, 115–117
  creating, 113–115, 118–119
  ejecting in-use, 340
  erasing, 349
  File Sharing service, 798–799
  Finder previews, 552–555
  hidden, 409–413, 426–428
  keychain, 239, 306–308
  local storage, 589–592
  locking, 601–602
  marking up, 561–562
  metadata for, 449–450
  opening, 547–549
  preferences, 644, 647–649
  quarantining, 522–523
  Quick Look previews, 555–558
  saving, 561–569, 597–600
  sharing, 218–219, 585–588
  Time Machine restores, 492–496
  transferring, 352–354
  visibility of, 217
FileVault
  additional users, 372
  defined, 367
  encryption via, 53–54
  password resets with, 300–303
  privacy settings, 253
  recovery, 123, 371–372, 374, 377–382
  turning on, 79–81, 370–374
  unlocking, 906–907
Find My, 51, 262–270, 938

Finder
backup restores, 496–497
CLI navigation and, 100
extensions, 619–620
hidden items and, 102, 410
locked files, 567–568
mount/unmount/eject, 338–341
opening files in, 547–549
permissions and, 394–397
preferences, 74–76
preview pane, 552–555
Quick Actions, 558–559
system root folders, 431–432
firewall
personal, 253, 821–826
troubleshooting, 827
FireWire, 849–850
firm links, 102, 331, 418
firmware
passwords, 123, 134–136, 238, 922
reviving/restoring, 126
startup and, 902, 905–907
troubleshooting, 930–932
flags, 449–450
Focus, 5–6
folders
access to, 384–389
commands managing, 113–120
creating, 115–117
hidden, 409–413, 426–428
iCloud sharing of, 585–586
metadata for, 449–450
removing, 117–118
sharing options, 587
fonts
access to, 444–446
adding, 441–443
disabling, 446–447
domain, 433
installing, 439–440
validating, 447
force quits, 635–636, 650–655
formatting, 326, 346–347
frameworks, 433
FTP (File Transfer Protocol), 769, 775
Full Disk Access, 257
Full Security, 137

G

Gatekeeper, 521–523, 541
Go to Folder, 412–413
GPS services, 52
group accounts, 181, 185
group containers, 436
group permissions, 385
groups, volume, 329
guest accounts, 178–180, 213

H

hard links, 418
hardware
Ethernet, 697
macOS requirements, 15–20
print issues and, 886, 887
tests, 924–927
troubleshooting, 931
upgrades and, 28–32
Help, 10–12
Hey Siri, 457
hidden items
examining, 409–413
navigating, 426–428
viewing, 102
Hide My Email, 254
hierarchical permissions, 388
Highlight color, 58–59
home directories, 186
home folders
copying/migrating content, 220–226
managing, 211–219
permissions, 390–392, 399–400
restoring deleted, 226–236
viewing, 109–110
host addressing, 756–757
host command, 749–750

host-sharing services
exercise using, 828–835
remote control and, 806–817
turning on, 793–805
human input devices (HIDs), 857

I

iCloud
downloading, 581
Drive, 571–584, 603
Find My with, 263
home folders in, 215
keychain, 248–250, 308–309
new setups and, 43, 49–50
removals from, 578–579
sharing files via, 585–588
storage, 575–578, 590, 602–608
iCloud+, 253
icons, 552
identity verification, 237
ifconfig command, 737–738
indexing, Spotlight, 462
inheriting backups, 489–490
initialization, system, 901–911, 930–934
installation
app, 509–517, 525, 530–544
configuring a new, 43–55, 70–73
disk creation, 148–154
history, 165, 169
how to, 13–14, 24–26
Monterey, 33–36
reinstallation, 145–146
requirements, 15–20
system extension, 291–294
troubleshooting, 26–28
verifying correct, 41–42
Installer Log, 27–28, 41–42
installer packages, 527–529, 535–538
Intel-based computers
apps for, 31, 611–612
encryption for, 54, 81
FileVault, 368
Find My and, 270
firmware passwords, 135
kernel issues, 933
kext installs, 275
modified startups, 924, 929–930
password resets, 379–381
performance differences, 5
Recovery for, 121–127
security policy, 904–905
sleep modes, 916–919
Startup Security Utility, 132–133
startup shortcuts, 907
Thunderbolt and, 848
interfaces, network, 667, 691, 694–701
Internet access tests, 724–725
Internet Accounts, 758–759
Internet recoveryOS, 127
invisible items, 102
invitations, accepting, 586
IP (Internet Protocol) address, 668, 698, 795
IP proxies, 697
iPhones, 17, 237, 249, 514

K

kernel extensions (kexts), 274–275
kernels, 902, 908–909, 933
keyboard, wireless, 850
keyboard shortcuts, 65
Keychain Access, 317
keychains
auto locks for, 277–279
function of, 239
iCloud, 248–250
managing, 241–248, 277–283
passwords, 238
system resources, 433
user, 305–309

L

LAN (local area network) traffic, 670, 698
Launch Services, 551–552
launchd process, 433, 902, 909–911, 934
LaunchDaemons, 433, 910

less command, 103, 104
Library folder
    contents of, 216
    examining, 426–428
    system resources, 432–433
link aggregates, 696
Little Snitch, 290
local domain, 434
local network printers, 867
local snapshots, 481
local storage, 579–580, 589–592
local user accounts, 173–182
location, network, 691–693, 721–724
Location Services, 52, 254–255, 256
locks
    data, 241
    file, 567–569, 601–602
    keychain, 277
    screen, 276
log command, 804
log reports
    CUPS, 899
    defined, 641
    viewing, 643, 661–664
login
    configuring, 194–197
    FileVault and, 369
    keychains, 316–322
    lock/unlock, 277, 280–281
    new account, 205–208
    password resets and, 304–305, 316
    safe mode, 935
    shell, 186
    user sessions, 911
    user switching, 201
Login Items, 195
Login Options, 196–197
loginwindow, 919–921, 935
logout, 570, 935
Look Up, 460
lookup command, 741–743
lost computers, 265–267
lost passwords, 299–305
ls command, 97, 100, 111, 112

M

MAC (media access control) address, 668
Mac Analytics Data, 642
Mac Catalyst, 9
Mac computers
    erasing, 37–41
    FileVault-protected, 375–376
    finding lost, 262–270
    Monterey-compatible, 4–5
    naming, 76–77
    preinstalled apps, 517
    remote control of, 806–817
    System Information, 88–90
    upgrading, 15–20, 28–32, 35–41
    USB ports, 846
macOS
    activity statistics, 629–633
    apps for recovering, 143
    built-in network support, 694–695
    industry standards, 3–4
    installation methods, 13–14
    memory, 610
    printing in, 863–865
    reinstallation, 15–23
    software updates, 155–164, 166–170
    system resources, 431–437
    system security, 250–253
    verifying installs, 41–42
    versions history, 12
    Z shell use, 94
macOS Big Sur, 5, 14, 329, 521
macOS Catalina, 5, 9, 211, 272, 274, 329, 331
macOS Extended, 39, 328, 338, 449, 454, 488
macOS Monterey
    APFS for, 332–333
    downloading, 22–23
    installing, 37–41, 148–154
    reinstalling, 127
    requirements for, 15–20
    sleep mode, 915
    upgrading to, 33–36

macOS Monterey 12
defined, 3
Help, 10–12
new features, 4–9
macOS Recovery
elements of, 121–122
erasures with, 37–38
FileVault and, 369
how to use, 127–129, 141–148
password resets with, 303–304, 309–312
startup from, 122–127, 129–140
system repairs in, 364–366
Mail, 760–761, 785
malware, 521, 523
man command, 112–113
Manual (man) pages, 98–99
Maps, 7
Mark as Lost, 265–267
marks, 102
Markup, 561–562
mdfind command, 104
MDM (mobile device management)
Activation Lock and, 271
kernel extensions, 275
profiles and, 70
screen sharing with, 817
security with, 238
setup with, 44
updates via, 156, 164
Medium Security, 137–138
memory, 610, 632, 633
Messages app
configuring, 765–766
new features, 8
remote control via, 814–817
screen sharing via, 813–814
metadata
examining, 473–477
file-system, 449–455
previewing, 555
Migration Assistant, 220–226, 497
migrations, home folder, 220–226
mkdir command, 105
mobile user accounts, 174
modifying files/folders, 105–106
mounting
disks, 338–341, 423
network items, 771
network shares, 775–777
mouse, 78–79, 850
mv command, 106

N

names
account, 185
computer, 76–77
filename extensions, 547–549
fixing errors in, 117
network location, 693
volume, 346
nano command, 106
nc command, 780–782
netstat command, 738–739
network interface, 667, 691
Network preferences, 687–689, 732, 747
network protocols
defined, 667
file service, 768
interfaces and, 694–698
network location, 691
network services
apps, 757–767, 782–784
defined, 667, 691
dynamic service discovery, 754–756, 769
file system, 768–778
firewall for, 821–826
host sharing, 793–805
identification, 754, 756–757
list inspection, 699–700
managing interfaces, 698–701
software, 753–754
troubleshooting, 732, 778–785, 826–828
network settings
advanced configuration, 707–718
configuring, 674–683
documenting, 21–22, 32
interfaces and protocols, 694–697
location management, 691–693, 719–725

new setups and, 45–46
verifying, 683–686
VPN settings, 702–706
Wi-Fi configuration, 725–730
network user accounts, 173
network volumes, 489
networkQuality command, 744–745
networks
activity of, 670–673
configuring, 674–683
connecting to Wi-Fi, 683–687
connectivity issues, 687–689, 745–750
identification of, 795–796
terminology, 667–669
troubleshooting, 731–750
New Blank Image, 423
new items, 393
NFS (Network File System), 768, 775
No Security, 138
notarization, 521, 543
Notes, configuring, 762
Notification Center, 156–157, 626–628

O

open-source software, 3
operating system history, 12
optimized storage, 580–581, 589–592
options, 97
ownership, permissions and, 384–386

P

packages
defined, 413
examining, 413–415
installing, 415, 527–529, 535–538
pairing, 850, 853–854
parents, 803
partitions, 326–327
Password Assistant, 298–299
passwords
Apple silicon resets, 377–379
backup, 482, 484–487
changing, 297–299, 320–322
firmware, 123, 134–136
Intel-based resets, 379–381
keychain storage for, 281–283
Recovery Assistant, 139
resetting lost, 299–305, 309–315
restoring original, 381–382
security for, 237–241
user keychains, 305–309
Wi-Fi, 676
Passwords System Preferences, 246–248
pathnames, 99, 110
PDF documents, 883–884, 898
Pearson Education, 81
peers, 803
peripherals
Bluetooth, 849, 850–856
technology types, 843–850
Thunderbolt, 847–849
troubleshooting, 857–859
USB, 844–847
permissions
default, 399–405
file system, 383–389
managing, 393–398
network, 768
remote control and, 807–812, 815
sharing and, 389–393
testing changes, 405–408
personal firewall
configuring, 835–840
managing, 821–826
security and, 253
troubleshooting, 827
Photos Editing extensions, 621
ping command
connectivity tests with, 739–741, 748–749
stealth mode, 838
Terminal, 780–782
plug-ins
framework, 858
Quick Look, 556–557
Spotlight, 463
Point-to-Point Protocol over
Ethernet (PPPoE), 696

POSIX-style permissions, 386
power nap, 916–919
power-on selftest (POST), 905
preferences
  app, 644–649, 655–661
  Bluetooth, 850–851
  locked, 57–58
  Network, 687–689, 692, 732
  privacy, 119–120
  Sharing, 793
  Siri, 468–471
  Spotlight, 471–473
  System, 55–59, 73–81
  system resources, 433
  Time Machine, 490–491
Preferred Networks, 727–730
Preview pane, 623, 656
printers and scanners
  AirPrint, 863
  configuring, 865–879, 888–893
  CUPS, 864
  drivers, 864–865
  managing, 880–886, 893–898
  troubleshooting, 857, 886–888, 899–900
privacy
  account, 253–261
  analytics and, 52
  Data and Privacy, 33
  editing preferences, 119–120
  keychains and, 241–250
  lost devices, 262–271
  managing user, 253–261
  password, 237–241
Private Relay, 254
processes, 609–610, 629–633
Profiles pane, 67–70
protected memory, 610
protecting data, 240–241
protocols, network
  defined, 667
  file service, 768
  interfaces and, 694–698
  network location, 691
proxy servers, 716–717
Public folder, 216, 218–219
public networks, 802
pwd command, 110, 111

Q

quarantine, file, 522–523
queues, print, 884–886, 896–898
Quick Actions
  extensions, 623
  features, 558–559
  shortcuts, 623–626
Quick Look
  extensions, 622
  features, 555–556
  plug-ins, 556–557
  viewing files with, 593
  window, 557–558
Quick Note, 6–7
quits
  force, 635–636, 650–655
  resumes after, 570

R

Recommendations, 590
recovering data, 354–355
Recovery Assistant, 139–140, 939
recovery keys, FileVault
  resetting logins with, 300–303
  turning on, 79–80
  use of, 374, 377–382
recoveryOS, 126, 127, 142
recursive characters, 105
reformatting storage devices, 150–152, 361–363
regional selection, 45
registering apps, 550
relative paths, 99, 110
Reminders, 762–764
remote computer control, 806–817, 830–832
Remote Management, 32, 806
removal, software, 529–530, 544–546
reports, diagnostic, 637–644, 661–664
resource passwords, 238

Restart, 148
restart
    apps, 634
    FileVault-protected, 375–376
    loginwindow and, 921
restores
    backed-up files, 492–497
    deleted account, 226–236
    home folder, 226
Resume, automatic, 569–570
rm command, 106
rmdir command, 106
roles, volume, 329
root accounts, 91, 107, 180–181
root folders, 431–432
root volume, 102
Rosetta, 612, 614–616
router address, 669

S

Safari
    keychain items in, 243–248
    network configuration, 757
    privacy and, 259–261
    rendering issues, 782–784
    updates, 7
safe mode, 927–929, 935, 940–942
safe sleep, 915–916
sandboxed apps, 435–436, 520–521, 645
saves
    automatic, 598–599
    disabling automatic, 570
    documents, 561–569
    iCloud, 604
    web information, 243–244
scanners.
    See printers and scanners
screen locks, 276
Screen Sharing
    Messages for, 813–817
    remote, 806–814
    turning on, 828–830
Screen Time, 53, 187–194
screenshots, 227
searches
    activity and log, 643–644
    advanced, 464–468
    App Store, 512–515
    Look Up, 460
    results, 461–462
    Siri, 456–457
    Spotlight, 456, 457–460
Secure Boot, 136–138
Secure Shell (SSH), 91, 94
secure startup
    Allowed Boot Media, 136, 138
    firmware, 134–136, 905–907
    initialization and, 901–911
    Recovery Assistant, 139–140
    Secure Boot, 136–138
    security policy, 133–134, 902–905
    Startup Security Utility, 129–133, 146–147
security
    account privacy, 253–261
    Activation Lock, 270–271
    app, 520–526, 527, 541
    firewall and, 821–826
    host-sharing services, 794–795
    keychains for, 241–250
    lost devices, 262–271
    managing system, 250–253
    password, 237–241
    policy configuration, 133–134
    screen locks, 276
    search, 463–464
    system extensions, 272–274
    T2 chip, 129, 902–905
Security & Privacy, 251–253, 637
Select Your Country or Region, 45
Server Message Block 3 (SMB 3), 768
settings
    app installation, 525
    managing system, 55–70
    new setup, 51–52
    System Preferences, 73–81
    updates and, 21–22
    upgrades and, 32

setup, new, 43–55
Setup Assistant
configuration with, 70–73
new Monterey installation, 43–44
Screen Time, 188
user accounts and, 184
Share Disk, 129, 352–354
Share Menu, 622
Shared folder, 213, 392
sharing
AirDrop, 817–821
changing options, 587
files via iCloud, 585–588
network file-system, 768–778, 785–792
network host-sharing, 793–805
permissions for, 389–393
printers, 878–879
services, 796–798, 826–828
sharing-only accounts, 180
stop, 588
shells, 92
shortcuts
file-system, 415–420
Quick Actions, 623–626
Shortcuts, 8
startup, 907, 922–930
shutdown, 921, 935
Sidecar Diagnostics, 736
single-user mode, 929–930
SIP (System Integrity Protection), 437–439
Siri
configuring, 53
preferences, 468–471
privacy and, 253
search with, 456–457
sleep mode, 794, 913–919
SMB (Server Messenger Block), 756, 773–774
snapshots, 325, 481
software
network services, 753–754
notarization, 521, 543
packages, 526–529
remote control, 806
removing installed, 529–530
updates, 34–36, 155–164, 166–170
Software Update, 160–161, 163, 166–167
special characters, 101
spin reports, 641
Spoken Content, 65
Spotlight
advanced search, 464–468
finding tags with, 454
indexing, 462
plug-ins, 463
preferences, 471–473
search with, 456, 457–460, 477–478
SSV (signed system volume), 329
stacks, 452
standard accounts, 177–178, 202–210
standard formats, 3–4
standard permissions, 386
standby mode, 916
startup
macOS Recovery, 122–127, 142
modifications, 922–930
safe mode, 941–942
See also secure startup
startup disk
FileVault to protect, 53–54
macOS Recovery from, 128
restarts with, 148
Startup Security Utility, 129–134, 146–147
static network locations, 722–724
status, system, 779
stealth mode, 838
storage
APFS, 328–338
defined, 326
iCloud, 571–584, 590, 602–608
local, 579–580, 589–592
new item, 393
password, 281–283
upgrades and, 26
user switching and, 200
storage devices, external
backups with, 482–490
bootable installers, 140–141

defined, 326
diagnostic reports, 640
erasing, 38–39, 361–363
formatted as APFS, 338
iCloud Drive to, 583
inspections, 342–346
macOS Recovery from, 125
permissions for, 397–398
reformatting, 150–152, 361–363
Storage Management, 589–590, 592
Student Materials, downloading, 81–84
su command, 106
subnet masks, 669
sudo command, 91, 107
swapping, 633
Switch Control, 66
switching users, 197–202
symbolic links, 417–418
system domain, 434
system extension approvals, 272–274, 290–296
System folder, 432
System Information
bus status, 844
disk inspection in, 345
monitoring apps with, 629
peripherals and, 859–862
setup with, 88–90
verifying, 17–20
system initialization, 901–911, 930–934
System Preferences
configuring, 73–81
connectivity monitoring, 687–689
Control Center, 62–63
managing, 55–59
System Recovery, 334
system resources
fonts, 439–447
overview of, 431–437
SIP, 437–439
system settings, 55–70
system volumes, 931–932
system.log, 642

T

T2 chip
FileVault, 368
Find My and, 270
Secure Boot, 136–138
security policy, 902–905
Startup Security Utility, 132
Tab key completion, 101–102
tags, 449–454, 474–477
target disk mode, 352–354
TCP (Transmission Control Protocol), 669
TCP/IP networking, 667, 670, 697, 708–710
Terminal
APFS info in, 334–336
CLI access via, 92–96
file erases in, 349
macOS Recovery from, 128
navigation via, 100
network troubleshoots, 736–745, 780–782
terms and conditions, 50
tethered caching, 801
text, images and, 8–9
third-party kernel extensions, 275, 858
third-party system extensions, 290
Thunderbolt, 847–849
Thunderbolt 2, 848
Thunderbolt 4, 694, 846, 847, 848
Thunderbolt Bridge, 694
Time Machine
backups, 21, 480–481
configuring, 481–492, 497–502
erases and, 937
exclusions, 497
local snapshots, 481
overview of, 479–480
preferences, 490–491
restores from, 127, 492–497, 502–506
TLS (Transport Layer Security), 817
Touch Bar, 623
touch command, 105
Touch ID, 55, 237
traceroute command, 743–744
trackpad, 78–79, 850

transfers, 352–354, 489–490
trash, 590
troubleshooting
  apps, 634–650, 655–661
  file systems, 342, 350–355
  initialization, 930–934
  installation issues, 26–28
  network issues, 731–750
  peripherals, 843–862
  printers, 886–888, 899–900
  Recovery for, 121
  sharing services, 826–828
  system resources, 436–437
trust profiles, 67, 69
two-factor authentication, 48, 249–250

U

Unified Extensible Firmware Interface (UEFI), 905
uninstalling apps, 295
Universal apps, 611–612
universal control, 7–8
Universally Unique ID (UUID), 186
UNIX-style permissions, 386
unlocking documents, 601–602
unmounting disks, 338–341
unmounting shares, 776–777
unreadable disks, 346–347
unrecoverable data, 241
updates
  app, 520
  firmware, 907
  macOS, 13
  software, 155–164, 166–170, 529
upgrades
  macOS, 13–14, 15–26
  preparing for, 28–33
USB
  built in, 694
  cellular network adapters, 695
  examining devices, 862
  internet access via, 694
  performance, 844–885
  ports, 845–847
USB-A, 846
USB-C, 845–848
user accounts
  access restrictions, 187–194
  adding users, 184
  attributes, 184–186
  configuring, 182–186
  creating/editing, 50–51, 183, 202–210, 234
  deleting, 219–220
  diagnostic reports on, 640
  FileVault, 372
  folders for, 211–219
  locked preferences, 57–58
  login options, 194–197
  passwords for, 238
  permission exams by, 400–405
  privacy for, 253–261
  remote control and, 807–812
  restoring deleted, 226–236
  system extension approvals, 290
  system resources, 434
  types of, 173–174
  user switching, 197–202
user home folders
  copying/migrating content, 220–226
  managing, 211–219
  restoring deleted, 226–236
User ID, 185
user keychains, 305–309
user sessions, 901, 911–913, 935–936
Users & Groups preferences, 182–183, 812
Users folder, 432

V

verbose mode, 929–930
versions, document, 565–567, 597–600
virtual display, 828, 832–835
virtual local area network (VLAN), 696
Virtual Network Computing (VNC), 806
virtual network service, 696
virtual private network (VPN), 667, 696
volumes
  APFS, 328–338
  defined, 327–328

encrypting, 349–350
erasing, 347–349
mount/unmount/eject, 338–341
navigating, 102–103
renaming, 346
roles and groups, 329
selecting backup, 499–501
system, 931–932
viewing info on, 355–360
VPN settings, 702–706

W

WAN (wide area network) traffic, 671, 698
web browsers, 782–784
WebDAV, 769, 775
widgets, 626–628
Wi-Fi
advanced configuration, 725–730
AirDrop shares, 817
authenticating, 677–679
built-in, 695
connecting to, 675–679, 683–687
connectivity issues, 733–736
defined, 667
hidden networks, 683
manual configuration, 708–713
PAN, 695
wildcard characters, 104–105
Windows computers, 137, 454–455
WINS settings, 697, 715–716
wireless devices, 850
Wireless Diagnostics, 733–736
working directory, 95, 110–112
WPA Enterprise Networks, 678, 680–682

Z

Z shell, 92, 94
ZIP archives, 421–422
Zoom, 63–64