



MACOS 14 AND LATER · ZSH · HOMEBREW

macOS Handbook

For beginners

Don't fear the terminal. Start with a few commands. This section is for people new to the Mac: what to do after setup, installing software with Homebrew, Terminal basics, shortcuts and where each setting lives.

```
user@MacBook-Air ~ % brew upgrade
```

user your username · **MacBook-Air** the computer name · **~** the folder you are in (your home folder) · **%** means a normal user, **#** means root (administrator).
Nothing appears on screen while you type a password; that is normal.

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Yellow italic text (like *<package>*) marks the parts you fill in. In Terminal, copy is Cmd+C and paste is Cmd+V. Commands that start with **sudo** change the system; read what they do before running them.

After setup

On a new Mac or after a clean install, going through these in order is a good start.

1 Update macOS

System Settings > General > Software Update. Keep "Automatic updates" on.

```
% softwareupdate --list
```

2 Turn on FileVault

Disk encryption; if the Mac is stolen the data can't be read. System Settings > Privacy & Security > FileVault. Keep the recovery key in your Apple Account or write it down.

```
% fdesetup status
```

3 Set up Time Machine

Plug in an external drive; System Settings > General > Time Machine > Add Backup Disk. It backs up hourly, and you can restore files to earlier versions.

4 Turn on Find My

System Settings > Apple Account > iCloud > Find My Mac. Locate a lost Mac and lock it remotely.

5 Install the command line developer tools

git, make and compilers. Homebrew needs them too.

```
% xcode-select --install
```

6 Install Homebrew

The most popular package manager for macOS. Also run the two lines it prints at the end (PATH setup).

```
% /bin/bash -c "$(curl -fsSL  
https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"
```

```
% echo 'eval "$(/opt/homebrew/bin/brew shellenv)"' >> ~/.zprofile && eval  
"$(/opt/homebrew/bin/brew shellenv)"
```

7 Install apps with Homebrew

Browsers, VLC, Rectangle (window management) and more with one command.

```
% brew install --cask firefox vlc rectangle
```

8 Tidy up Finder

Show file extensions and the path bar: Finder > Settings > Advanced > "Show all filename extensions"; View menu > Show Path Bar.

```
% defaults write NSGlobalDomain AppleShowAllExtensions -bool true && killall Finder
```

9 Set up the trackpad

System Settings > Trackpad > "Tap to click". The scroll direction is here too.

Meet the terminal

Open the Terminal app by pressing Cmd+Space for Spotlight and typing "terminal". The default shell on macOS is zsh; most commands are the same as on Linux.

TIP The command line is case-sensitive, but macOS's disk format (APFS) isn't by default: Documents and documents point to the same folder. Put names with spaces in quotes: `cd "New Folder"`.

TIP Drag a file or folder from Finder into the Terminal window to type its full path.

TIP Type part of a name and press **Tab**: the command or file name completes.

```
% man <command>
```

Manual page. Quit with `q`, search with `/word`.

```
% sudo <command>
```

Runs with administrator rights; asks for your Mac password, which isn't shown as you type.

```
% clear
```

Clears the screen (Cmd+K also clears).

```
% history
```

Previous commands.

```
% which <command>
```

Which file a command runs from.

WARNING To stop a running command, press **Ctrl** + **C**. In Terminal, copy is **Cmd** + **C** and paste is **Cmd** + **V**.

Files and folders

`~` means your home folder (`/Users/username`). `.` is the current folder, `..` the one above it.

```
% pwd
```

The folder you are in.

```
% ls -la
```

Detailed list including hidden files.

```
% cd <folder>
```

Enters a folder. `cd ..` goes up, `cd` goes home.

```
% mkdir -p <folder>
```

Creates a folder (nested too).

```
% touch <file>
```

Creates an empty file.

```
% cp -R <source> <target>
```

Copies (-R for folders).

```
% mv <source> <target>
```

Moves or renames.

```
% rm <file>
```

Deletes; it doesn't go to the Trash. `rm -r` for folders.

```
% open .
```

Opens the current folder in Finder.

```
% open <file>
```

Opens a file with its default app. `open -a Preview <file>` uses a specific app.

```
% mdfind "<word>"
```

Searches the Spotlight index; much faster than `find`.

```
% find ~ -name "*.pdf"
```

Finds PDF files in your home folder.

WARNING Don't run commands from the internet that start with `sudo rm -rf` unless you understand them.

Reading and editing files

```
% cat <file>
```

Prints the contents.

```
% less <file>
```

Reads page by page; `q` quits.

```
% tail -f <file>
```

Follows new lines live.

```
% nano <file>
```

Edits in the terminal. Save Ctrl+O, quit Ctrl+X.

```
% open -e <file>
```

Opens the file in TextEdit.

```
% <command> | pbcopy
```

Copies a command's output to the clipboard.
`pbpaste` prints the clipboard.

```
% qlmanage -p <file>
```

Quick Look preview of a file.

Installing software: Homebrew and the App Store

Homebrew installs two kinds of packages: command-line tools (formulae) and desktop apps (casks).

```
% brew search <name>
```

Searches for packages.

```
% brew install <package>
```

Installs a command-line tool. Example: `brew install wget`.

```
% brew install --cask <app>
```

Installs a desktop app. Example: `brew install --cask google-chrome`.

```
% brew update && brew upgrade
```

Updates Homebrew and all packages.

```
% brew list
```

Installed packages.

```
% brew uninstall <package>
```

Removes a package (same for casks).

```
% brew info <package>
```

Version, dependencies and install notes.

```
% brew cleanup
```

Frees space by deleting old versions and cache.

TIP To install from a .dmg: open it, drag the app icon to the Applications folder, then eject the .dmg. To uninstall, drag the app from Applications to the Trash.

TIP If a downloaded app says it “can’t be opened because the developer cannot be verified”: System Settings > Privacy & Security, “Open Anyway” at the bottom. Only for apps you trust.

System information and resources

The equivalent of Windows Task Manager is Activity Monitor.

```
% sw_vers
```

macOS version.

```
% system_profiler SPHardwareDataType
```

Model, chip, RAM, serial number.

```
% uname -m
```

Processor architecture: arm64 (Apple silicon) or x86_64 (Intel).

```
% df -h /
```

Free disk space.

```
% top -o cpu
```

Live process list sorted by CPU. **q** quits.

```
% memory_pressure
```

Memory pressure; the same information as the graph in Activity Monitor.

```
% pkill <program>
```

Closes a program by name.

```
% pmset -g batt
```

Battery percentage and charging state.

Shut down, sleep, lock

```
% sudo shutdown -h now
```

Shuts down.

```
% sudo shutdown -r now
```

Restarts.

```
% pmset sleepnow
```

Puts the Mac to sleep.

```
% caffeinate -d
```

Keeps the display and Mac awake until you press Ctrl+C. For a set time: `caffeinate -t 3600`.

Ctrl + Cmd + Q

Locks the screen.

Cmd + Opt + Esc

Force Quit Applications window.

macOS shortcuts

Cmd (⌘) is Command, Opt (⌥) is Option, Ctrl (⌘) is Control. On some keyboards the Globe key is labeled fn.

Cmd + Space

Spotlight: apps, files, calculator, unit converter.

Cmd + Tab

Switch between apps.

Cmd + `

Switch between windows of the same app.

Cmd + Q

Quit the app (closing a window doesn't quit it).

Cmd + W

Close the window or tab.

Cmd + H	Hide the app.
Cmd + M	Minimize the window to the Dock.
Ctrl + Cmd + F	Full screen.
Globe + Ctrl + ← or Globe + Ctrl + →	Tile the window to the left / right half of the screen (macOS 15 and later).
Ctrl + ↑	Mission Control: all windows and desktops.
Ctrl + ↓	App Exposé: the active app's windows.
Ctrl + ← or Ctrl + →	Switch between desktops (Spaces).
Cmd + Shift + 3	Full-screen screenshot saved to the desktop.
Cmd + Shift + 4	Screenshot of a selected area. Press Space afterwards to pick a single window.
Cmd + Shift + 5	Screenshot and screen recording toolbar; the save location is in the options menu.
Ctrl + Cmd + Space	Emoji and symbols (Globe+E also opens it).
Cmd + Opt + D	Hide / show the Dock.
Cmd + ,	Settings of the active app.
Cmd + Opt + Esc	Force Quit Applications.
Ctrl + Cmd + Q	Lock the screen.

Terminal and zsh shortcuts

The first group belongs to the Terminal window, the second to the command line (zsh).

Cmd + T	New tab.
Cmd + N	New window.
Cmd + W	Close tab.
Cmd + Shift + [or Cmd + Shift +]	Previous / next tab.
Cmd + K	Clear the screen and scrollback.
Cmd + + or Cmd + -	Bigger / smaller text.
Cmd + F	Search the output.
Tab	Complete.
↑ or ↓	Previous / next command.
Ctrl + R	Search history.
Ctrl + C	Stop the running command.
Ctrl + A or Ctrl + E	Start / end of the line.
Ctrl + U or Ctrl + K	Delete from the cursor to the start / end of the line.
Ctrl + W	Delete the previous word.
Opt + ← or Opt + →	Move word by word.

TIP Opt-click on the command line to move the cursor there.

Finder shortcuts

Cmd + Shift + .

Show / hide hidden files.

Cmd + Shift + G

Go to Folder: type a path (e.g. ~/Library).

Cmd + N

New Finder window.

Cmd + Shift + N

New folder.

Return

Rename the selected item.

Space

Quick Look preview.

Cmd + I

Get Info (size, permissions, default app).

Cmd + ↑

Parent folder.

Cmd + ↓

Open the selected folder or file.

Cmd + C, then Cmd + Opt + V

Move (the cut-and-paste equivalent).

Cmd + Opt + C

Copy the selected item's path.

Cmd + D

Duplicate.

Cmd + Delete

Move to Trash. Cmd+Shift+Delete empties the Trash.

Cmd + K

Connect to Server (SMB shares).

Where is that setting?

Settings are in Apple menu > System Settings. The search box at the top left of the window, or Spotlight, opens a page directly by name. Menu names can differ slightly between macOS versions.

System Settings > Wi-Fi

Wireless networks and known networks.

System Settings > Bluetooth

Pair devices.

System Settings > Network

Ethernet, VPN, firewall.

System Settings > Notifications

Per-app notifications.

System Settings > Focus

Do Not Disturb and custom focus modes.

System Settings > General >

Software Update

macOS updates and automatic updates.

System Settings > General > Storage

Disk usage and recommendations.

System Settings > General >

Login Items & Extensions

Apps that open at login and background items.

System Settings > General >

Language & Region

System language, per-app language, formats.

System Settings > General > Sharing

Computer name, file sharing, remote login (SSH).

System Settings > General > Time Machine

Backup disk.

System Settings > General >

Transfer or Reset

Erase all content and settings (before selling the Mac).

System Settings > Appearance

Light/dark, accent color, scroll bars.

System Settings > Desktop & Dock

Dock size and position, Stage Manager, window tiling, hot corners.

System Settings > Displays

Resolution, Night Shift, multiple monitors.

System Settings > Battery

Low Power Mode, battery health.

System Settings > Privacy & Security

FileVault, app permissions (camera, microphone, Full Disk Access), "Open Anyway".

System Settings > Touch ID & Password

Fingerprints, password.

System Settings > Users & Groups

New users, administrator rights.

System Settings > Keyboard

Key repeat, Input Sources, Keyboard Shortcuts, text replacements.

System Settings > Trackpad

Tap to click, scroll direction, gestures.

System Settings > Printers & Scanners

Add printers.

USB drives and disks

Connected drives appear on the desktop and in the Finder sidebar. Click  before unplugging.

```
% diskutil list
```

Disks and partitions (disk2, disk4, etc.).

```
% diskutil eject /dev/<disk4>
```

Ejects a disk safely.

```
% diskutil eraseDisk ExFAT USB GPT  
/dev/<disk4>
```

Formats the disk as exFAT (readable on Windows and Linux too). The whole disk is erased.

Disk Utility

Format, First Aid and partitioning in the graphical interface. Use View > Show All Devices to select the disk itself.

TIP macOS only reads NTFS disks; to write to them, format the disk as exFAT.

Common problems

TIP **"App is damaged and should be moved to the Trash" or "can't be opened"**. First try System Settings > Privacy & Security > "Open Anyway". If you trust the source, removing the quarantine flag also works: `xattr -dr com.apple.quarantine /Applications/App.app`.

TIP **"brew: command not found" after installing Homebrew**. You didn't run the PATH line printed at the end: `echo 'eval "$(/opt/homebrew/bin/brew shellenv)'"' >> ~/.zprofile`, then open a new Terminal.

TIP **Disk full, "System Data" is huge**. Usually local Time Machine snapshots and caches. Check with `tmutil listlocalsnapshots /`; macOS deletes them itself when it needs space.

TIP **Spotlight can't find files**. Rebuild the index: `sudo mdutil -E /`.

TIP **Sound disappeared**. `sudo killall coreaudiod` restarts the sound system.

TIP **Wi-Fi problems**. Opt-click the Wi-Fi icon in the menu bar > Open Wireless Diagnostics.

TIP **An app froze**. Cmd+Opt+Esc for Force Quit Applications.

TIP **Odd hardware issues (fan, charging, sleep)**. On Apple silicon, shut down, wait 30 seconds and start again. On Intel Macs, reset NVRAM: hold Opt+Cmd+P+R at startup.

Glossary

zsh	macOS's default shell (command interpreter).
Homebrew / formula / cask	Package manager / command-line package / desktop app package.
Finder	The file manager.
Spotlight	System-wide search (Cmd+Space).
APFS	macOS's file system; supports snapshots and encryption.
FileVault	Disk encryption.
Gatekeeper	The security layer that checks the signature of apps downloaded from the internet.
SIP	System Integrity Protection: protects system files even from root.
Apple silicon / Rosetta 2	Apple's M-series chips / the translator that runs Intel apps on them.
launchd / plist	macOS's service manager (systemd on Linux) / the settings and service definition file format.
Time Machine	The built-in backup system.

Commands are written for macOS 14 Sonoma and later (Apple silicon and Intel). Menu names follow the English interface. Commands that start with `sudo` change the system; read what they do before running them.