



FOUNDED MAY 1989

MEETINGS - SECOND

SATURDAY OF THE MONTH

## NEWSLETTER FOCUS - APPLE PRODUCTS OLD & NEW

### THE METAVERSE

Our main presenter will be Fran Rabuck, CWNA,RFID. This session will discuss what the “Metaverse” is, the major players, industry impact, technology components, Next-gen user interfaces, virtual currency models, and more. He’ll also explore a few selective Metaverse worlds and tools to get YOU IN the virtual worlds. Of course, He’ll also discuss the position of current and future Apple devices and services. Get ready and fasten your seatbelts – it’s going to be a bumpy - and fun session.



Fran’s career and experiences began in the early days of computing. His early experiences include: text adventures with Colossal Cave, silent color video with a Kodak Super 8 camera, massive data storage with paper tapes and punched cards, and Odyssey and Atari systems. He was an early user of cloud computing (Timesharing) and became emerging technology specialist leading organization research efforts. Fran is a frequent speaker/writer, advisor and judge at major technology industry events. His experience with components of Metaverse technology include presentations and development in: AR/VR/XR, Head Mounted Computing devices, 3d Printing, Mobile & Wireless systems, Collaboration Systems, and AI/Data Analytics. His daytime work includes working with facility managers and organizations with Agile Handover for total silo integration and collection of infrastructure asset data, and the visualization of Digital Twins.

**ZOOM MEETING IN MAY.**

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### Typical Meeting Agenda

**9:00 - 9:05:** Call to order in main meeting room.

**9:05 - 10:15: Q&A Panel** - 3 or 4 expert members will answer your questions about anything relating to your Mac, iPad, iPhone, iWatch, and any attached peripherals.

Questions can relate to the most basic items, equipment issues, Apple's operating systems, and all applications, including applications for photo, video, audio, and print media.

Answers are amazingly helpful and often in depth, exploring the subject beyond the question.

**10:15 - 10:30:** Welcome and other business.

**10:30 - 11:50: Main Presentation** (by a member or guest)

**11:50 - Noon:** Raffles and silent auctions.

Come join some fellow MLMUG members for lunch after the meeting at a nearby restaurant.

### MLMUG Email list

The Main Line Macintosh Users Group has its own email list, hosted at [Groups.io](https://groups.io). Compose your letter and email it to [MLMUG@groups.io](mailto:MLMUG@groups.io) and the message will be sent to all on the mailing list. Contact Bob Barton ([barton.bee.net@gmail.com](mailto:barton.bee.net@gmail.com)) if you are a member and you are not on the list.

Please observe good email etiquette. If your message is humor or not Apple-related (off-topic), please include "Humor" or "OT" in the subject line. The [Groups.io](https://groups.io) Terms of Service are at [groups.io/static/tos](https://groups.io/static/tos). Look for the section on "Conditions of Use"

The MLMUG list may be used to post Apple-related items for sale, but any solicitation of members through the list is forbidden without the written consent of a MLMUG officer. Violation of the [Groups.io](https://groups.io) terms of service or good email etiquette may result in removal from the list.

### New Users SIG

You don't have to wait a whole month to get answers to your basic Mac questions! Get together with other members on the fourth Saturday (i.e., two weeks after each regular meeting) for the Startup Folder Lite.

Many new users have said that they can learn much more from face-to-face meetings than they do from manuals or other sources. That's what this meeting is all about. Go to [www.mlmutg.org/nusfl.html](http://www.mlmutg.org/nusfl.html) for details.

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Apple  
User Group

**Membership Information**

Membership dues are \$30 for individuals and \$40 for families. Memberships are based on your anniversary date, which is the month you joined. You will be e-mailed reminders when membership fee is due.

If you're just visiting to check us out, or if you've been visiting for some time, but haven't joined, consider these **BENEFITS OF MEMBERSHIP**:

- **Monthly meetings**, where you can learn, share, and meet everyone from working Mac professionals to new Mac users from all backgrounds.
- **Monthly newsletter**, which is full of interesting Mac news, tips, and information.
- Useful free items at the monthly **Raffles**.
- **Discounts**. Vendors offer special prices to User Group members.
- **Web Site** with 2-3 years of MLMUG newsletters, meeting information, a member directory, directions to our meetings, and much more! Our web site is [www.mlmutg.org](http://www.mlmutg.org).
- **MLMUG Mailing List**, to post technical questions or comments to each other and the experts within the group.

Are you ready to join? Please make a check payable to MLMUG and bring it to a monthly meeting or mail it to:

Treasurer, MLMUG  
P.O. Box 1374  
Southeastern, PA 19399

## April 2022 Meeting Minutes

### By Mark Bazrod

The April meeting was held by a Zoom teleconference. Bob Barton acted as host for the meeting and opened the Expert Panel at about 9:00 AM. There were about 22 attendees.

For further details of the meeting, please go to the links to Bob Barton's recording of Q&A and Digital Memories presentation and the chat at **Q&A** [bit.ly/3v3NpjX](https://bit.ly/3v3NpjX); **Digital Memories presentation** [bit.ly/3xgLqLG](https://bit.ly/3xgLqLG); and **Chat** [bit.ly/3LMZP6k](https://bit.ly/3LMZP6k).

### Q & A Panel - Bob Barton, Nick Iacona, Mike Inskip, and Adam Rice.

Why are Apple shares falling? The stock market is falling.

What will next Mac Pro be? Apple has products which appeal to all types of users, from the novice to extreme pro users (movie and TV producers, etc. ) .Mac Studio looks very intriguing for creative users.

Finder indicates more available memory than System Preferences>Storage. Finder may consider purgeable storage. available. It is space which will be cleared out automatically by macOS when the system needs the storage capacity. See article in this Newsletter

How do you connect external disc drive to iPad? You can and will see files in sidebar in Files app. See chat how to connect. Linda needed to format old drives on old OS X so work on iPad. To eject drive in iPad just pull it out when done.

Mail. Turn off smart addresses in Mail>Preferences>Viewing so see full address. But advanced scammers can even change the real address.

Desktop files stored on the iCloud. All other files are stored locally by default. You can change the location to iCloud by right

clicking the file in the Finder. Some apps, like TextEdit and some Adobe products, default to the cloud. With multiple devices, Apple is incentivizing us to store docs on the cloud. That's good for us, except if you have very large files where local storage is a necessity. To copy to iCloud need to hold down Option key.

If you want to initially store in the cloud, use Save As.

SuperDuper and others will back up external drives. You also should save a copy of the external drives externally.

Dropbox v iCloud. Depends on how comfortable are you with the service.. I think Apple is more secure. BackBlaze keeps copy of key, but you can make your own key which BackBlaze can not see.

Need backup when change file on the Mac. Use Time Machine in addition to other backup.

### Main Presentation Aric Pederson. Converting Analog Memories to Digital Dreams

#### Understand the Scope of the Project

Before start, know what you are working with. Probably different types of media. Where is everything located? How organized? What kind of shape is it in? How much of it is there?

His experience. Tons of photo albums, stack of photos, slides, 41 VCR tapes, over 6,000 photos and over 100 hours of VCR. Don't panic. If you don't save, they may be gone forever.

First, consider sending to third party. Pay and minimal personal disruption. Probably faster than you. Get high quality results. Downsides: Risk of loss or damage to originals. Other people will be handling your personal info. Large projects can be quite expensive.

What did he do? Did it himself. He had a smaller, but more important project he did mail out. He used DigMyPics.com..

Middle of road in pricing. Spoke to others and so trusted them. Very positive experience.

He ordered service on website. Had to count items. Used their shipping account. Received frequent updates. Received everything back in great shape. Didn't pay for duplicates. \$400 for high quality scans on DVDs with printed thumbnails book. Now they will put on cloud and you can download.

Cost in general. Slides \$.49 per slide. Nonstandard slides \$1.09 each. Negatives \$.49 per frame. Nonstandard \$1.09. Photos \$.49. Nonstandard more. Video tapes \$9.95 per tape. Film \$.25 per foot. Thumbnail book cost varies with number of thumbnails on a page. Will contact you if something special. How you receive the files depends on what you want.

### Choosing the Path of Pain - Do It Yourself

**Scan photo albums and photos.** All you need is an iPhone or iPad and Photomyne software app. Use best camera you have. Purchase monthly, annual, or one-time fee. If purchase on their website, get all their apps. If use iOS, can purchase separate apps. Easy to scan hundreds of photos. Resulting digital pics good for viewing, but not high quality for archiving.

**Preparing.** Try free version. Find area with natural light or use daylight bulbs (between 5k- 6k). Maybe get a light defuser which cuts down on glare. Make sure light source is indirect. Get a stand for phone so phone pointing downwards. Get photo albums in one place so easy to access. Photomyne does basic correction. Can do an album page at one time.

He demonstrated using Photomyne with iPhone. You can edit photos. Save on phone and non cloud if you want. It can colorize black and white photos. Can add dates, location, name of person. Many options.

**Scan slides.** Different app - SlideScan for iOS. Can use computer monitor as light box. Then handle like photos.

**Negatives.** Separate app - FilmBox. Use backlight from computer screen.

**Do it yourself.** Probably better quality than Photomyne. Use regular camera app. Can take pictures of printed photos. Then manually crop. Use a holder. If Mac not recognize your scanner, try VueScan app. Hamrick.com. Standard version is \$40 and Pro version is \$100. Works on Macs and Windows. Pro required for negative or slide scanning.

**Old videos.** Need in playable state and a player that can connect to your Mac. If cracked or warped, better to send out. Might get on eBay, etc. He used Elgato Video Capture to convert player. \$88.

**Where and how to store.** Lot of options. On Mac, iPhone, on Photomyne cloud, or any other cloud. Use like any digital photo. You can edit video with iMovie and other editing software. Problems with warped or cracked photos will require some editing.

You can use old Apple earbuds or Siri as shutter release to take photo so eliminate shutter

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Walter Mossberg posted the following article to [allthingsd.com](http://allthingsd.com) on December 17, 2013. [cutt.ly/EFDXhHB](http://cutt.ly/EFDXhHB). © Dow Jones & Company, Inc. Mossberg was the author and creator of the weekly *Personal Technology* column in *The Wall Street Journal* (since 1991). He is also the co-producer of the prestigious *D Conference* and the co-editor of the [AllThingsDigital](http://AllThingsDigital.com) web site.

## Top Products in Two Decades of Tech Reviews

### By Walt Mossberg

This is my last column for *The Wall Street Journal*, after 22 years of reviewing consumer technology products here.

So I thought I'd talk about the dozen personal-technology products I reviewed that were most influential over the past two decades. Obviously, narrowing so many products in the most dynamic of modern industries down to 12 is a subjective exercise and others will disagree.

Though most were hits, a couple weren't blockbusters, financially, and one was an outright flop. Instead, I used as my criteria two main things.

First, the products had to improve ease of use and add value for average consumers. That was the guiding principle I laid down in the first sentence of my first column, in 1991: "Personal computers are just too hard to use, and it's not your fault."

Second, I chose these 12 because each changed the course of digital history by influencing the products and services that followed, or by changing the way people lived and worked. In some cases, the impact of these mass-market products is still unfolding. All of these products had predecessors, but they managed to take their categories to a new level.

Some readers will complain that Apple is overrepresented. My answer: Apple introduced more influential, breakthrough products for average consumers than any other company over the years of this column.

### 1. Newton MessagePad (1993)



This hand-held computer from Apple was a failure, even a joke, mainly because the company promised it could flawlessly recognize handwriting. It didn't. But it had one feature that foreshadowed some of today's most cutting-edge technology: An early form of artificial intelligence. You could scrawl "lunch with Linda Jones on Thursday" and it would create a calendar entry for the right time with the right person.

[Read Walt's review of the Newton MessagePad »](#)

Newton MessagePad foreshadowed some of today's most cutting-edge technology.

### 2. Netscape Navigator (1994)

The first successful consumer Web browser, it was later crushed by Microsoft's Internet Explorer. But it made the Web a reality for millions and its influence has been incalculable. Every time you go to a Web page, you are seeing the legacy of Netscape in action.

### 3. Windows 95 (1995)

This was the Microsoft operating system that cemented the graphical user interface and the mouse as the way to operate a computer. While Apple's Macintosh had been using the system for a decade and cruder versions of Windows had followed, Windows 95 was much more refined and spread to a vastly larger audience than the Mac did.



Windows 95 made the mouse a mainstay for computer users.

### 4. The Palm Pilot (1997)



The Palm Pilot led to one of the first smartphones, the Treo.

The first successful personal digital assistant, the Pilot was also the first hand-held computer to be widely adopted. It led to one of the first smartphones, the Treo, and attracted a library of third-party apps, foreshadowing today's giant app stores.

### 5. Google Search (1998)



From the start, Google was faster than its predecessors.

The minute I used Google, it was obvious it was much faster and more accurate than previous search engines. It's impossible to overstate its importance, even today. In many ways, Google search propelled the entire Web.

### 6. The iPod (2001)



Apple's iPod was the first mainstream digital media player.

Apple's iPod was the first mainstream digital media player, able to hold 1,000 songs in a device the size of a deck of playing cards. It lifted the struggling computer maker to a new level and led to the wildly successful iTunes store and a line of popular mobile devices.



[Read Walt's review of the original iPod »](#)

## 7. Facebook (2004)

Just as Netscape opened the Web, Facebook made the Internet into a social medium. There were some earlier social networks. But Facebook became the social network of choice, a place where you could share everything from a photo of a sunset to the news of a birth or death with a few friends, or with hundreds of thousands. Today, over a billion people use it and it has changed the entire concept of the Internet.

## 8. Twitter (2006)



Like Facebook, Twitter changed the way people live digitally.

Often seen as Facebook's chief competitor, Twitter is really something different — a sort of global instant-messaging system. It is used every second to alert huge audiences to everything from revolutions to interesting Web posts, or just to offer opinions on almost anything — as long as they fit in 140 characters. Like Facebook, it has changed the way people live digitally.

## 9. The iPhone (2007)



The iPhone was the first truly smart smartphone.

Apple electrified the tech world with this device — the first truly smart smartphone. It is an iPod, an Internet device and a phone combined in one small gadget. Its revolutionary multi-touch user interface is gradually replacing the PC's graphical user interface on many devices.

A year after it was introduced, it was joined by the App Store, which allowed third-party developers to sell programs, or apps, for the phone. They now number about a million. It has spawned many competitors that have collectively moved the Internet from a PC-centric system to a mobile-centric one.

[Read Walt and Katie's review of the original iPhone »](#)

## 10. Android (2008)

Google quickly jumped into the mobile world the iPhone created with this operating system that has spread to hundreds of devices using the same type of multi-touch interface. Android is now the dominant smartphone platform, with its own huge selection of apps.

While iPhones have remained relatively pricey, Android is powering much less costly phones.

[Read Walt's review of the first Android phone, the G1 »](#)

## 11. The MacBook Air (2008)

The late Apple co-founder Steve Jobs introduced this iconic slim, light laptop by pulling it out of a standard manila envelope. It was one of the first computers to ditch the hard disk for solid-state storage and now can be seen all over — on office desks, on campuses and at coffee shops. It spawned a raft of Windows-based light laptops called Ultrabooks. I consider it the best laptop ever made.

[Read Walt's review of the MacBook Air »](#)

## 12. The iPad (2010)

With this 10-inch tablet, Apple finally cracked the code on the long-languishing tablet category. Along with other tablets, it is gradually replacing the laptop for many uses and is popular with everyone from kids to CEOs. Developers have created nearly 500,000 apps for the iPad, far more than for any other tablet.

[Read Walt's review of the first iPad](#)

As I sign off from this column, I want to thank The Wall Street Journal for giving me the freedom to write these reviews all these years. And I especially owe great thanks to the readers who have followed my work. I am not retiring — I will still be doing reviews on a new online site. And the Journal will continue to offer tech reviews, penned by talented successors, which will continue to guide readers as consumer technology evolves

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PC Mag's review of the Apple Mac Studio (M1 Ultra) [cutt.ly/eFsu36e](https://cutt.ly/eFsu36e) is another extensive article which is way too long for this Newsletter, but it's worthwhile reading ,even if you don't intend to buy one. Its conclusion:

*“The Mac Studio (M1 Ultra) is far and away the best value for Mac users that need power, and lots of it. Sure, the Intel Xeon-powered Mac Pro is still available if you want to spend \$10,000 or more for a truly unparalleled machine, but with the Mac Studio around, you won't need to. From the slick design and generous port selection to the unbeatable power of the doubled-up M1 Ultra, the Mac Studio is the desktop to get for any professional studio.”*

Nicole Nguyen posted the following article to [wsj.com](https://www.wsj.com) on May 19, 2021. [cutt.ly/kFDMnyX](https://cutt.ly/kFDMnyX). © Dow Jones & Company, Inc. She is a Personal Tech columnist at The Wall Street Journal, covering how technology companies' products and policies affect people's lives. [Editor - Several images were omitted.]

## Apple's New iPad Pro vs. MacBook Air: The Best M1 Device for You

Until iPads run macOS, or MacBooks grow touch screens, your trickiest decision is between the new iPad Pro and MacBook Air—both powered by Apple's efficient mobile chip.

By Nicole Nguyen



The gap between the Mac and the iPad is the tightest it has ever been. The iPad Pro is now powered by the same M1 chip as the MacBook Pro, while the latest MacBooks can run many iOS apps.

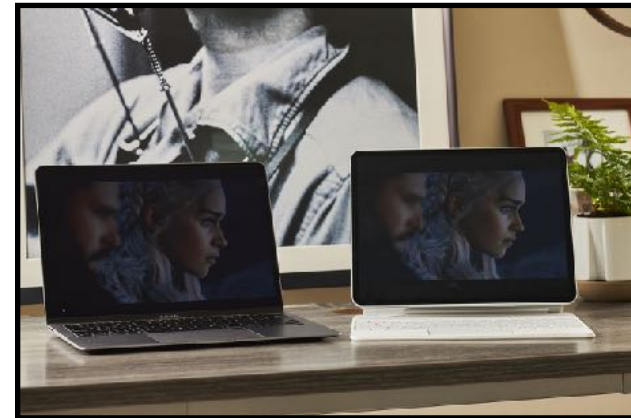
You're not a creative professional and don't necessarily need the iPad's digital drawing capabilities. But you do like using a touch screen. You rely primarily on web apps, and daily tasks include managing email, composing documents, attending remote meetings—and occasionally bingeing a few episodes before bed.

You're not firmly in Camp iPad or Camp Mac—both are suitable for your computing needs.

Sound familiar? You're in the right place. For this showdown, I'm comparing the new [12.9-inch iPad Pro](#) (\$1,099 and up), and the [M1 MacBook Air](#) (\$999 and up).

It might seem odd, pitting the high end of one device against the entry level of the other. But they have similar screen sizes and prices, and with each year, they gain more of the other's features: The M1 chip nixed the MacBook Air's biggest pain points, the loud fan and lap-searing heat. Meanwhile, the new big iPad Pro has a screen that's brighter than any Mac's.

If you're in the market for either, you have to weigh the specifics carefully, so let's compare:



### The Perks of the iPad Pro

**An eye-popping display.** Exclusive to the larger 12.9-inch iPad Pro is what Apple is calling the “Liquid Retina XDR” display. Marketing word salad, sure, but it's a fantastic screen. Stuffed with thousands of mini LEDs, it has better contrast than any other Mac display. It's capable of 1,000 nits of full-screen brightness—the same as Apple's \$5,000 Pro Display XDR. Since those tiny LEDs can also individually brighten and dim, you get better detail and richer hues.

Remember “[The Long Night](#),” that “Game of Thrones” episode that was so dark people thought their TVs were broken? On the iPad Pro’s screen, you can actually make out each sinewy corpse storming Winterfell.

**5G connectivity.** The latest Pros can now tap into speedy 5G networks (for an extra \$200 plus around \$10 a month). In one particularly extreme case, Verizon’s ultrawideband clocked download speeds exceeding 3 gigabits per second—over 50 times faster than my weak home broadband. Joining a Zoom or uploading a big file isn’t a problem for a 5G iPad—as long as you’re [within striking distance of a nearby cell tower](#).

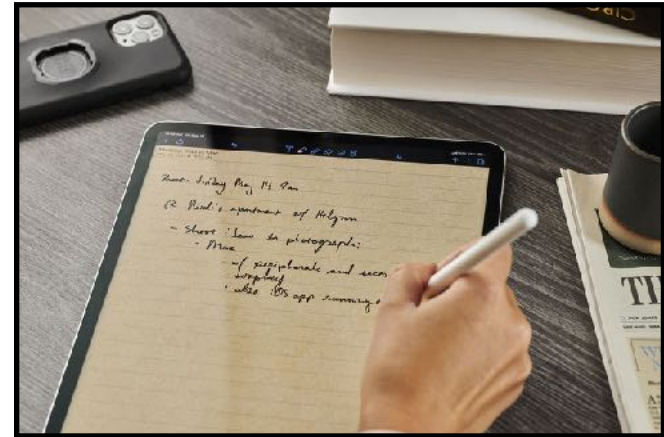
**First-rate cameras.** The iPad Pro has a wide and ultrawide camera on the rear. The depth-sensing LIDAR scanner uses them for applications ranging from document scanning in [Notes](#) to judging your forehead in [SwingVision](#).

The best camera feature involves the new 12-megapixel ultrawide lens on the front of the display, which offers much better resolution than the MacBook Air’s 720p FaceTime camera. When you’re using any video-chat app—including Google Meet and Zoom—software called Center Stage will automatically pan and zoom to keep you centered in the shot. If someone else appears, it widens its frame to include that person too.

**Speedy Face ID.** On the iPad, you don’t have to lift a finger to unlock your device or authorize Apple Pay. Both devices have biometric sensors, but the iPad Pro’s Face ID authentication is faster and more convenient than the MacBook’s Touch ID.

**The Magic Keyboard.** Typing on the Magic Keyboard is as satisfyingly clicky as the MacBook Air’s updated keyboard. The trackpad is a bit cramped, but you can pair the iPad with a Bluetooth mouse. (Yep, all iPads running the latest version of iPadOS 14 have mouse support.) The adjustable viewing angles, backlit keyboards and extra USB-C port are also great. But I

don’t love the keyboard case’s price: \$299 for 11-inch models and \$349 for 12.9-inch models.



**Precision input with touch.** Moving around a map or photo with your fingers is more natural than clicking around with a mouse. The Apple Pencil (\$129) turns the tablet into a digital notepad. You can highlight PDFs in [LiquidText](#), jot searchable meeting notes in [Penultimate](#) or sketch in [Procreate](#). There’s no perceptible latency and, like a real pencil or pen, the more pressure you exert, the bolder the line the Apple Pencil creates.

**3-D sound.** Last fall, Apple released Spatial Audio, virtual surround sound for content with multichannel audio such as Dolby Atmos. The feature works with AirPods Pro and AirPods Max headphones and isn’t available on any MacBooks (yet)—only [certain iOS devices](#) and the new [24-inch iMac](#).

**More devices in one.** The tablet can go from being your work computer to your personal TV to a virtual piano to an e-reader to a journal and back again. It’s a multiuse device that makes some compromises to do it all.

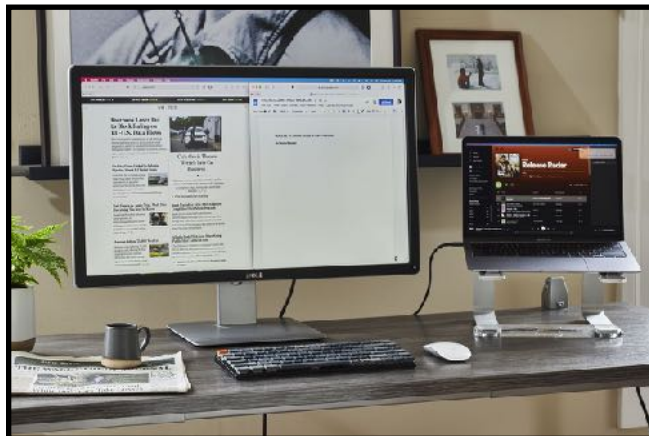
## The Benefits of the MacBook Air

**Lots of windows.** On a Mac, you can have as many windows open as the processor can handle. With the MacBook’s M1 chip,

that's plenty. The iPad is limited to two applications running side by side—and only some allow two instances of the same app in that split view. (You can't have two Google Docs open simultaneously, for example.)



**Longer battery life.** The MacBook Air's battery is rated at 15 hours of web browsing. In her test, my colleague Joanna Stern squeezed 10 hours and 45 minutes out of the machine, playing YouTube videos at 65% brightness. I got about 11 hours myself in regular use.

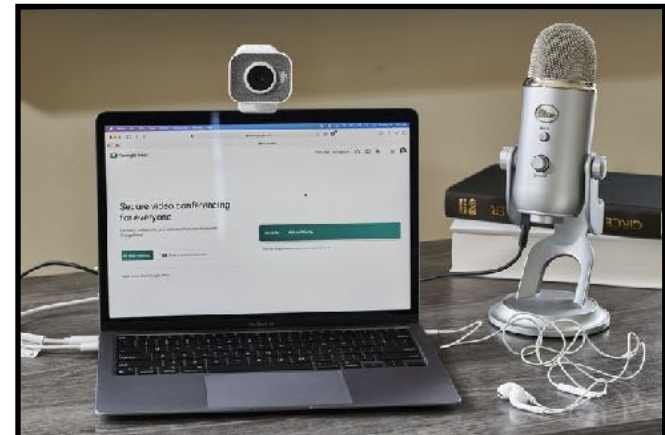


I didn't get as much battery life from the iPad. Apple claims 10 hours on Wi-Fi, and nine hours on cellular. I got just over eight hours on Wi-Fi, and about six on cellular. The M1 is a power-efficient processor, but its benefits are offset by power-hogging 5G and the ultrabright display.

**Extended displays.** While some iPad apps make special use of external monitors, only the Mac can extend its screen across multiple displays. It's true, the iPad Pro now has Thunderbolt compatibility, supporting faster external drives and better monitors, but on external monitors, the connection still only mirrors the iPad's screen.

**Better price.** The MacBook Air starts at \$999, but I'd recommend upgrading to 512 GB of storage, bringing the total to \$1,199. Meanwhile the 12.9-inch iPad Pro begins at \$1,099, but you'll want accessories, like the \$129 Apple Pencil and the \$349 Magic Keyboard. Together, the whole set is \$1,577.

There are less expensive iPad combos: The iPad Air, for instance, starts at \$599 and, with similar accessories, totals \$1,027. But that model doesn't come with the fancy XDR screen or the auto-pan-and-zoom camera software.



**More ports.** The MacBook is better equipped to handle peripherals. The laptop has two USB-C/Thunderbolt ports and a headphone jack. The iPad Pro has no headphone jack and just one USB-C/Thunderbolt port. (The Magic Keyboard adds another port, only for charging.)

**Compatible with more printers.** The iPad only works with AirPrint-enabled wireless printers, while the MacBook can connect to printers through a USB connection as well. (Don't miss this [printer roundup](#) Joanna put together.)

**iOS app compatibility.** The M1 chip is based on the processor that powers iOS devices, so the M1-based MacBook Air is capable of running iOS apps, such as Calm. Developers can restrict Mac access to their apps, however—among the notably missing are Instagram and Duolingo.

**MacOS is more powerful.** An iPad will get you pretty far, but Macs, in general, are more capable. Right now, if you want to run Windows via [Parallels](#), reformat your hard drive or play Steam games, you can only do that on a Mac. We expect Apple to introduce new iPad software features next month, but for now, iPadOS isn't as capable as MacOS.



### So...iPad Pro or MacBook Air?

For many years, the Mac has been the default choice for a certain kind of work. It's got the same screen, keyboard and trackpad setup that's been with us since the '90s. Meanwhile, the iPad is a nearly full-fledged computer with all the added benefits of a smartphone—a touch screen, cellular connectivity and sensors like GPS.

Choosing between the iPad Pro's simplified experience and advanced hardware and the MacBook Air's powerful software and more traditional frame might be your trickiest decision. At least until iPads run the MacOS—or MacBooks grow touch screens.

### Speaker Roster For MLMUG'S 2022 Meetings

January 8	Stan Horwitz- CarPlay
February 12	Bob Barton - Free Apps W/macOS
March 12	Mark Bazrod - M1 Chip
April 9	Aric Pederson - Digital Dreams
May 14	Fran Rabuck - Metaverse
June 11	Keith Johnson - Computerized Astronomy
July	Recess - Summer
August	Recess - Summer
September 10	TBD
October 8	Nick Iacona - TBD
November 12	Gary Rosenzweig - TBD
December 10	TBD

Candice Liu posted following article to [macxdvd.com](https://macxdvd.com) on March 12, 2022. [cutt.ly/QF1KXjn](https://cutt.ly/QF1KXjn). © Digiarty Software. She is a Business President at Digiarty Software in Beijing.

## Apple M1 Ultra/Max Mac Studio vs Intel Mac Pro: Which Wins?

*Summary: Apple's 2022 flagship laptop Mac Studio, powered by M1 Ultra or M1 Max chip, finally comes on the scene. Compared to the 2019 Mac Pro, which one is better, M1 Mac Studio or Intel Mac Pro? Reach to your conclusion after reading the detailed comparison.*

### By Candice Liu

Barring accidents, those who search on Google about Mac Studio vs Mac Pro or are just entering this page are mostly extreme pro users. Cuz extreme pro users like video editors, programmers, music producers, AR designers, 3D modelers needs a large volume of compute power and flexibility. And that's the major reason why they pay close attention to the most high-end yet prohibitive Mac laptops and flock to Apple official website to order top-level Mac Studio or Mac Pro without pain even though they cost them an arm and a leg.

Notwithstanding your budget is ample, you still have to choose one from two, M1 Studio or Intel Mac Pro. Which one is better in general? You can reach your own conclusion after reading the side-by-side comparison.

### Table of Contents

- Part 1. Apple M1 Ultra/Max Mac Studio vs Intel Mac Pro: Design
- Part 2. 2022 M1 Mac Studio vs 2019 Intel Mac Pro: Performance
- Part 3. M1 Mac Studio vs Intel Mac Pro: Ports

- Part 4. Apple M1 Mac Studio vs Intel Mac Pro: Price

### Part 1. Apple M1 Ultra/Max Mac Studio Vs Intel Mac Pro: Design

The difference between Mac Studio and Mac Pro in design varies greatly. As you can see from the below picture, 2019 Intel-based Mac Pro is a full tower computer with carrying handles and feet, while the Mac Studio is a Mac mini-Mac Pro hybrid powerhouse. It's more compact and space-saving, conducive to saving space.



The heat dissipation vastly differs from each other to the naked eye. Until now, we're still not sure if the Mac Studio can perfectly handle the heat dissipation considering the high-end computing power, as well as smaller-sized body.

**Who wins in this round:** even

### Part 2. 2022 M1 Mac Studio Vs 2019 Intel Mac Pro: Performance

As is known to all, the 2022 Mac Studio has two options for processor M1 Max (10-core CPU, 24-core GPU) or M1 Ultra (20-core CPU, 48-core GPU). Well, no 2nd choice, the 2019 Mac Pro features Intel Xeon processor (configurable from 8-core to 28-core) and AMD Radeon Pro GPU. To be more specific, here separately compares two versions of Mac Studio with Intel Mac Pro. Below the data explains everything:

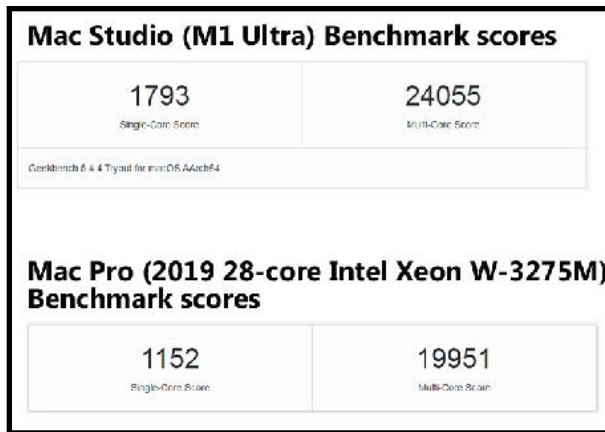
**Performance:** Mac Studio powered by **M1 Max**

- Up to **50% faster** CPU performance than **Mac Pro with a 16-core** Intel Xeon processor.
- Over **3X faster** than Mac Pro with its most popular graphics card AMD Radeon Pro.

**Performance:** Mac Studio powered by **M1 Ultra**

- Up to **90% faster** CPU performance than Mac Pro with a **16-core** Intel Xeon processor.
- Up to **60% faster** than the Mac Pro with **28-core** Intel Xeon CPU processor.
- Up to **80% faster** than Mac Pro with the currently fastest Mac graphics card.

On top of that, benchmark results for Mac Studio (M1 Ultra) and Mac Pro (28-core Intel Xeon processor) speaks more to the performance gap between them. [Check Apple M1 Ultra vs M1 Max/Pro performance](#)



Source from browser.geekbench.com

Based on the Geekbench performance testing scores, M1 Ultra chip used in Mac Studio 2022 gets enhanced up to **56% in**

**single-core performance** compared with Mac Pro Intel 28-core processor. And in terms of multi-core performance, M1 Ultra gets boosted up to **21%** in contrast to Intel 28-core CPU used in Mac Pro (late 2019). Check [geekbench webpage](#) if you wanna know detailed info concerning M1 Ultra benchmark scores.

**Who wins in this round:** Mac Studio

**Part 3. M1 Mac Studio Vs Intel Mac Pro: Ports**

Apple fans gravitate to 2022 Mac Studio also because of the electrifying connections. See the below clear ports comparison and you'll know the difference instantly.

**Ports on Mac Studio:**

- **4 Thunderbolt 4 ports with support for:** Thunderbolt 4 (up to 40Gb/s); DisplayPort; USB 4 (up to 40Gb/s); USB 3.1 Gen 2 (up to 10Gb/s)
- 2 USB-A ports (up to 5Gb/s)
- HDMI port
- 10Gb Ethernet
- 3.5 mm headphone jack



**Ports on Mac Pro:**

- **2 Thunderbolt 3 ports with support for:** Thunderbolt 3 (up to 40Gb/s); DisplayPort; USB-C (up to 10Gb/s)
- 2 USB 3 ports with support for USB-A (up to 5Gb/s)



- 2 10Gb Ethernet ports
- 3.5 mm headphone jack



The connections of 2022 M1 Mac Studio outperforms 2019 Mac Pro, with Thunderbolt ports upgraded from 3 to 4 version and the number also doubles. In addition, Mac Studio has added HDMI port which lacks in Mac Pro.

Besides, the additional connections in Mac Studio also vastly dwarf Mac Pro. Two thunderbolt 4 ports (up to 40Gb/s) plus 1 SDXC card slot are inserted on the front of M1 Ultra Mac Studio while Mac Pro only gets thunderbolt 3 ports, 2 on the top and 2 on the front. Mac Pro has an advantage over Mac Studio in quantity but not the way in performance.

**Who wins in this round:** Mac Studio

#### Part 4. Apple M1 Mac Studio Vs Intel Mac Pro: Price

Apple's 2022 Mac Studio starts at a very-affordable-for-extreme-pros price of \$1999 and accelerates up to roughly **\$8000** if you wanna configurate Mac Studio to the available highest level (with a 20-core CPU, 64-core GPU, 32-core Neural Engine, 128GB

RAM, and 8TB flash storage). Comparatively, Mac Pro is prohibitive, the cheapest one priced at \$6000 and it can skyrocket to a jaw-dropping **\$52,000** with the highest configurations currently available.

To put it simply, now you can just spend 1/3 of the Mac Pro price to bring the entry-level Mac Studio home and 3/20 of the fully-equipped Mac Pro price to bring the top-end Mac Studio home to enjoy the extreme Mac experience. So which one has higher cost performance? I bet you've already had your own answer.

**Who wins in this round:** Mac Studio

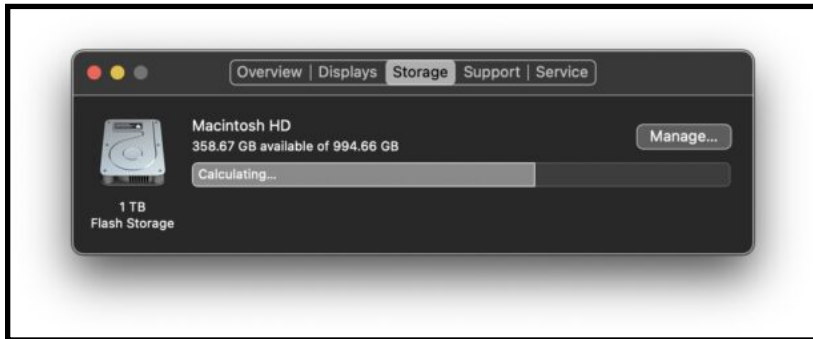
#### Bottom Line

The late 2019 Intel Mac Pro, grounded on the above comparison on performance, ports and price, is at a distinct disadvantage. Yet that doesn't mean that the M1 Max or M1 Ultra chip makes Mac Studio better than Mac Pro in every scenario. Mac Studio isn't user-configurable while Mac Pro does the opposite, offering you with more options to upgrade your Mac Pro. You can configure Mac Pro (Late 2019) CPU processor from 8-core to 28-core, RAM up to 768GB (Mac Studio can't), and combine two Radeon Pro GPUs with 64GB each. Plus, as for the availability, M1 Mac Studio is still in preorder condition, and it's unclear if you can successfully order your desired Mac Studio version. In contrast, Intel Mac Pro is more accessible.

According to Moore's law, the newly released tech product certainly becomes more powerful than the old one. And M1 Mac Studio is stronger than the old 2019 Intel Mac Pro, of course. That being said, Mac Studio is still far from perfection, right? You can now pre-order Mac Studio or wait for the next Mac Pro, since Apple has already promised a new Mac Pro -- as a teaser for a different event. Or, compare Mac Studio more with Mac Mini, M1 MacBook Pro to see if it's your current best option.

The following article was posted to [osxdaily.com](https://osxdaily.com) on April 21, 2021. [cutt.ly/eF0upY2](https://cutt.ly/eF0upY2). © OSX Daily. Try the site. Lots of tips and good info.

## Purgeable Storage Space On Mac: What It Is & How To Free It



You may find a “Purgeable” storage space when looking at disk storage and disk usage in modern versions of macOS, including Big Sur, Catalina, Mojave, Sierra, etc, either within the About This Mac > Storage screen, Disk Utility, or the Storage Management section of System Information.

This curiously labeled disk storage item is similar to the [“Other” storage space on the Mac](#) that many users wonder about, so if you’re curious what purgeable storage space is, and how to free it up to clear it out, then read on.

### What Is the Mac Purgeable Storage?

Purgeable space on the Mac includes a variety of things, ranging from caches, temporary files, backup files, and if you use Optimize Mac Storage, some files and data from iCloud too.

Purgeable space will be cleared out automatically by macOS when the system needs the storage capacity, but it can also be cleared out manually somewhat indirectly by addressing the features that are causing files to be labeled as purgeable.

### How to Clear Purgeable Space on Mac

Remember, Mac OS will clear the purgeable space on its own if the storage capacity is needed.

Other than letting macOS manage the purgeable disk storage on its own, if you want to clear it on your own you can do so by disabling the Optimize Mac Storage setting, and also rebooting the Mac.

Before using any of the tips below, you should [backup your Mac with Time Machine](#) just in case.

### Use Time Machine? Backup the Mac

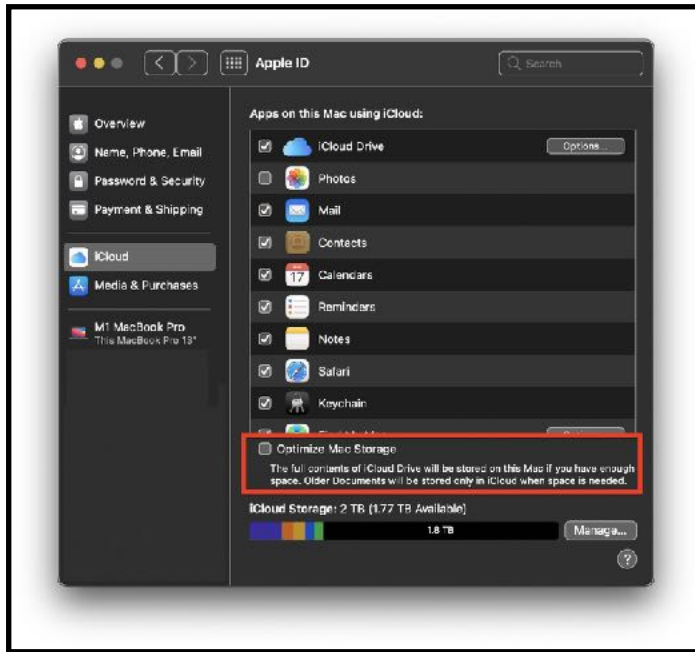
If you use Time Machine but haven’t backed up recently, say because the backup disk is disconnected from the Mac, then [backing up the Mac with Time Machine](#) may clear out a significant amount of “Purgeable” space.

This doesn’t always work, but if that purgeable storage space includes Time Machine snapshot data, then letting a backup complete will often clear that space.

### Disabling Optimize Mac Storage

[Turning off Optimize Mac Storage](#) has consequences for data stored on iCloud, but it can also remove or clear the “Purgeable” storage space on a Mac (keep in mind the data is being downloaded to the Mac, so you’re not necessarily freeing up space, simply reallocating it).

1. Open System Preferences from the Apple menu
2. Choose your Apple ID or iCloud settings
3. Uncheck the box for “Optimize Mac Storage” (on earlier MacOS versions this setting is within iCloud Drive settings)



4.


This will require the Mac to download files from iCloud to the local disk.

Of course if you use Optimize Mac Storage you won't want to disable this.

## Reboot MacOS

Rebooting the Mac [clears out temporary items, tmp files, and many caches](#), which is stuff that macOS also considers to be purgeable. Typically this stuff is much smaller than data from iCloud however, so you may not see as big of a drop in the size of the purgeable space.

Nonetheless, [rebooting the Mac](#) is simple and will typically reduce the purgeable storage that comes from temporary files and caches.

Go to the  Apple menu and choose "Restart".

BTW, if you're going to restart the Mac anyway, it's also a good time to install any available system software updates, like point releases and security updates.

## Empty the Trash

Simply emptying the Trash Can may free up space allocated as "Purgeable" in some situations, particularly when the files are temp or cache files from an app.

## Other Methods to Clear Purgeable Disk Storage on Mac

Since Purgeable disk space is storage the Mac has determined can be cleared out when needed, simply using the Mac will typically cause the purgeable storage capacity to change (both growing and shrinking).

[Manually clearing caches and temporary files](#) can sometimes reduce the purgeable space.

Sometimes quitting apps with heavy iCloud storage can reduce the purgeable space too, for example.

There are mixed reports of [turning off iCloud Desktop & Documents](#), and even disabling iCloud Drive decreasing the purgeable storage, but that's not desirable if you use iCloud Drive or the iCloud Documents & Desktop features.

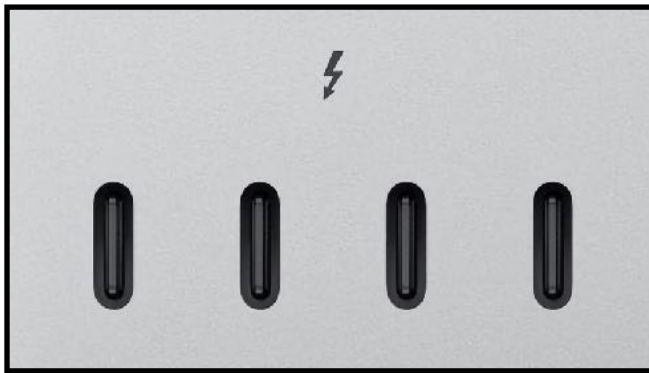
Some users have found that emptying the Trash can clear out Purgeable disk space, particularly if the Trash can has grown to be extremely large, or filled with temporary files from an app.

Some third party apps also offer to clear caches and temp files from the Mac, but rarely is that needed.

Kirk McElhearn posted the following article to [intego.com](https://intego.com) on April 19, 2022. [cutt.ly/iF5wv5R](https://cutt.ly/iF5wv5R). © Intego. He is a Senior Contributor to *Macworld*, a contributor to *TidBITS*, *The Loop Magazine*, and other publications. He has written numerous *Take Control eBooks*.

## USB-C and Thunderbolt: Understanding Ports and Cables for Macs and iPads

By Kirk McElhearn



The ports that you use to connect keyboards, mice, and hard drives to your Macs have changed over the years. Current Macs have USB-C, which provide standard USB speeds, along with faster Thunderbolt to compatible peripherals. But what's the difference between USB-C and Thunderbolt ports, and how can you tell them apart? And which cables do you need to get the most out of them?

In this article, I'm going to explain what Thunderbolt and USB-C ports are, how to identify them, how they work, which features they offer, and how to choose the right cables for your needs.

### In this article:

- A brief history of Mac data transfer ports

- What's the difference between USB-C and Thunderbolt ports?
- How to choose the right cable?
- Don't forget dongles, adapters, and hubs...
- How can I learn more?

### A Brief History of Mac Data Transfer Ports

The history of personal computing has been marked by a series of milestones in data transfer capabilities. The earliest Macs could connect to cassette decks at paltry speeds. The 1983 Lisa had a serial port; this was long standard on computers to connect to peripherals. It also had a parallel port, to connect to a printer.

The Macintosh Plus added a SCSI port in 1986. This **small computer system interface** was a lot more flexible: it had faster throughput than previous ports, and you could daisy-chain devices. Mac users lived with these limited options until 1998, when the iMac added USB ports. The first USB ports were slow, but this was a revolution.

In late 1999, the first iMac with FireWire (also known as IEEE 1394) was released, although you could add a FireWire card to some Macs before then. This was the first taste of fast (for the time) data transfer on Macs. The FireWire 400 port ruled for years, and was supplanted by FireWire 800.

The numbers 400 and 800 indicated speeds in megabits per second, abbreviated Mbps. Note that data transfer speeds are usually measured in bits—not bytes—per second. One bit is one-eighth of a byte, so a 400 Mbps interface implied that you could theoretically transfer a 50 MB (megabyte) file in about a second (real-world speeds were somewhat slower, however).

Although USB 2.0 had a theoretical speed of up to 480 Mbps, FireWire was still faster at sustained data transfer.

FireWire ruled until USB 3 was added to Macs in 2011. This protocol provided data transfer rates of up to 5 Gbps (gigabits per second), and the ability to send data to displays. (Note that 1 Gbps is equivalent to 1,000 Mbps.) At the same time, Macs started including Thunderbolt ports, with 10 Gbps throughput. Thunderbolt 2 came along in 2014, with up to 20 Gbps, and Thunderbolt 3, in 2017, offered up to 40 Gbps. Today's Thunderbolt 4 maintains that throughput, but adds other features, notably to connect more displays and provide high power to charge devices.

The first two iterations of Thunderbolt used ports with a non-reversible connector, in the shape of the old Mini DisplayPort. Thunderbolt 3 and 4 eschewed their former shape in favor of modern USB-C shaped ports with reversible connectors.

## What's the Difference Between USB-C and Thunderbolt?

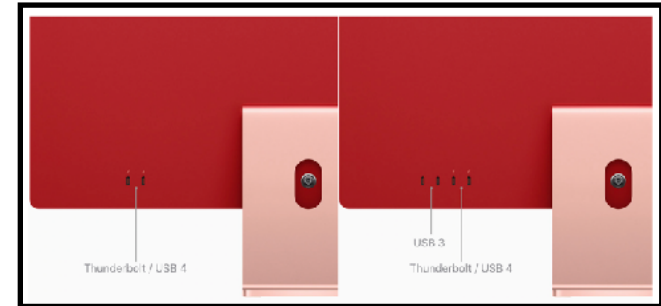
Since Thunderbolt 3, the Thunderbolt protocol now uses USB-C style ports and cables. And that can be a problem; it's confusing to have different but related technologies that share the same connector.

You used to know that if you could connect a USB cable, it would be able to transfer data at the speed of the USB interface. USB-C cables are different: some transfer more or less data, some also send power, at varying wattages, and some are actually Thunderbolt cables, supporting all of that protocol's features.

And, by the way, the USB standard is now up to USB 4, which provides up to 40 Gbps throughput just like Thunderbolt 4.

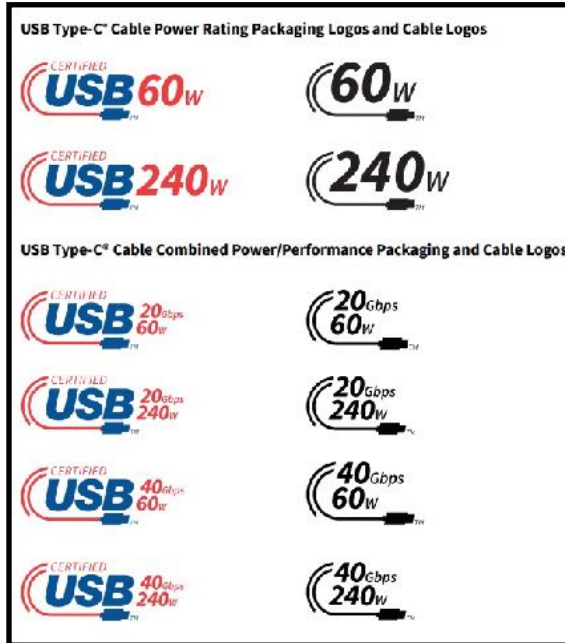
The now ubiquitous USB-C port comes in many versions. Here's an example of the current 24" iMac. The less expensive model, at the left, has two ports, both Thunderbolt / USB 4. The more expensive model has four ports, two of which are only USB 3.

You can tell these ports apart by the small Thunderbolt symbol above them, but, in practice, since you may not be able to easily look behind your Mac, you have to remember that, on the four-port iMac, that they're the ones furthest from the edge.



I mentioned the different data transfer speeds above, but there's another factor to consider: how much power these ports provide. USB 3 and 4 ports can send from 4.5 W to 240 W, and Thunderbolt 3 and 4 can send 15 W, with Thunderbolt 4 providing one 100 W port on a computer. And this is bi-directional; you can charge a laptop by connecting a USB-C cable from a charger, and you can power peripherals, such as portable hard drives, using power from the laptop. You think this is confusing? Have a look at this USB-C cable logo chart.

All USB-C cables, regardless of their data throughput and power rating, look alike; there's no way to tell, when you look at a cable, what it is capable of. Manufacturers are starting to add logos, similar to the ones above, to cables, but I bet you probably have a lot of USB-C cables already without logos. For example, if you see something described as a "charging cable," then it's not rated for data throughput. And some cables that are designed to send and receive data may only support low power levels.



And I haven't even touched on using these cables with a display; while some displays can work with USB 3 connections, it's more likely that a high-resolution display will require Thunderbolt. For example, to connect to Apple's new Studio Display, you need a Thunderbolt 3 cable or better; this is, in part, because the display also provides 96 W power, so you can, for example, connect a MacBook Pro and use the display while charging the laptop.

### How To Choose the Right Cable?

It can be confusing to choose the right USB-C cable. If you need a Thunderbolt cable, it generally has the Thunderbolt logo, so you can be sure that it supports this protocol, but not at which speed. Thunderbolt cables also deliver power, though different cables will provide different wattages. While Apple's cables are more expensive than those of other manufacturers, you can't

really go wrong if you buy a Thunderbolt cable from Apple. The specs are clear, so you know what you're getting.

For plain USB-C, it's a bit different. If you have a recent iPad, and still sync content from your Mac, then you know that it's quite slow. This is because the charging cable Apple provides only goes up to 480 Mbps. If you sync often, you should get a cable that provides both power and better data throughput. The same is the case for the USB-C to Lightning cable that Apple provides with iPhones, though the lightning protocol doesn't offer higher throughput.

With more recent USB-C iPads, you can transfer data faster, even at Thunderbolt speeds, but you'll need to buy a cable that supports these higher speeds; Apple doesn't include one in the box. Since Thunderbolt cables are backwards compatible with older USB standards, it's a good idea to buy one of those, which you'll be able to use, in the future, with other devices, rather than navigate the confusing array of cables available. It's more expensive, but you know it will work. You can buy Apple's cable, or cables from a number of familiar, trustworthy brands, such as Anker, CalDigit, OWC, etc.

### Don't Forget Dongles, Adapters, and Hubs...

For many people, the ports on their Macs aren't enough. With only two ports on the entry-level iMacs and laptops, and still just four on the more expensive models (with the exception of the Mac Studio), it doesn't take long before you need more. You can use a Bluetooth keyboard and mouse, but if you have other peripherals for interacting with your computer, such as a graphics tablet, that's one port used. Do you use an external hard drive to store files or back up your data? That's another port. And if you want to keep a cable connected to your Mac to charge your iPhone or iPad, that's another one. These few ports get used up quickly.

In addition, it's likely that many of your peripherals are not USB-C, but rather USB-A (the standard flat connector), requiring dongles to make the conversion. In general, dongles shouldn't affect the speed or power going through the cables, but some may. If you need a USB-C to USB-A hub, make sure it supports at least USB 3.0, and preferably USB 3.2 (though this is only really necessary if you connect disks to the hub).

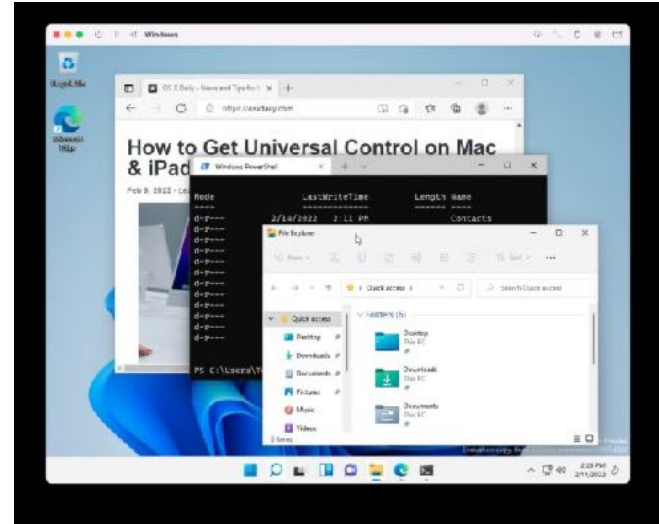
There are also a number of hubs that split out a single thunderbolt cable into as many as a dozen ports or more. These hubs often have a wide variety of ports, not all of which will be useful. For example, CalDigit's Thunderbolt Station 4 offers 18 ports, including five USB-A for older peripherals, an Ethernet jack, audio in and out jacks, a display port, and two SD card slots, along with four USB-C ports. Devices like this are a great way to extend your Mac, though they are expensive, and you will likely not use all the ports on the device.

With every change to the connections we use with computer peripherals, there are difficulties adapting. After a wide array of plugs and jacks, it looks like USB-C is here to stay, at least for a while. The fact that this plug can handle both USB and Thunderbolt, and offers backwards compatibility, means that it should be easier to manage over the years. For now, however, you probably have plenty of peripherals that don't use USB-C, and depend on hubs and dongles, but over time, you'll be able to use all your external devices with this type of plug.



The following article was posted to osxdaily.com on April 14, 2022. [cutt.ly/CF5gKXO](https://cutt.ly/CF5gKXO) © OSX Daily. **EDITOR - I and others had real difficulty trying to do this. I finally gave up. See 38 Comments on OSX Daily site.**

## How to Run Windows 11 on M1 Mac, for Free



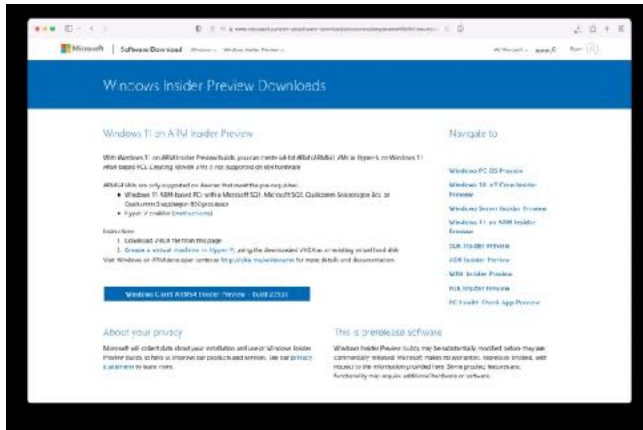
If you want to run Windows 11 on your M1 Mac, you can now do that, and perhaps best of all, you can run Windows 11 in a virtual machine on the M1 Mac entirely for free.

We'll be covering how to install, setup, and run Windows 11 ARM on any Apple Silicon Mac, whether it has an M1, M1 Pro, M1 Max, M1 Ultra, or any other M chip does not matter, it will work just fine thanks to the UTM app.

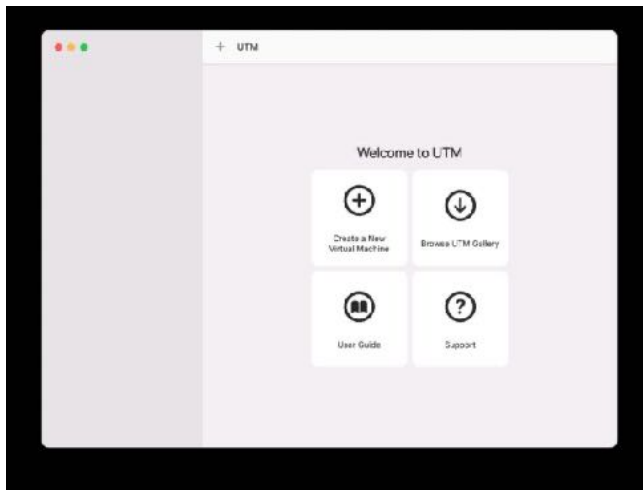
Note this particular walkthrough is geared specifically for Apple Silicon Macs. Intel Macs offer many other ways to run Windows 11 in virtual machines like [within VirtualBox](#), VMware, Parallels, etc.

## How To Run Windows 11 ARM on any M1 Mac

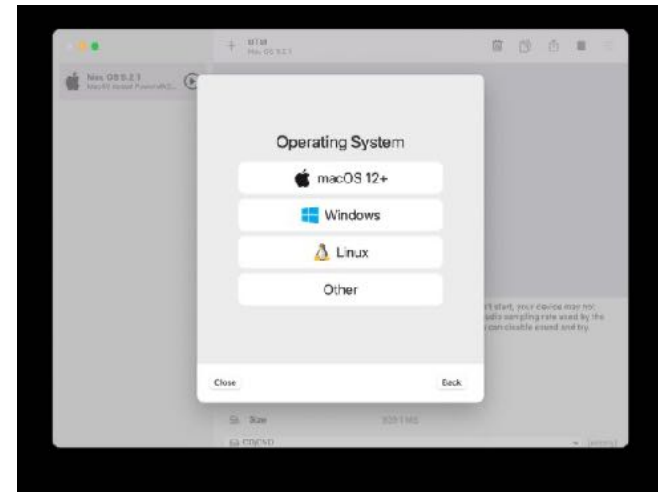
1. [Download the UTM app for free](#), it's a virtualizer and emulator application, and drag to the Applications folder to install it on the Mac
2. Download the Windows 11 VM for ARM free [from Microsoft here](#) (you will need a Windows Insider login for this, which is free to sign up for if you don't have one already)



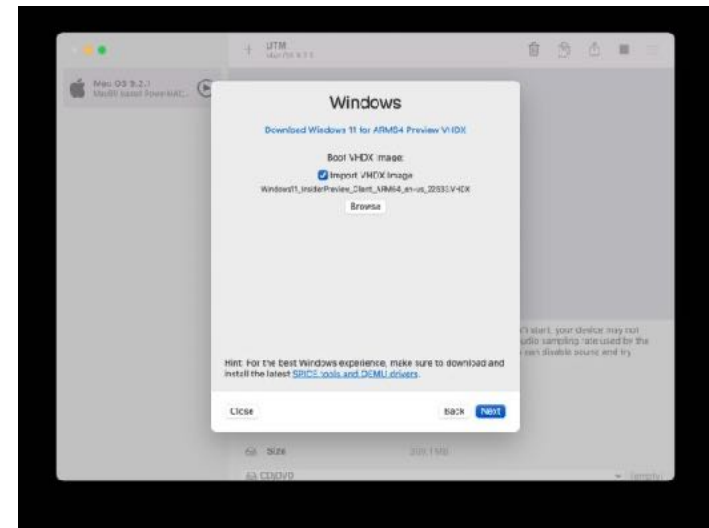
3. Open UTM on the Mac, then click the + plus button to create a new virtual machine



4. Choose "Virtualize" from the 'I Want to' screen, then select Windows

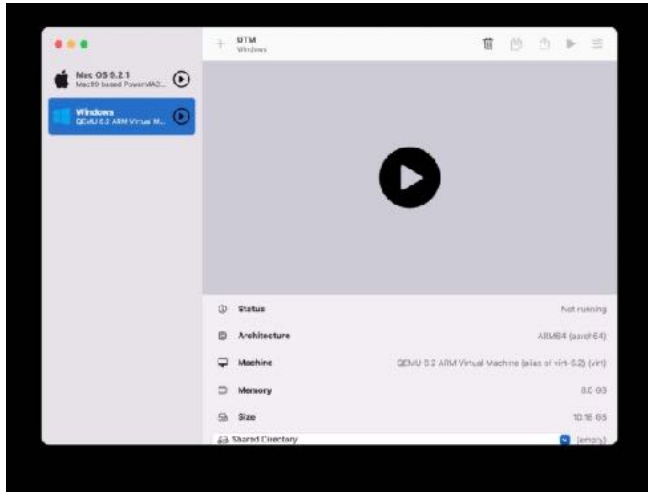


5. Click the "Browse" button and select the Windows 11 VHDX ARM image you downloaded, with "Import Image" selected, then click Next



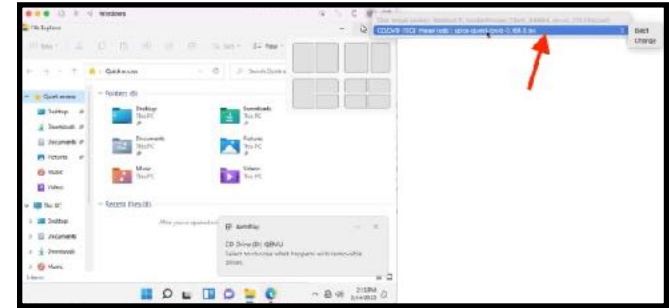


- 6. Choose the amount of RAM and CPU cores you want to designate to Windows 11 (recommend to give 8GB RAM or more for better performance), then click Next again
- 7. At the Summary screen, choose “Save”
- 8. Now click the big Play button to boot the Windows 11 VM and begin setup

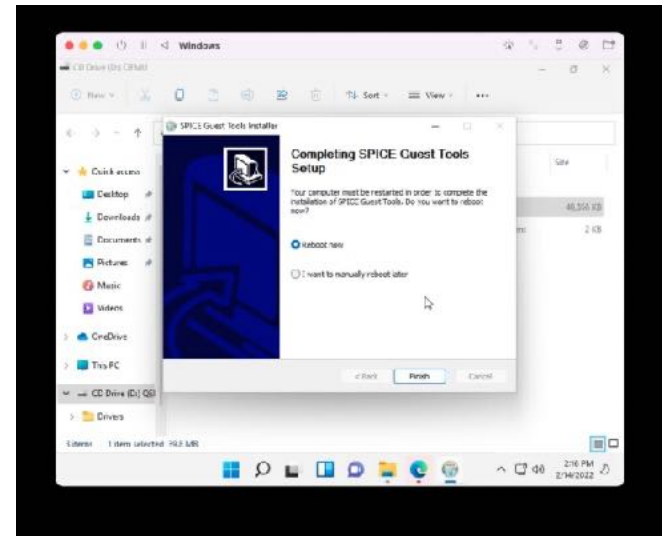


- 9. Walk through the Windows 11 setup process as usual, choosing your region, account name, etc – Note that networking and internet will not work yet, that takes an additional setup process which we’ll cover in a moment – thus choose that you have no network connectivity for now and let Windows 11 set itself up
- 10. Wait a few minutes and Windows 11 will launch running in the VM on the M1 Mac
- 11. To get internet access working in the Windows 11 VM, [download the SPICE Guest Tools ISO here](#) from the UTM website

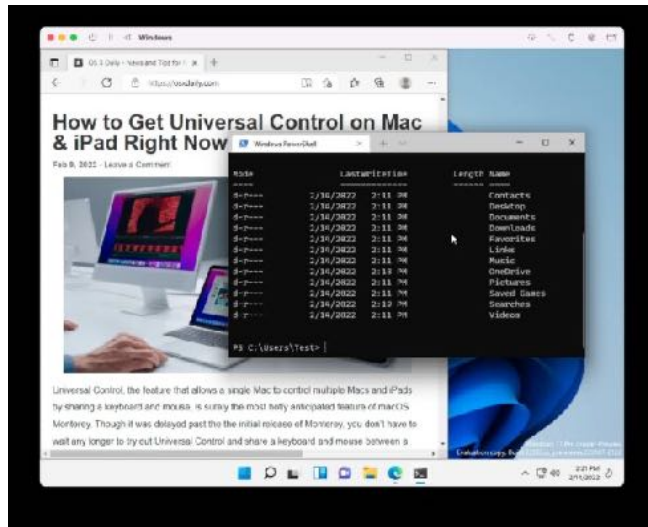
- 12. In the active Windows 11 VM, click the disc icon in the toolbar and choose CD/DVD Iso > Change > and select the spice-guest-tools-xxx.iso file you just downloaded



- 13. Open the mounted D:\ drive in Windows Explorer, then run the SPICE Guest Tools installer in Windows, then restart the VM when installation is finished



- 14. The VM will reboot and Windows 11 will now be connected to the internet, confirm this by opening up the Edge browser and visiting a fantastic website like [osxdaily.com](https://osxdaily.com)

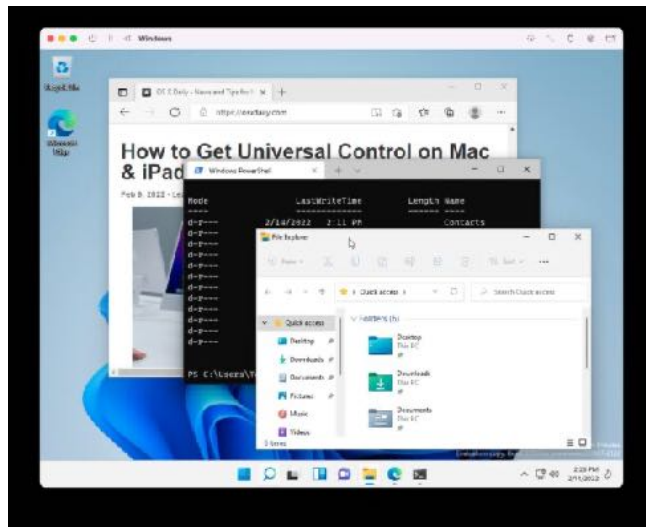


Windows 11 ARM runs pretty well on a Mac, though performance with UTM may not be quite as good as some of the other virtualization tools you've become accustomed to elsewhere. But as a free solution that is simple to setup, this is more than workable and usable.

If you enjoyed this article and the idea of running different operating systems atop your existing MacOS operating system, you'll probably appreciate [other virtual machine topics and operating systems that we've covered before](#).

15. And there you have it, you're running Windows 11 ARM on a Mac with an Apple Silicon processor.

Remember, you must install the SPICE guest tools to have internet access available in the Windows 11 virtual machine, and without it you will not be able to get the virtual machine online.



Denise Primbet posted the following article to [tomsguide.com](https://tomsguide.com) on March 15, 2022. [cutt.ly/wFpOmBy](https://cutt.ly/wFpOmBy). © Toms Guide. She is Life Reporter at Newsweek, covering everything lifestyle-related. She was formerly a news writer at Tom's Guide.

## Torn Between New iPhone SE And iPhone 13? Apple Has an Alternative

Apple now offers refurbished iPhone 12 and iPhone 12 Pro models for a discount price

By Denise Primbet



[iPhone SE 2022](#) pre-orders only recently went live, but if you still can't decide between Apple's newly announced budget-friendly phone and other iPhone options, you might want to consider opting for the refurbished [iPhone 12](#) instead.

That's because Apple has just begun selling refurbished versions of the iPhone 12 and the [iPhone 12 Pro](#) to its U.S. customers for the first time since the models were unveiled two years ago. It's worth noting that Apple doesn't offer the refurbished versions of the [iPhone 12 mini](#) and the [iPhone 12 Pro Max](#) yet, but it's possible that they will become available in the near future.

You can pick between a wide range of iPhone 12 color options, including Green, Blue, White, Black, and even the newest addition: Purple. And as for the iPhone 12 Pro, you can opt for either the Pacific Blue, Gold, Graphite or Silver models.

Storage-wise, you can choose between different configurations (64GB, 128GB and 256GB for the iPhone 12) and (128GB, 256GB and 512GB for the iPhone 12 Pro). Overall, you'll get the [refurbished iPhone 12 for up to \\$130 cheaper](#).

There are a couple of reasons why getting the refurbished iPhone 12 over the newly announced iPhone SE might be a sensible option.

First of all, you might get the refurbished iPhone 12 a lot faster than the iPhone SE. Apple opened pre-orders for the iPhone SE last Friday, and the phone won't officially release until March 18. Plus, we've just recently reported that [iPhone SE pre-order delivery times have just slipped to late March](#), so users who have placed their pre-orders won't get their hands on their new phones until at least March 28.

Given that the [iPhone production could be hit by new COVID-19 lockdown in China](#), it's also possible that new iPhone orders could be affected.

Meanwhile, the refurbished iPhone 12 could arrive to your doorstep as soon as tomorrow with express delivery. But even if you opt for the standard delivery, you can still get it by this Friday.

Despite its two-year age, the iPhone 12 still has a few advantages even over the A15-powered iPhone SE. Let's break down the most notable differences, starting with the display. The iPhone SE 2022 packs a 4.7-inch LCD display, meanwhile the iPhone 12 offer a bigger 6.1-inch OLED display.

Secondly, the iPhone 12 also features a more advanced dual-lens rear camera system that sports a 12MP wide lens and a 12

MP ultrawide lens. Plus, the 12MP front camera also gives the iPhone 12 the advantage over the iPhone SE's 7MP lens. Of course, we have to award another point to the iPhone 12 for its upgraded design, which is a step-up from the iPhone SE's arguably dated look. Unlike the iPhone SE, the iPhone 12 features an all-screen design with flat edges and significantly thinner bezels.

In our [iPhone 12 vs. iPhone SE 2022](#) face-off, our managing editor Philip Michaels concluded that "as good as the iPhone SE is, you'd have to acknowledge that the iPhone 12 models are superior in nearly every way, from design to performance to cameras."

Price-wise, an unlocked 128GB iPhone SE is \$479, so \$180 cheaper than a the refurbished version of the 128GB iPhone 12, which will cost you \$659. But there's an argument you're getting a a lot more for the extra cash. And considering that any refurbished Apple models usually undergo rigorous checks prior to sale and the fact that you'll also get a one-year warranty, we'd say that this offer is definitely worth considering.

## Some Speaker Roster Details

January 8 - Stan Horwitz - Long-time MLMUG member.

February 12 - Bob Barton - Long-time MLMUG member. Presenter, Newer Users SIG Co-Chair, & Webmaster.

March 12 - Mark Bazrod - Long-time MLMUG member. Presenter. Secretary and Newsletter Editor

April 9 - Aric Pederson - PMUG's President

May 4 - Fran Rabuck - Technology/Strategy Research Analyst, Visionary Communicator and Futurist

June 11 - Keith Johnson - Computerized Astronomy.

September 10 - TBD

October 8 - Nick Iacona. Long-time MLMUG member and Expert Panel Member.

November 12 - Gary Rosenzweig - Producer and host of MacMost,

December 10 - TBD

For a better understanding of password managers, read Josh Centers' article in TidBITS, *Moving from 1Password to KeePass*. [cutt.ly/9FJ1vVT](https://www.tidbits.com/articles/2022/05/09/9FJ1vVT).

Mark Ellis has a very favorable review of the iPad mini 6 with a Paperlike screen protector [cutt.ly/eFCodfz](https://cutt.ly/eFCodfz). Great for people who do a lot of note taking and jotting with Apple Pencil 2. .

Rachel Melegrito posted the following article to [makeuseof.com](https://makeuseof.com) on April 5, 2022. [cutt.ly/OF6rHS1](https://cutt.ly/OF6rHS1). © MakeUseOf. She is a full-fledged content writer. She loves anything Apple. She is also a licensed occupational therapist and a budding SEO strategist.

## How to Easily Share Your iPhone's Audio to Two Sets of AirPods or Beats

Share audio to two sets of wireless headphones from your iPhone with this tip.

By Rachel Melegrito



If you've got some pretty good music or a movie to share with a friend and don't want to disturb the people around you, listening through your AirPods is the best way to go. However, listening through a single earbud may ruin the experience. The good thing is you don't have to share a single set of AirPods.

If you have second set of AirPods, or other compatible headphones, you can share audio from your iPhone with a friend. Here's how the iPhone's Share Audio feature works.

### What Is Share Audio?

Share Audio is an iPhone feature that allows you to share your iPhone's audio content with multiple sets of Bluetooth headphones—to be specific, it works using AirPlay.

While that's pretty good news, there are some caveats. This feature only works through compatible headphones, which include:

- AirPods Max
- AirPods Pro
- AirPods (1st generation) and newer
- Powerbeats
- Powerbeats Pro
- Solo Pro
- Beats Solo 3 Wireless
- Beats Studio3 Wireless
- BeatsX
- Beats Flex
- Beats Fit Pro

You can enjoy the feature as long as you're using an iPhone 8 or a newer model. However, it should be running on iOS 13.1 or later. There's a similar feature for Mac that allows you to listen through two pairs of headphones. What's different is that you can [use any two pairs of headphones to listen to audio on your Mac](#).

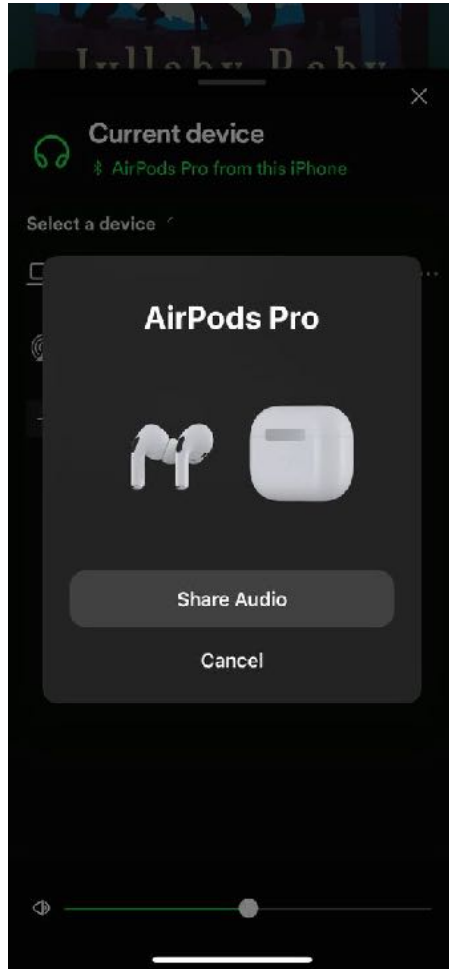
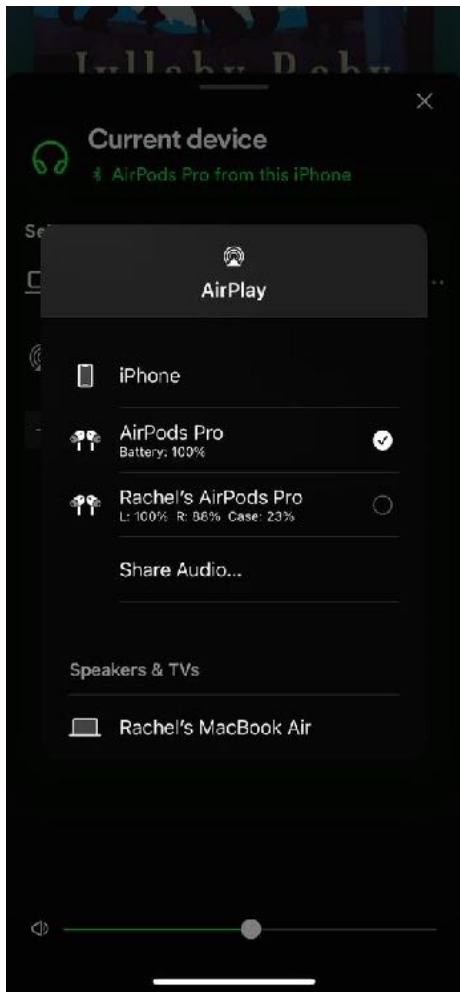
### How to Share Audio on Your iPhone

If you and your friend both have compatible wireless headphones, and you have an iPhone that supports the feature, here's how to begin sharing your audio:

1. Connect your headphones to your iPhone.
2. Tap the **AirPlay** button from your iPhone's Control Center. You may also see this option on certain apps, such as the Music app.
3. Tap **Share Audio**.
4. If your friend is using AirPods or AirPods Pro, ask them to hold their headphones near your iPhone while inside the

case with the lid opened. If they have AirPods Max, just ask your friend to bring them near your iPhone. For Beats, ask them to put their headphones in pairing mode, then move them close to your iPhone.

5. Wait for their headphones to be detected by your phone. Tap them once they appear on the screen.



## How To Manage Audio in Shared Audio

If you and your friend have different volume preferences, you can manually adjust the volume for each set of headphones from your Lock Screen or in the Control Center. Just drag the volume slider for each of the headphones shown on your iPhone.

If you want to stop sharing, you can go to the Control Center, the Lock Screen, or the app you're using. Then tap the checkmark beside the headphones you want to stop sharing your audio with.

You'll need to pair those headphones again if you want to use Share Audio again.

## No Wires, One Source, Same Audio Goodness

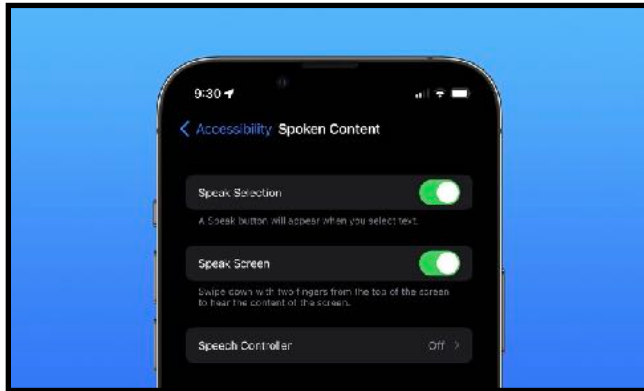
You no longer need to sacrifice the audio quality of the music or movie you're enjoying just because you want to give one of your earbuds to a friend. With Share Audio, you and your friend get a complete listening experience by each using your own wireless headphones from the same iPhone.



D. Griffin Jones posted the following article to [cultofmac.com](http://cultofmac.com) on April 11, 2022. [tinyurl.com/y55t5cb6](https://tinyurl.com/y55t5cb6). © cultofmac.com. He is a writer and marketer with computer science degree.. Griffin writes How To articles and Apple Event coverage for Cult of Mac in addition to his personal blog, Extra Ordinary.

## Make Your iPhone Read Text Out Loud

By D. Griffin Jones



Your iPhone can read text from websites and iMessages (and even words in photos). Here's how to make it happen.

The iPhone is renowned for its many accessibility features. [Accessibility settings](#) can make text on the screen bigger, buttons easier to identify, animations less jarring and sound easier to hear.

An accessibility feature that is useful for everyone is Spoken Content. You can have your phone read out loud anything you have on-screen. This feature was designed for people who have trouble reading small text, but you will find it handy even if you don't — in lots of situations.

You can have recipes read to you while your hands are busy cooking, quickly hear how to pronounce a word you don't know

— that's what I use it for most of all — and more. You can even hear what you're typing as you write.

Here's how to turn on Spoken Content.

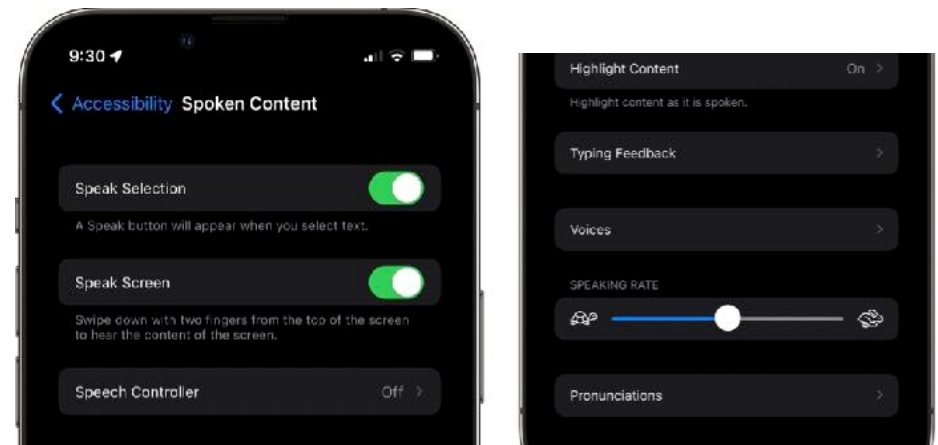
### Why Have iPhone Read Text out Loud?

Even if your vision is perfect, you might want to have your iPhone read to you in situations where it's convenient. Since dictation continues if you switch to a different app, you can open a long article, start dictation and switch to a game or social media as your device reads to you.

Some writers use dictation to hear their writing spoken back to them in a different voice, which can help them identify awkward phrasing, grammatical mistakes or phrases that are repeated too many times.

Of course, hearing words and letters as you type can be useful, too. It can help kids who don't know how to type write faster. It can help people who are not good at spelling hear their mistakes. And it lets people with poor vision hear what they are writing.

Try it out and leave a comment below if you find something else it's useful for.



### How To Make Your iPhone Read Text out Loud

In **Settings > Accessibility > Spoken Content**, you can enable **Speak Selection** and **Speak Screen**. Dictation uses the same voice you use for Siri, but you can tap **Voices** to pick a different one. (You also can change Siri's voice by going back to **Settings > Siri & Search > Siri Voice**.)



After selecting text on websites, iMessages or in Photos, tap "Speak" to hear it read out loud.

### Read Selected Text

Wherever you are, you can tap and hold to select text, then tap **Speak** from the pop-up menu. You can select text from websites and apps, iMessages and even printed words and handwriting from pictures in your photo library.



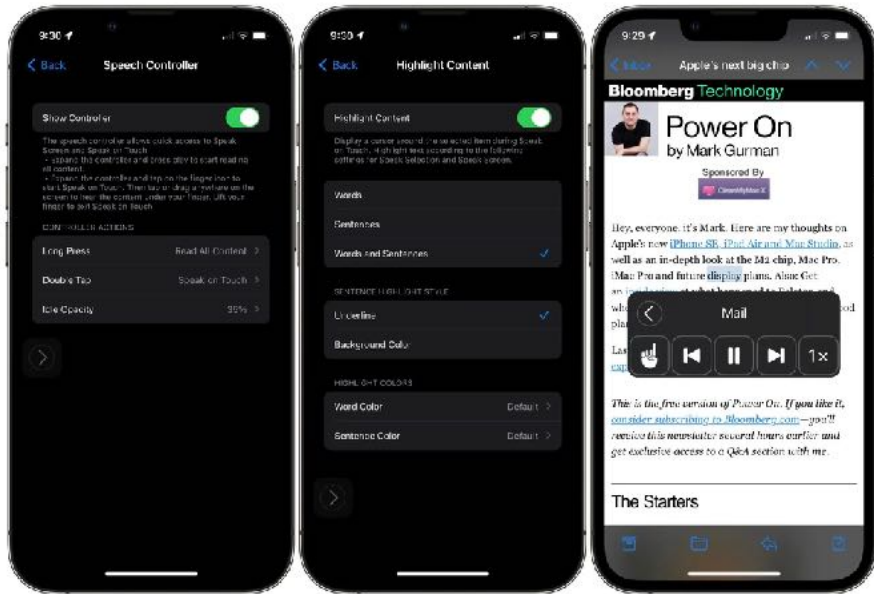
Swipe down with two fingers to read an entire article in Safari, all the text in a Photo or an entire iMessage conversation.

### Read the Entire Screen

To speak the entire contents of the screen, swipe down from the top of the screen with two fingers. This gesture can take some practice to get right — swipe down from the center, a little bit below the notch.

When you activate it, your phone will dictate a full article in Safari, an entire iMessage conversation, all of the text in a picture and more — and you don't have to select anything first. A control will appear on-screen where you can change the dictation speed, pause, and skip forward or backward. Your phone will continue reading to you even if you switch to a different app.





*Turn on the Speech Controller to access the Speak Screen feature all the time. Turn on Highlight Content to keep your place as it is reading to you.*

### Leave the Speech Controller on all the Time

If you have a hard time doing the swipe-down gesture and you want to read the entire screen on a regular basis, you can keep the Speech Controller on-screen all the time. Go back to **Settings > Accessibility > Spoken Content > Speech Controller** and turn on **Show Controller**. It won't get in the way — you can make it transparent by setting the **Idle Opacity** and you can move it out of the way by dragging it around.

### Highlight Words as They're Read

If you have trouble following along with the dictation, you can go back to **Spoken Content > Highlight Content** and turn on **Highlight Content**. The text will be highlighted as your

iPhone read it, so you can keep your place. You can even change whether to highlight or underline the current sentence or word.

From my testing, this feature makes scrolling up and down a long page pretty buggy. It might get stuck or prevent you from scrolling if you interrupt the dictation.



*Typing Feedback will read words back to you as you type anywhere you can enter text.*

### Hear Words as You Type

If you want to hear what you're typing, go back to **Spoken Content > Typing Feedback**. Turn on **Characters** to hear every letter. Turn on **Speak Words** to hear full words. **Speak Auto-text** will tell you when Autocorrect corrects your spelling, like capitalizing "I" or fixing grammar. **Hold to Speak Predictions** will let you tap and hold on the predictive text bar to hear suggested words; slide your finger left and right to hear the other suggestions read.

*D. Griffin Jones posted the following article to his personal blog, Extra Ordinary, on April 20, 2022. [utt.ly/LF5Y8Q2](http://utt.ly/LF5Y8Q2). He is a writer and marketer with a degree in computer science.. Griffin writes How To articles and Apple Event coverage for Cult of Mac.*

## Dilbert's Home Computer

**By D. Griffin Jones**

Even a comically expensive computer from January 2000 is pretty boring now.

At a time when adult cartoon sitcoms were absolutely blowing up — King of the Hill, South Park, Family Guy and Futurama all debuting between 1997 and 1999 — the **Dilbert TV series** launched to little fanfare, ultimately lasting just two seasons and thirty episodes.

I have mixed feelings about the series. Some of the humor is still truly excellent. Executive Producer Larry Charles was coming off of his instrumental work on Seinfeld and would go on to produce **Curb Your Enthusiasm** and **Entourage**. The voice cast (and guest stars) are stellar. Scott Adams, however, has taken up some **truly bizarre political stances** that make me glad the series went out when it did.

### Dilbert's Computer

In my personal favorite episode “The Return,” aired February 22, 2000, Dilbert orders a new computer online.

This was a pretty novel experience in the year 2000. Only a few years before, Apple had been outdone by their licensed partner, **Power Computing**. They were the first to create a totally online build-to-order store that was beating Apple at their own game through a lean supply chain. To make a long story short, Steve Jobs punched back by pulling the plug on the entire licensing program and building Apple's own online store the next year.

Dilbert's experience in the episode, of course, goes comically poor as he has his credit card information stolen, receives the wrong order thanks to a negligent delivery person and cannot get in contact with a human capable of processing a return. This much has aged like a fine wine.

What has aged less well is that Dilbert pays \$27,000 for a computer described as such:

*“It's got redundant RAID drives, 4 terabits each, 3 millisecond access time; built-in DSL, wireless game ports, flat panel 30-inch monitor...”*

*“Truly you have ordered the finest home computer known to mankind.”*

We can see that Dilbert's current computer is, funnily enough, a **Mac of some kind** based on the desktop icons, the menu bar and the Mac OS scrolling sound effect (although the yellow tab-style titlebar screams **BeOS**).

### Could You Order Such a Mac in January 2000?

The priciest spec Dilbert lists is the four terabit (or, 2× 500 GB) RAID array. Hard drives were **\$10 per gigabyte** in the year 2000, so the storage would be \$10,000 — plus \$150 for **the software** to manage it. The most offensive part of this line is that saying “redundant RAID drives” is itself redundant as RAID stands for Redundant Array of Independent Disks.

“Access time” is a formerly relevant unit of measurement referring to the disk speed. Calculating access time gets **extremely complicated very fast**, but in short, a high-end hard drive could feasibly reach 3 ms.

Adding an **AirPort card** to a Mac cost \$99. I'm not sure what the “wireless game ports” Dilbert is referring to are, but wireless USB game controllers existed at the time.

Apple's only flat panel display at the time was the **15" Studio Display**; they would not make a flat-panel 30" display until **four years later**. But one could certainly buy four of them and arrange them in a square for a 30" experience at a grand total of \$8,000.

Add these to the high-end \$3,500 Power Mac G4 and we're only up to \$21,749, but that's before we add in RAM, peripherals and sales tax. It seems pretty likely a computer with these specs from January 2000 could reach \$27,000. A+ for accuracy.

### What Would Such a Modern Mac Cost?

We can easily upgrade to 1 TB of internal storage on even the cheapest Mac for sale today, the \$699 Mac mini. Hell, you can even order 1 TB of storage on an iPhone. Flash storage would also prove a hearty upgrade from the spinning disks in his machine.

While we don't hear Dilbert say how much RAM he ordered, today's base model Mac far exceeds the maximum amount of RAM one could order on any Mac of the time.

Yes, every Mac comes with Bluetooth for wireless game controllers — and, while we're at it, internet access.

Of course, as I have **covered extensively**, a flat panel 30" monitor can be had for as little as \$300.

A Mac mini with these specs adds up to a hardly whopping \$1,400, a far cry from \$27,000. Not much has changed, though. Today, \$27,000 will **still get you** something that's obsolete within two years.

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Here's an unusual article. *I Finally Found a Work Computer Setup That's Practically Perfect.* [cutt.ly/OFspikw](https://cutt.ly/OFspikw).

*"Hear me out: A primary ultrawide monitor paired with a second screen in portrait orientation levels up your work and play." The setup seems geared to gamers, but it's something to consider for those of us who like two monitors.*

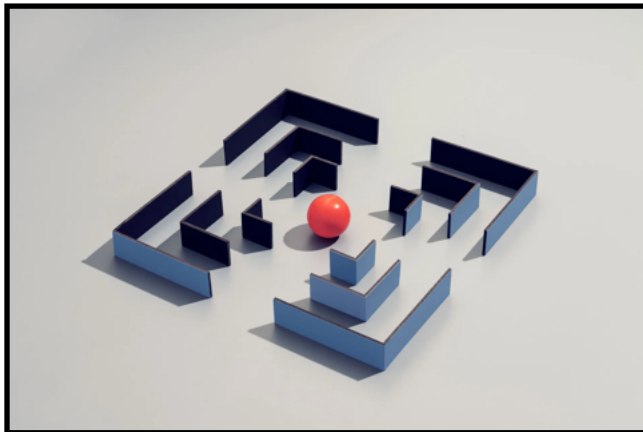
*5G Home Internet Is a Good Alternative To Wired Broadband.* [cutt.ly/sFsdOJq](https://cutt.ly/sFsdOJq). Here's another long extensive article, but it's one I think you should not only read, but save. 5G is bringing many changes, but I never expected that accessing the Internet through 5G would be alternatives to coax.

Simon Hill posted the following article to to wired.com on March 12, 2022. [cutt.ly/cF6iusw](https://cutt.ly/cF6iusw). © Conde Nast Digital. He is a regular contributor for WIRED, You can also find his work at Business Insider, Reviewed, TechRadar, USA Today & many other places.

## How to Block Spam Calls and Text Messages

Learn how to fight the scourge of unsolicited rings and pings from spammers, scammers, and telemarketers.

By Simon Hill



Life is busy enough without wasting time on spammers, scammers, and telemarketers. Whether you are suffering insistent injury lawyers, fraudulent IT specialists, or a drunk-dialing ex, there is a way to stop the calls and messages. The major carriers and phone manufacturers have upped their game against unwanted calls and messages in recent years, so let's look at how you can effectively block them.

We also have guides on [how to avoid spam with disposable contact info](#), [guard against smishing attacks](#), and [avoid phishing scams](#). What to Keep in Mind

Before we dive into blocking options, there are a few things to know:

- If possible, don't answer any calls from numbers you don't recognize. Callers with anything important to say will likely leave a message anyway. Sadly, this won't work for people with businesses or interests that involve a lot of calls from unknown numbers.
- Never click on a link or attachment in a spam text message because it could trigger malware. If possible, avoid opening them altogether.
- Never respond to a spam text message, as it will confirm that your number is valid.
- If you are concerned that the call or message might be from a legitimate company, try typing the number into your preferred search engine. While it can be tricky to confirm a scammer's number, it is easy to verify a legitimate one. If you can't find anything on the number, be cautious and ignore it. We will explain how to block numbers, but it's also important to report unwanted calls and messages. If it's telemarketing, scam, or spam, you can report it to the FTC here. You can also add your number to the Do Not Call Registry, though it only works for sales calls from reputable companies. Sadly many organizations and scammers ignore it. We will go into how to report numbers to manufacturers, carriers, and third parties below. The more people do this, the easier it is to identify and preemptively block or label nuisance numbers.

### How to Block Calls and Texts on an iPhone

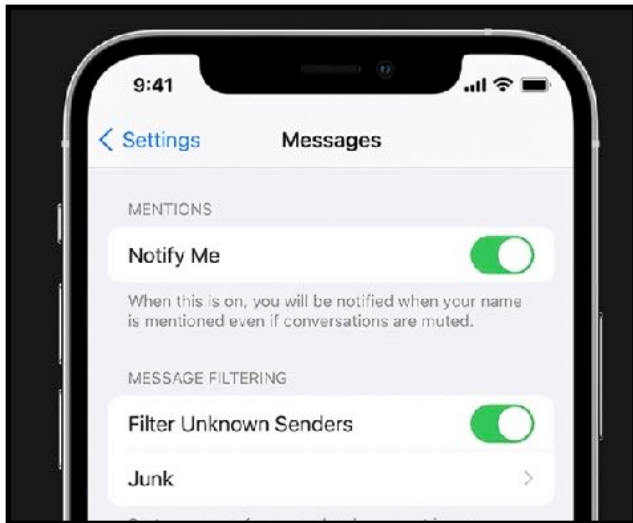
It's easy to block individual numbers on your iPhone. Here's how:

- In the Phone app, tap **Recents**, then tap the **Information** icon next to the number or contact you want to block. Scroll down and tap **Block This Caller**.

- In the FaceTime app, tap the **Info** icon next to the number, contact, or email address you want to block, then scroll down to tap **Block This Caller**.
- In the Messages app, open the conversation with the contact you want to block, then tap the contact at the top, then tap the **Info** button, scroll down, and tap **Block This Caller**.

Once a caller is blocked, you won't get notifications when they call or send a message, but they won't be able to tell that they have been blocked and will still be able to leave voicemails. You can review and unblock callers anytime:

- Open **Settings, Phone**, and tap **Blocked Contacts**.
- Open **Settings, FaceTime**, and tap **Blocked Contacts** under **Calls**.
- Open **Settings, Messages**, and tap **Blocked Contacts** under **SMS/MMS**.



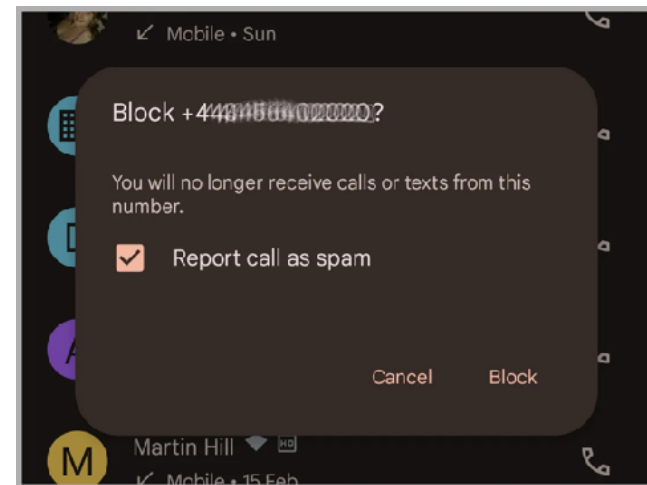
Unfortunately, blocking individual numbers isn't very effective when telemarketers or scammers are contacting you, as they use multiple numbers and change them frequently. But there is something else you can do:

- Open **Settings, Phone**, and scroll down to tap **Silence Unknown Callers**. When you toggle this feature on, it automatically silences calls from numbers not saved in your contacts. They can still leave a voicemail, and the calls will appear in your recent calls list.
- You can do the same thing for messages by going to **Settings, Messages**, and scrolling down to toggle on **Filter Unknown Senders**.

If you open a message that turns out to be spam, always tap the **Report Junk** link under the message and then **Delete and Report Junk**.

## How to Block Calls and Texts on an Android Phone

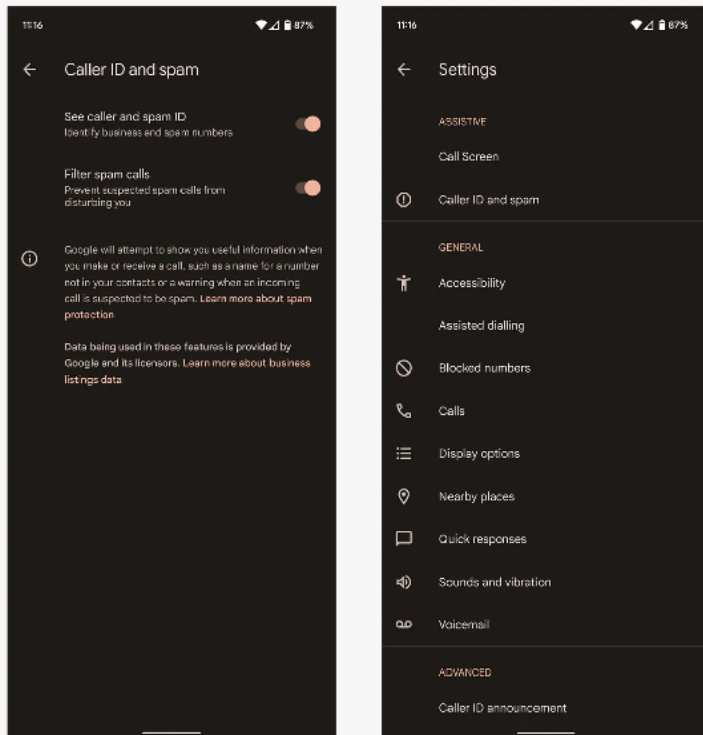
It's straightforward to block numbers on an Android phone, too, but the method does differ from manufacturer to manufacturer.



- On a stock Android device, like Google's Pixel phones, open the Phone app and tap on the **Recent** tab. Long-press the number you want to block and tap **Block/report spam**. You can choose whether to uncheck the box marked **Report call as spam** and then tap **Block**.
- On a Samsung Phone, open the Phone app and go to **Recents**, tap the number you want to block, then tap **Details** and **Block**.

## Filtering Unknown Callers and Senders

If you are getting a lot of unwanted calls and messages and the numbers keep changing, you might want to filter out any unknown numbers.



- Open the Phone app and tap the **three vertical dots** at the top right, then **Settings**, **Blocked numbers**, and toggle on **Unknown** (or **Block unknown callers** on a Samsung phone).
- You can also turn on caller ID and spam protection. Open the Phone app and tap the **three vertical dots** at the top right, then **Settings**, then tap **Caller ID and spam** to get options to **See caller and spam ID** and **Filter spam calls**. (You can simply toggle on **Caller ID and spam protection** on a Samsung phone.)
- If you have a Google Pixel phone, try call screening to have Google Assistant answer for you and generate a transcript. To try it, open the Phone app and tap the **three vertical dots** at the top right, then **Settings**, **Call Screen** and choose the voice you want. If you have turned the spam filter on, it should screen your calls automatically, but you can also tap **Screen call** when a call comes in.
- Open the Messages app and tap the **three vertical dots** at the top right, then **Settings**, **Spam protection**, and toggle on **Enable spam protection**.

## How to Block Calls or Texts With Your Carrier

The major carriers offer apps that can help you to recognize nuisance numbers and block calls or messages from them.

**AT&T** offers the Call Protect app. The basic version is free and offers spam and fraud call blocking, nuisance call alerts, and unknown call blocking. The Plus version costs \$3.99 per month per line and adds caller ID, reverse number lookup, and additional nuisance call controls.

**Verizon** has a similar app called Call Filter. It offers spam detection and filtering, a white-list option for iOS, and a

neighborhood spoofing filter. The Plus version costs \$2.99 per month for one line or \$7.99 per month for three or more and adds caller ID, spam look-up and risk meter, and a personal block list.

**T-Mobile** has the free Scam Shield app, which offers caller ID, scam detection and blocking, and even a proxy number you can use when you don't want to share your real number.

**Google Fi** offers various blocking options and caller ID for free in the Google Fi app.

**US Cellular** has the Call Guardian app offering caller ID, spam alerts, and spam reporting. The Premium version, at \$3.99 per month, offers enhanced alerts and caller ID, and automatic call blocking.

You can also report spam messages to your carrier for free by forwarding them to 7726.

### **What About Third-Party Apps?**

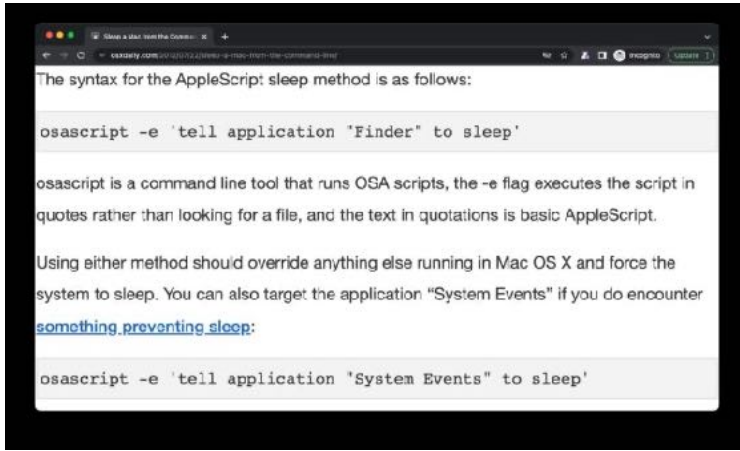
There are countless Android and iOS apps claiming to offer spam protection and robocall blocking, but we advise caution if you're thinking about using one. For these apps to work properly you must grant them access to your call logs and contacts. While apps like RoboKiller (\$4.99 per month) or Nomorobo (\$1.99 per month) are legitimate, there are many unscrupulous apps out there that may share or sell your data or fail to hold it securely. Do some homework before trying a third-party app, and consider their business model and privacy policy.

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The following article was posted to [osxdaily.com](https://osxdaily.com) on March 31, 2022. [cutt.ly/4F0oz7c](https://cutt.ly/4F0oz7c). © OSX Daily.

## Zoom In & Zoom Out with Tap Gestures on Mac



Want to quickly zoom into a webpage or document? If you use a Mac with a trackpad or Magic Mouse, you can use a super easy tap gesture trick to zoom in and zoom out of web pages and documents.

This is super useful if you want to get a closer look at something, perhaps to see details of a picture, or some small text, a phone number, or anything else you want to get a closer look at.

### How To Zoom in on Mac With Two-Finger Tap

Simply tapping on the trackpad or Magic Mouse with two fingers will zoom into a web page or document in any supported app.

You can try this out yourself right away in Safari, Chrome, Brave, Firefox, Pages, Photos, Quick Look, Preview, etc.

### How To Zoom Out With Two-Finger Tap on Mac

To zoom back out again, simply use the same two-finger tap gesture on the trackpad or Magic Mouse. You'll immediately zoom out to the default view.

Not all apps support the zoom in/out tap trick, but you'll find that any major web browser does, along with many other apps from Apple, and bundled tools like Preview and Quick Look.

You can also be more precise with the zooming in and zooming out by using the familiar spread and pinch gestures using two fingers on a trackpad or Magic Mouse as well.

There are [many multi-touch gestures available on the Mac](#), familiarize yourself with them and you'll be more efficient in no time. And many of them work the same across the Apple lineup, so the same pinch gestures you're using in MacOS also work on iPhone and iPad too.



The Wired Staff, which occasionally works on articles together, posted the following article to [wired.com](https://www.wired.com) on April 13, 2022. [cutt.ly/NFI9Ayf](https://cutt.ly/NFI9Ayf). © Conde Nast.

## 11 Ways to Upgrade Your Wi-Fi and Make Your Internet Faster

From Wi-Fi extenders to simple wall brackets, there's always something you can do to improve your internet connection at home.



Whether you're working from home, binge-watching Netflix, or streaming your gameplay on Twitch, there's no such thing as too much bandwidth. Even if you have gigabyte fiber mainlined into your router, everyone could use help getting faster internet around the house. It doesn't matter if you have the best possible wires outside your house—eliminating subpar speeds and Wi-Fi dead zones is largely up to you. To help, here are some ways to troubleshoot and, hopefully, improve the quality of the Wi-Fi inside and outside your place.

Be sure to check our guides for more, including our how-to on [securing your home Wi-Fi network](#), [our router buying guide](#), an [explainer on Wi-Fi 6](#), and [our gear guide for working at home](#).

### 1. Move Your Router

That router in the closet? Not a good idea. Walls, cupboards, even bookshelves can potentially dampen your Wi-Fi signal. Physically moving the router can make a real difference to the speeds you get and how far its wireless transmissions can reach. The perfect spot will depend on your home, but try not to hide your router in a corner or under a cupboard or inside a drawer—the more central and prominent it is, the better. For more info, read our guide to [where to put your router for the best possible home Wi-Fi](#).

You might need to apply some creative cabling to get your router in a better place, but it's going to be worth the effort. The goal is to get your main devices—consoles, laptops, and so on—as close as possible to your router. Devices that don't need quite so much bandwidth, like smart thermostats, don't have to be a priority in terms of physical proximity.

For this reason it's worth considering the look of your router when purchasing. If you buy a router you consider hideous, you're much more likely to put it in a closet. Figure out the best spot given the location of your high-priority devices, then consider what's going to look good to you in that spot.

If you don't have a flat surface near the best spot, you can mount your router halfway up a wall. If possible, keep it away from other devices that use electromagnetic waves; that includes baby monitors, wireless keyboards, and microwaves.

### 2. Use an Ethernet Cable

We sometimes forget: Wires still exist! You don't need Wi-Fi. A wired connection to your router is usually preferable to a wireless one. It's faster and more stable and can't be affected by other

devices or large fish tanks. The downside is that it limits where your devices can be, and it's less convenient.

Still, for hardware that needs the fastest internet possible—a gaming console, desktop PC, or streaming box, for example—it's often well worth the effort to run a wire. The router will have a handful of Ethernet ports to spare, so all you need is a cable.

To do a really tidy job and avoid having wires trailing across your floor, you'll need to deploy some cable management. [Small brackets like these \(\\$11 for a pack of 40\)](#) keep the Ethernet cable fixed to the walls. If you have several cables running in the same direction, [these wall mounts \(\\$10 for a pack of 50\)](#) work well. For one or two gadgets, it can be worth the extra setup.

### 3. Change the Channel or Band

Wi-Fi signal is divided into channels. Your router uses a particular Wi-Fi channel to communicate with the devices around your home. If you have close neighbors who have routers using the same Wi-Fi channel, then everything can get congested quickly. Switching channels can solve this problem.

Every router will handle this differently. Check its documentation or look up the instructions online if you're not sure, but you should be able to find the option somewhere in the device settings. Channels 1, 6, and 11 are the ones to try, as they'll have the least interference when multiple devices get hooked up.

Most routers now use dual-band technology, broadcasting at the 2.4-GHz and 5-GHz frequencies. If your router settings allow you, you might be able to prioritize one or the other for certain devices—the 5-GHz band will get you a faster connection to the internet, though it has a shorter range than 2.4 GHz. We suggest leaving both frequencies enabled since older devices will often work only on 2.4 GHz.

### 4. Upgrade Your Router



TP-Link Archer AX55

Routers vary significantly in functionality and price. If you have dead or slow zones in your house, you probably need to change where and how far your Wi-Fi is broadcast. If you have a large home, you're likely better off with a router that can pair with "repeaters" that broadcast signals into the farthest reaches of your space. Smaller homes and apartments can generally get by with a simpler system. Read [our router buying guide](#) for more details.

Routers we've tested and like:

- **[TP-Link Archer AX55 for \\$110](#)**: Our top pick for most people, the Archer AX55 offers a stable connection and good speeds.
- **[Asus RT-AX86U for \\$297](#)**: If you're willing to invest a little more, this is the speed demon to get. It offers great coverage too.
- **[TP-Link Archer AX20 for \\$100](#)**: If you're on a budget, this is our top pick. It delivers reliable performance and isn't too expensive.

For larger homes, we recommend a mesh network, where you install multiple router nodes around your house. See our [guide to the best mesh systems](#) for all our picks

Mesh network systems we like:

- The Eero Wi-Fi system ([\\$199 Amazon](#), [\\$199 Best Buy](#))
- The Asus ZenWiFi AX6600 mesh system ([\\$440 Amazon](#), [\\$449 Best Buy](#))

There's also the [Google Nest Wi-Fi system](#), which works well even though it lacks some features found in the other systems, and at \$287 ([Amazon](#)) it's not one of the cheaper options. At the other end of the spectrum is the new [Vilo Mesh Wi-Fi System](#). You can buy a [single Vilo mesh router](#) for \$20. (Check frequently; this has been in and out of stock lately.) If you need more coverage, a three-pack is \$60. The downside is there's no support for Wi-Fi 6. If you have a lot of brand-new devices that support Wi-Fi 6, that might be a deal breaker. We also found that some devices needed to be closer to the Vilo routers than on other systems. Still, if you're on a tight budget, the Vilo might be the answer.

## 5. Get a Wi-Fi Extender

If messing around with your router settings seems too daunting, and you have a few dollars to spare, invest in a Wi-Fi extender or repeater. These devices plug into a spare wall socket, connect to the wireless internet getting beamed out by your router, and extend it.

They're (usually) simple to set up, easy to use, and can instantly get rid of Wi-Fi dead zones in your house. The extended or repeated wireless signals won't be as strong as the ones coming straight from your router, so, again, positioning is important. Try to use these devices to connect gadgets that don't need a huge amount of bandwidth.

You've got plenty of options: Take a look at the [Linksys AC1900](#) (\$80, [Amazon](#)) or the [Netgear EX7300](#) (\$100, [Amazon](#)). Make sure the maximum supported Wi-Fi standard (e.g., 802.11ac) matches that of your router so you get as speedy a connection as possible.

## 6. Use Your Electrical Wiring



TP-Link Powerline

An alternative to extenders is a powerline kit. Digital signals can pass through electrical wiring, and powerline devices are designed to take advantage of this. Several manufacturers make powerline networking kits, including [Netgear](#) (\$120, [Amazon](#)) and [TP-Link](#) (\$60, [Amazon](#)).

It works like this: You connect a powerline plug to your router, then put the plug into a wall socket. Add another powerline plug in any other room in your house, and it can provide a wired or wireless connection to that room. There will be some drop in speed, but it's a simple and effective option. Unless your home is particularly old, it should have electrical wiring that supports this, but it's best to buy your kit from a retailer with a robust return policy just in case.

## 7. Add a Password to Your Wi-Fi

We probably don't have to tell you this, but you need a password on your Wi-Fi network. It's good for keeping hackers away and keeping neighbors from Netflixing off of your bandwidth, which will definitely slow you down. Make sure you use AES encryption, which is both the most secure and most speed-friendly security option.

## 8. Cut Off Unused Devices

Having dozens of things tapping into the Wi-Fi at once can be problematic. Plug anything you can into Ethernet, and unplug anything you have connected but don't need (like that "smart" tea kettle you never once got to work). Make sure only the things that need internet get internet.

Good routers (all of the routers listed above, for example) offer controls to prioritize a particular device or service. It's a handy way to make sure your games never get interrupted by someone else streaming videos on Facebook.

## 9. Check Your PC

This tip is specific to computers: If the internet on your PC or laptop is perpetually slow but other devices seem fine, open your Task Manager or Activity Monitor and see which programs are running in the background. Certain programs could be set to auto-update that don't need to be. If they're always updating in the background, that could be the cause of your slow internet. Check it out and adjust the settings.

## 10. Restart Your Router?

We've read this tip many times on the web, but we were skeptical. Restarting your router on a regular basis sounds like an extension of the age-old pseudo solution to everything digital: Reboot it. Yes, we know restarting your router can sometimes fix dead internet, but we asked router maker Netgear: Does

regularly rebooting your router help speed things up? The short answer is, probably not.

Sandeep Harpalani, vice president of product management at Netgear, says the company does not recommend rebooting its routers "unless you actually encounter issues with connectivity or slowdowns due to radio frequency interference." He adds that if you're still using 2.4-GHz Wi-Fi and you're having speed troubles, rebooting might help, since it will force the router to choose the best channel with the least interference during boot-up. If you've made the jump to 5 GHz, it will automatically switch to the channel with the least amount of interference.

Either way, there's no reason to reboot regularly. If you are having persistent problems, then it may be worth restarting your router, but for the most part stick with our other tips.

## 11. Call Your ISP

If you've tried it all and still have problems, you can always contact your internet provider. They may want to send a service technician out. They might be able to pinpoint an overlooked issue that is getting in the way of you and fast Wi-Fi. With the ongoing pandemic, you may not want strangers in your house, and your ISP may not have technicians available to send. Still, if none of the rest of these tips solve your problem, it's time to reach out to your provider to ask some questions.

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Mark Ellis posted the following article to [markellisreviews.com](http://markellisreviews.com) on April 5, 2022. [cutt.ly/WFst4JA](https://cutt.ly/WFst4JA) © MarkEllis Reviews. He is a UK-based freelance marketer, podcaster and blogger.

## Brain.fm Review: Best Focus App for Work?

By Mark Ellis



Every morning I roll out of bed at 6am, wander wearily downstairs, grab a coffee, and get to work.

That first hour of each day is absolutely critical. In fact, I'd argue that it has been central to getting the Mark Ellis Reviews brand off the ground and into a state of continual growth.

The reason is simple: between 6am and 7am, I write that day's blog post. And without these blog posts, there'd be no content, [no YouTube channel](#), and no audience.

There's just one problem – focus. As creative as I am during those early hours, I still need help getting into some form of flow state, quickly.

I think I've finally found the best tool for the job. It's called [Brain.fm](#), and promises to pipe music into your ears that “affects your brain differently than any other music”.

Let's get into it!

## What I Was Doing Before Brain.Fm (and Why It Didn't Work)

I've mentioned before that I have accounts with two music streaming services – Apple Music and Spotify. The former is the default choice for any Apple ecosystem person, but I subscribe to the latter simply [because of its playlists](#).

More specifically, I've always loved Spotify's near-endless vault of productivity-focused playlists. From movie soundtracks to binaural beats, my library is full of music that is designed to help me get things done.

There are a couple of issues with this strategy. Firstly, it means I have to find a suitable playlist every time I get to work. Often, this results in me scrolling endlessly through my playlist library, and flicking between those that I think might work.

Clearly, this is the antithesis of ‘getting things done’.

Secondly, this kind of behaviour absolutely *ruins* the recommendation engine on platforms like Spotify and Apple Music. Both services now continually recommend swirly, floaty tracks outside of work hours, and my auto-generated ‘Favourites Mix’ on Apple Music is currently a mixture of Pink Floyd, The Prodigy, and spa music.

Something needed to be done.

## What Is Brain.Fm?

Brain.fm is an app for both iOS and Android. It promises to deliver “functional music to improve focus in 5 minutes”, whether you're working, relaxing, sleeping, or meditating.

This is quite a claim, but the developers behind Brain.fm aren't messing about. In fact, they're not just developers – they're proper scientists. There's even a page on the Brain.fm website devoted to [the science behind the service](#), where they share white papers, research notes, and the results of a performance pilot.

Now, I'm not a scientist, so all I can do is quote the team at Brain.fm. We're told that the app uses "patented neural phase-locking" which enables "populations of neurons to engage in various kinds of coordinated activity". I have no idea what any of that means, but in essence, this app delivers music that is designed to lock you into whichever mental state you desire – or send you to sleep (literally).

All you need is a pair of decent noise-cancelling [over-the-ear headphones](#), a smartphone, and a Brain.fm account.

But that begs the question – is the investment worth it?

### What Is Brain.Fm Like?

It's rare you find an app that solves a problem immediately, but that's exactly what Brain.fm has done for me. There are two reasons for this – the user interface, and the fact the lofty claims made by the developer appear to be entirely accurate.

Let's start with the user interface. As soon as you open Brain.fm, you're asked what mental state you'd like to achieve. The options are focus, relax, sleep, and meditate.

Within each mental state, you're presented with a selection of 'purposes'. For instance, if you select relax, Brain.fm can help you chill, destress, or unwind. Need to get to sleep? Simply choose from guided sleep, wind down, or deep sleep. If meditation is your thing, Brain.fm offers both guided and unguided forms. All you do is select the length of time from which you want assistance from Brain.fm, and the music begins playing.

The 'focus' mindset is where it's at for me, though. I typically work in one-hour sessions, therefore within seconds, I can select just the right flow state for the task in hand (be it deep work, creative flow, or light work). Brain.fm even provides shortcuts to your most used flow states, making it a true one-tap affair after a while.

The music provided by Brain.fm is perfect. There are a number of genres from which you can choose, but I find it best to just let Brain.fm do its thing. Remember – this is music that shouldn't distract you or get in the way of what you're doing; it's a permanent work soundtrack that practically disappears once you enter your desired flow state.

Brain.fm combines its music with the aforementioned neural effects. These are, I *think* simply modulations in volume, which can be set to various levels of intensity. The idea, I *think*, is that these small changes in volume somehow lock into your brain's own modulating networks to help you focus.

I'm probably butchering the definition of how Brain.fm works. But it does – big time. This is the only form of music I've found that literally sinks into my head, and succeeds in its mission to never distract me.

### So... Is Brain.Fm Worth It?

You can try Brain.fm for free, but that trial period only lasts three days. After that, you'll have to stump up either \$6.99 per month or opt for the annual fee of \$49.99.

The annual fee offers a rather nice return on your investment, in my mind (excuse the pun). For a little over \$4 per month, you'll gain access to an app that is capable of seriously increasing your productivity.

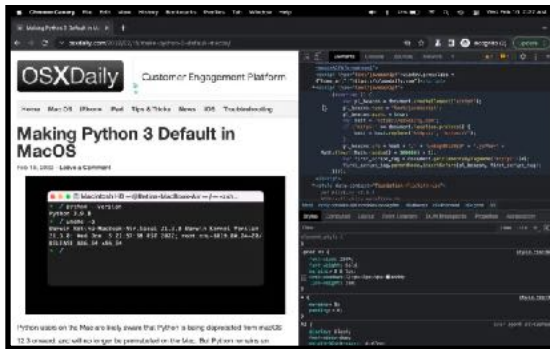
There's just one caveat. It's not a miracle worker. Indeed, I've spent years working on my ability to reach a flow state while working, and Brain.fm simply feels like the final piece of the jigsaw. Therefore, if you struggle to focus at the moment, or have never experienced the sensation of deep work, Brain.fm isn't going to be the silver bullet you're looking for.

However, if, like me, you're forever hunting through playlists to help you reach your carefully crafted ability to enter a flow state, Brain.fm will save you a boatload of time.

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The following article was posted to [osxdaily.com](https://osxdaily.com) on March 17, 2022. [cutt.ly/SFNxuS7](https://cutt.ly/SFNxuS7). © OSX Daily. Try the site. Lots of tips and good info.

## How to Keep the Menu Bar on Mac in Full Screen Mode




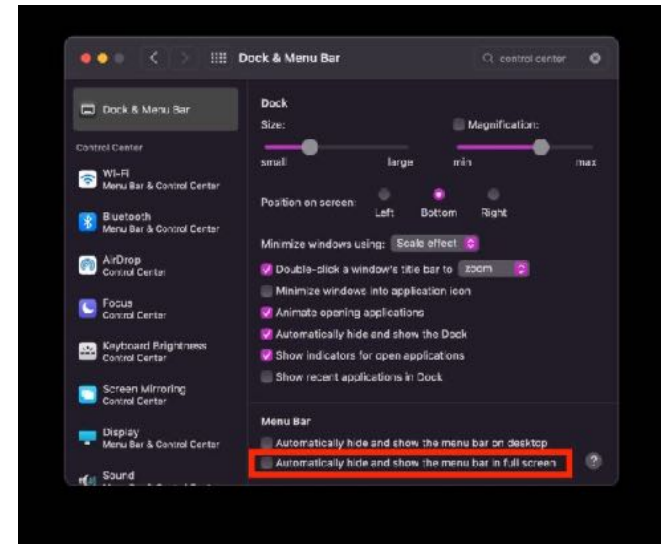
Full screen mode on the Mac defaults to hiding the menu bar, and while you can swing your cursor to the top of the screen to reveal the menu bar, some Mac users may prefer to have the menu bar always visible when in full screen mode.

If you'd like to keep the menu bar always visible when in full screen mode of macOS, follow along to see you how to make the appropriate settings adjustment.

### How To Make the Menu Bar Stay Visible in Full Screen Mode on Mac

If you want to make sure the menu bar remains visible even when in full screen mode for any app on the Mac, here's what you can do:

1. Pull down the  Apple menu and go to "System Preferences"
2. Choose "Dock & Menu Bar" preferences
3. Uncheck "Automatically hide and show the menu bar in full screen" so that it's disabled



Now when you [enter full screen mode on any window](#) or app in macOS, the menu bar will remain visible at the top of the screen. Try it out yourself and you'll see how it works.

This is different from the default behavior for full screen mode, which defaults to hiding the menu bar, until the mouse cursor moves to the top of the screen to reveal it. In the default behavior, the menu only shows itself when the cursor is moved into position, similar to how it behaves if you [have the menu bar set to hide automatically](#) all the time.

With this setting, the menu bar remains visible all the time on the Mac, whether in full screen mode or not, it does not hide or disappear.

There is a small cost to screen real estate by keeping the menu bar always visible in full screen mode, and for some users it may prove distracting or unnecessary, and they prefer the default behavior on the Mac of the menu bar being hidden when in full screen mode. Ultimately this is entirely up to you and your particular preferences.



## AI and Humans

### Useful Fakery

By Kathy Garges

Artificial intelligence is being used more often as a tool for simulation and modeling, for purposes ranging from avoiding supply chain disruption (see last month's column) to curbing climate change. It's useful fakery, the flip side of the negative use of AI and other technology to create and spread falsified photos, fake news, and other deceit. Even when AI is not used to create a simulation or model, the activity itself is AI in the broader sense — a computer or other process for mimicking natural human thinking, such as imagining future scenarios or training mental skills by gaming.

Game designer Jane McGonigal (highlighted in an earlier column) has been expanding into the social simulation field. She has created simulations in which human participants react to pandemic measures like mask-wearing guidelines (2008, 2010) and a human migration crisis, among others.

Can gaming help us learn how to keep people engaged longer to solve difficult problems? Will longitudinal (long-term) studies of futuristic simulations help us improve accuracy in predicting the future? These are some of the questions McGonigal wants to answer by designing scientific studies and obtaining additional funding.

An exciting use of modeling and simulations is currently unfolding in space where the recently launched James Webb Space Telescope has unfolded, and begun alignment of, the 18 hexagonal pieces of its mirror. The telescope, one hundred times as powerful as any previous telescope, will soon be studying the cosmos at high resolution in infrared.

NASA could not test the zero-gravity performance of the mirror on Earth, so computer models were used. Ball Aerospace built a one-sixth physical scale model of the mirror to simulate mechanical unfolding, adjustments and alignment. Initial optical alignment exceeded the models and predictions (precise to the limits of the laws of physics, within a few hundred atomic diameters). Results overall have exceeded demanding requirements, and optical alignment to the scientific instruments is in progress.

Simulations and models are also crucial to the telescope's science programs, which begin this summer. One of the mission's primary goals is to detect the universe's earliest galaxies by analyzing the light that originated in the early universe and traveled billions of years before reaching the telescope.

NASA has created a simulated universe to help decide how to filter the huge amount of data coming from the telescope to a manageable, goal-oriented level and to serve as a reference for interpreting the data. The foundation for the model is dark matter concentrations, or halos, extracted from cosmological simulations. The model then simulates the galaxies formed inside these dark matter halos based on astrophysical processes learned from past observations.

This simulated universe is the basis to create mock observing fields that are statistically similar to the observed universe. The models match the galaxies observed by the Hubble telescope, and here they are used to provide predictions for galaxies beyond Hubble's capabilities. The simulated universe is then used to create realistic mock images by adding effects from scientific instruments and survey configurations.

Back on Earth, AI continues to be used as a tool in a diversity of simulations from cyber war training to drug discovery. For example, intelligent agents might be used to generate alarms based on the recognition of specific patterns, to filter, sort, track,



and prioritize information, and to generate contingency plans and courses of actions.

The Bank of England and Immersive Labs have produced a cyber war game to prepare financial companies for cyber attacks. It exposes employees to the technical and non-technical challenges that arise during and after a cyberattack (e.g., ransomware) in a “sandbox” environment.

IBM offers customers AI to identify the most promising simulations to run on a massive data set and to determine the computing infrastructure best suited for the task, “whether that’s a basic calculator or a Quantum computer.” IBM’s “AI acceleration engine” continues to learn how to automate and streamline simulations — recognizing and swapping in previously-used workflows, for example.

Here’s an interesting idea for a simulation: What clues are there in the field of useful fakeries to help us understand and manage the dark side?

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