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Mac|Life

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OCTOBER 2023 NO.211

iOS 17

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ISSUE 211

Find **missing devices** with Apple Watch

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The verdict on **Logic Pro** for iPad

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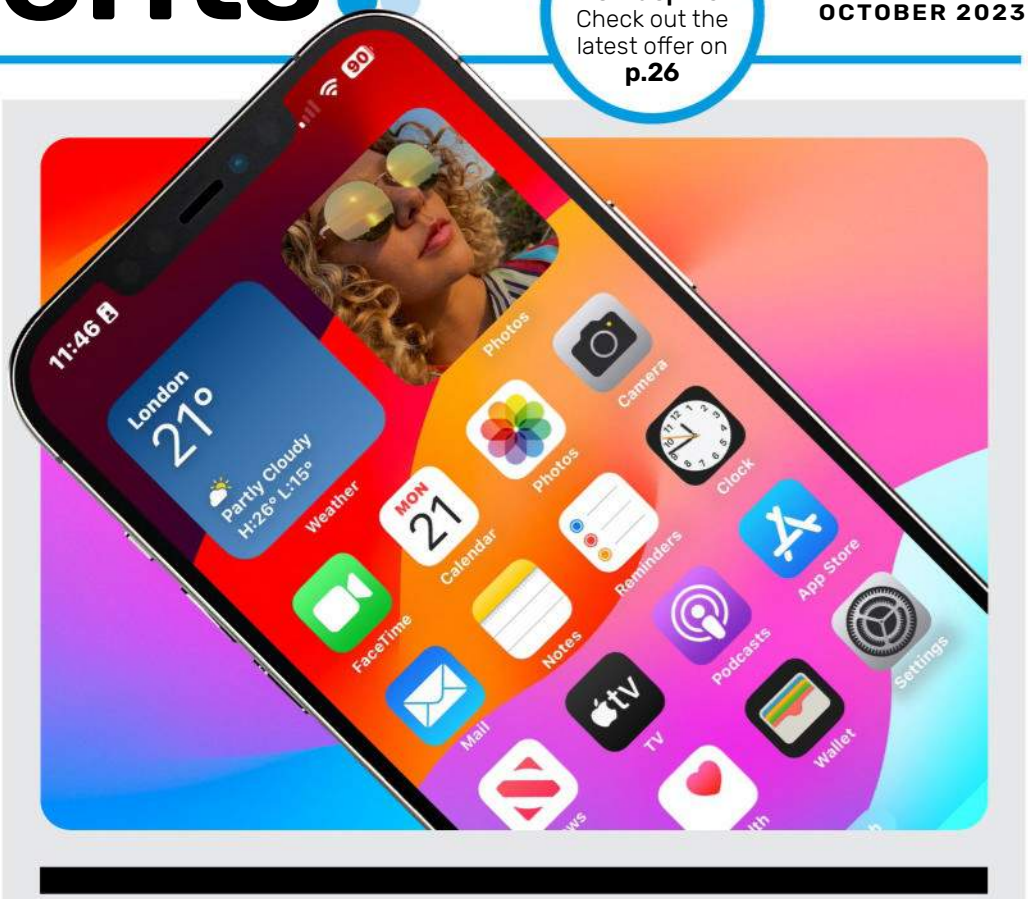

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GET YOUR iPHONE READY

THE PUBLIC RELEASE of iOS 17 (as well as iPadOS 17, macOS Sonoma, and watchOS 10) is due imminently, and your iPhone will soon be ready to begin the process of updating. If you've already been experimenting with the public beta then what I'm saying might not be news to you, but let's assume you're playing it safe. While the latest version of iOS isn't exactly a huge overhaul, there are some key upgrades which make your iPhone noticeably more usable, and enhance the overall experience. One of these is something that you probably use on a daily basis — I know I certainly do — and that's AirDrop. Whereas at present the process of transferring something from one iPhone to another is a slightly clunky affair, iOS 17 promises to make this a much faster, more natural process by allowing you to simply tap another iPhone to automatically begin the transfer process.

Another minor, but useful new feature in iOS 17 is Contact Posters, which allows you to create a custom calling design — now other iPhone owners will be able to see your customized Contact Poster, and know instantly it's you calling. It's the kind of feature you wonder why it took so long to introduce, as it makes a big difference to the calling experience. Although one downside is that maybe now it'll be easier to ignore someone who isn't in your good books…

Also long overdue is Offline Maps in the Maps app. Like me, you may have occasionally switched over to Google Maps to use the offline maps functionality just for those journeys where you can't guarantee good reception, but I'm thankful I can finally put Google's alternative to rest, as I much prefer Apple's version.

And while I fully appreciate that all-new features in an operating system update are what grab the headlines, sometimes Apple does better to spend time improving the existing ones.

What do you think about the iOS 17 update? Has Apple neglected anything? What would you improve upon? Let me know at letters@maclife.com.

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THE TEAM

Andrew Cottle
Art Editor
Can iOS 17's health additions, such as the Screen Distance and Time In Daylight features, break Andrew's addiction to fantasy football apps?

Rachel Terzian
Production Editor
It's the little things that make Rachel excited for iOS 17, such as multiple timers, adding links to Notes, and creating stickers from Live Photos.

Nick Peers
Contributor
Nick shows you how to go about cleaning your Mac's hard drive if it's running out of space, and thankfully it won't cost you a penny (p61)!

iPhone rising as phone market dips

Consumers choose premium models as demand for cheap phones slumps

BY ALEX SUMMERSBY

GLOBAL SMARTPHONE SHIPMENTS are forecast to hit their lowest level since 2013, but the iPhone range are bucking the trend. By shipments, the four top models are iPhones and, as sales of high-volume/low-price models slump, Apple is now on track to become the top brand by unit sales for the first time. It has long been #1 by revenue.

IDC forecasts that worldwide smartphone shipments in 2023 will decline 4.7% year over year to 1.15bn units, the lowest total in a decade. Counterpoint Research projects the same total but reckons this to be a 6% decline. (Both are analyzing shipments from manufacturers to retailers rather than sales, but there's an obvious correlation, and Apple and other manufacturers do not release unit sales figures.)

GOING PREMIUM

IDC expects Android shipments to decline 6.0% but iOS shipments to grow 1.1%. "During a time when the entire market is struggling, it speaks volumes to once again see Apple going the opposite direction," said Ryan Reith, a group vice president at IDC.

The decline is being attributed to a weaker economic outlook, particularly in China, which has adversely affected consumer demand worldwide. IDC expects a recovery to kick in next year, forecasting 4.5% growth over 2024, but right now consumers are reluctant to buy. They're hanging on to their phones for longer — and when they do buy, the analyst reports, they're choosing premium models.

In line with this, research firm Omdia said the top-of-the-line iPhone 14 Pro Max shipped 26.5m units — more than any other model from any manufacturer — in the first half of 2023. By comparison, its predecessor, iPhone 13 Pro Max, shipped 23.0m units in the first half of the previous year, while the top model in 1H 2022 was iPhone 13 with 33.7m units shipped.

HIGHER DEMANDS

Apple took the four top spots in Omdia's 1H 2023 list, with iPhone 14 Pro second (21m shipped), followed by iPhone 14 (16.5m), then iPhone 13 (15.5m). Five Samsung Galaxy models come next, with iPhone 11 rounding out the top 10. In total, the five Apple models in the top 10 shipped 86.4 million units and the five Samsung models 46.9 million. By comparison, the four Apple models in the 1H 2022 top 10 totalled 83.2 million.

Chinese brand Xiaomi had two models in the top 10 in 1H 2022 but did not make the chart this year.

Omdia noted that shipments of Chinese smartphones saw double-digit declines from 2022 due to a slump in the mid- to low-end smartphone market.

Chinese customers are increasingly preferring premium models and with lackluster demand in NA, Europe and Japan, China has surpassed the USA as the largest market for iPhones for the first time. In the second quarter of 2023, according to TechInsights, China accounted for 24% of global iPhone shipments and the US 21%.

Image rights: Apple Inc.

iPhone in brief

A bite of the Apple

> PRODUCTION MOVING TO INDIA
Even as iPhone sales in the country grow, production is shifting away from China. Apple's main contractor Foxconn is reportedly ramping up iPhone 15 production in India, as Apple gradually reduces its dependence on China. It will be a long haul, though: at the end of March, Bloomberg reports, just 7% of iPhones were assembled in India.

> DON'T SLEEP ON YOUR iPHONE
Don't sleep on a charging iPhone, Apple warns in a new safety advisory (**https://apple.co/3qVG0Fn**). Your charger and iPhone warm up while charging, and "sustained contact with warm surfaces for long periods may cause discomfort or injury," Apple advises. So "don't sleep on a device, power adapter, or wireless charger, or place them under a blanket, pillow, or your body, when connected to a power source. Keep your iPhone, power adapter, and wireless charger in a well-ventilated area when in use or charging."

> MOST iPHONE SALES IN-STORE
At the height of the pandemic, in 2020, 50% of US iPhone sales were online, but in the second quarter of 2023, according to a report from Consumer Intelligence Research Partners (CIRP), the figure is back down to 35%. Most US buyers prefer to buy in a physical store — and not only that, they also tend to buy from their mobile carrier instead of direct from Apple. CIRP says 52% of total US iPhone sales in Q2 2023 were from a carrier's physical store, and 27% from a carrier online. In this period, 11% of US iPhone sales were from a physical Apple Store and 6% from Apple online.

> Samsung 5K display

A new rival to Apple's Studio Display

HANKERING AFTER AN Apple Studio Display? Samsung's 27-inch ViewFinity S9 is now available for the same price ($1,599) but features a tilt- and height-adjustable stand, which is $400 extra on the Studio Display. The screen can even rotate 90 degrees, for reading documents with less scrolling.

The ViewFinity S9's specs are competitive: 5K resolution (5,120 x 2,880), 218ppi, 600 nits typical brightness, a matte display to minimize reflections and glare, and Thunderbolt 4 and Mini DisplayPort inputs in addition to three USB-C ports. It comes with a built-in, tiltable 4K camera with Auto Framing that (like Apple's Center Stage) keeps you in-shot even if you move around, and the screen can be color-calibrated simply using the SmartThings app on an iOS or Android device. It has built-in speakers with Adaptive Sound+, and even embedded Smart TV apps for when work time is over, with support for popular streaming apps and the Samsung Gaming Hub.

Image rights: Samsung.

> Apple backs California Right to Repair bill

APPLE HAS SURPRISINGLY declared support for California's Right to Repair bill, having previously always opposed laws forcing products to be made repairable by end-users.

The key factor appears to be that the bill does not require manufacturers to allow repairers to disable or bypass security features, which Apple said would "threaten consumer safety and data security."

The proposed law, Apple's statement also notes, focuses on requiring manufacturers to make documentation, tools, and parts available to "authorized repair channels, as opposed to a broader undefined scope of repairs which may compromise consumer physical safety, repair reliability, and device integrity." In addition, it requires that "repair providers disclose the use of non-genuine or used parts."

Apple has gradually softened its opposition to the "right to repair" lobby. In 2019 it made replacement parts available to independent repair shops, and in 2021 it launched its Self Service Repair program, allowing tech-savvy customers in the US to repair their own iPhones using genuine parts. The program has since expanded to other devices and countries.

Apple's statement makes clear that it will continue to support the bill as long as consumers' desire to be able to repair devices is balanced with "device integrity, usability, and physical safety."

Mac|Life INVESTIGATES

Apple's MLS Season Pass

Fan-focused soccer — at last!

Why Major League Soccer is a major deal for Apple TV+

MARC CHACKSFIELD

Major League Soccer is going through one hell of a glow-up right now. Apple has a ten-year deal on the rights to MLS, thanks to a rather surreptitious turn of events, where the owners of the MLS found themselves owning the entire rights for every single team and every single game, both locally and globally. Given the knotty rights for other leagues (Premier League included, which sees its broadcasts split between Sky Sports, Amazon and TNT in the UK), this was an opportunity for a broadcaster to come in and "own" the entirety of MLS' coverage globally. Which is a pretty big deal!

STREAM THE ACTION

In a few short months from acquiring the rights, Apple created the MLS Season Pass, a subscription service available through the Apple TV+ app, and available in more than 100 countries and regions.

The MLS Season Pass features every live MLS regular-season match, the Audi MLS Cup Playoffs, and Leagues Cup1 all in one place. Plus, the game that marks the midway point of the season: the MLS All-Star Game. A lot of the content is free, including the *MLS 360*, a near five-hour live show that captures the key moments from every match.

"It's tough, I won't lie to you, five hours is a long time," says *MLS 360* host Bradley Wright-Phillips. "What helps is that throughout the show you could have Taylor [Twellman, MLS commentator] jumping in, or Nigel Reo-Coker [former MLS player] could be there and that helps a lot.

"Preparation-wise I keep notes on players and teams. I rely a lot on my personality, then a few notes here and there as there may be some teams in the West Coast you might not get to see, so you are looking for who are their dangerous players and what they need to do to win that week. The rest, I just go for it."

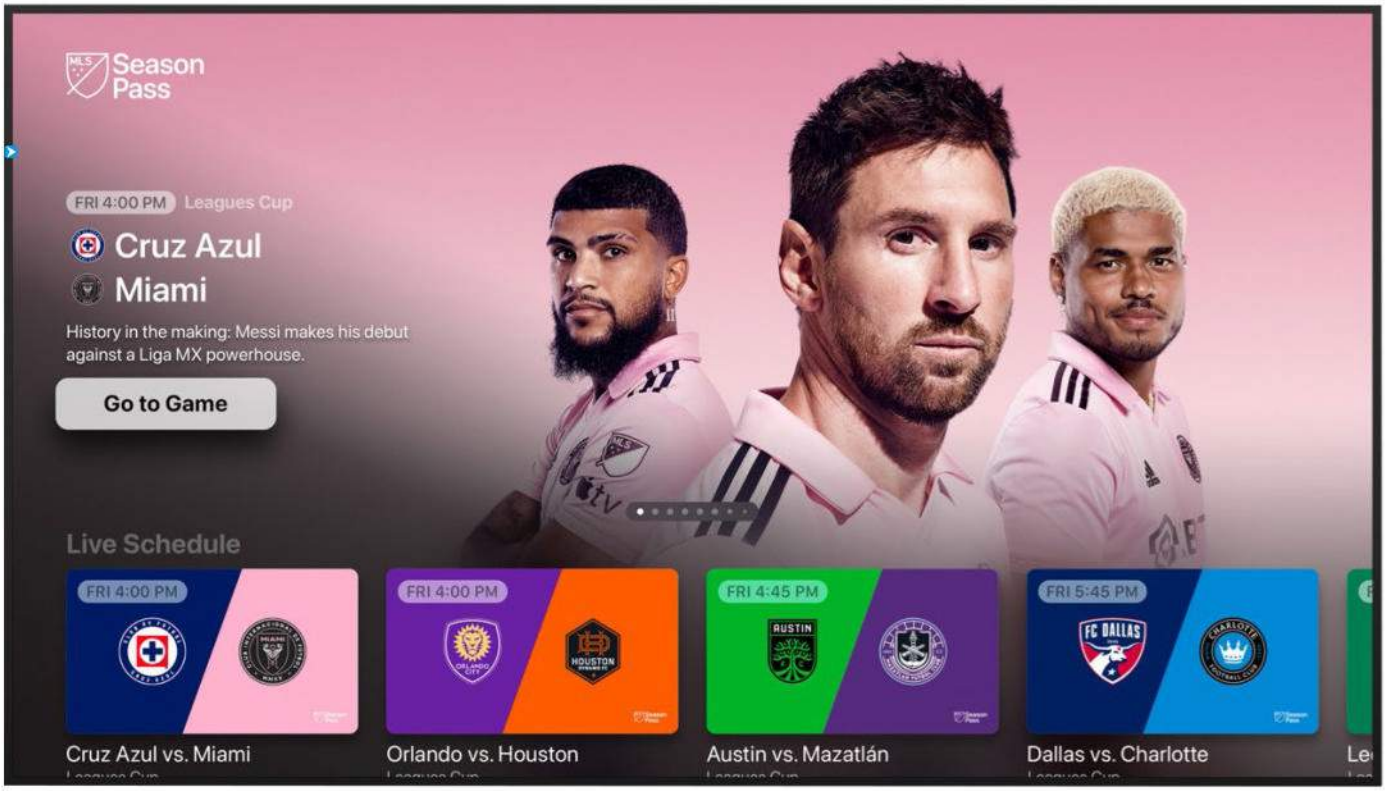
The *MLS 360* show is the pinnacle of what Apple is trying to do — offer blanket coverage to make sure all teams are treated the same. It's a monumental undertaking, one that was hammered home when we visited an outside broadcasting (OB) truck on match day, one of a handful that

Apple CEO Tim Cook and Apple VP for Services, Eddy Cue with some of the stars of MLS Season Pass.

Image rights: Apple Inc.

Major League Soccer is finally getting the worldwide audience it deserves — thanks to Apple.

Image rights: Apple Inc.



Soccer superstar Lionel Messi is the latest big-name signing to MLS Season Pass on Apple TV+.

were there to handle the hundreds of live feeds and turn them into HD live streams, with just a few seconds delay from what's going on in real time to what you see on the screen.

When it came to broadcasting the matches, Apple worked with the MLS to make sure there are consistent match times and no blackouts — a first in live sports broadcasting.

"We design our products by thinking, 'how do we make the best product?' And ultimately, it's always worked for us. So that's kind of the way we approach this," says Apple's senior VP for services, Eddy Cue.

"Sports is the most awesome unscripted drama. You just don't know what's going to happen. And so I think it has tremendous value as we go forward. This thing can be huge and it should be huge. And we've got to execute, they've got to execute, and a lot of things have to happen, but it's not unrealistic. It is a huge opportunity."

FAN SERVICE

The person in charge from an MLS perspective is Don Garber, commissioner of the MLS."We

couldn't be more excited about partnering with the largest, most innovative company in the world," says Garber.

"It's year one of a ten-year deal but really we've hit it by storm. The games are produced to a very high quality. Every team has its own room on MLS Season Pass, in which they can feed an endless amount of content. So think about the idea that every club has their own program to do whatever it is that they think will entertain, inspire and provide value to their fans."

"In 2022, there were 65 different start times in the MLS. What Apple did was come with a blank piece of paper and said, 'what can we do?' Everything they have done has been about the fan experience — and for the MLS fan that had been second rate. All of a sudden the fan is being treated with the right respect," says MLS commentator and former player Taylor Twellman.

"This is a ten-year partnership, and we've already seen a huge amount. The MLS Season Pass happened within the first year, so just think what the tenth year will be like. We all know in the media world that three years is a long time, five years is a long time, ten is insane."

Major League Soccer matches will be shown in over 100 countries and regions.

Image rights: Apple Inc.

"THIS THING CAN BE HUGE AND IT SHOULD BE HUGE" – APPLE'S SENIOR VP OF SERVICES, EDDY CUE

Twellman continues: "The infrastructure is pretty much there now. For the '94 World Cup there was nothing. Now every country that comes to the US, Mexico and Canada, they're gonna see the infrastructure there. That's all of a sudden going to amplify the impact on the culture of the game."

While the World Cup will shine a spotlight on US soccer on a national level, it's already well within the glare of the world's media thanks to the signing of Lionel Messi for Inter Miami CF, a club co-owned by David Beckham, who himself turned the world on to MLS back in 2007.

STAR POWER

It's hard to miss Apple's pink GOAT billboards celebrating the news of the best-ever soccer player choosing its league as his new home. At his unveiling event, Lionel Messi couldn't keep the grin off his face.

Wayne Rooney played for DC United, before having a stint as manager of Derby County. He's back in DC managing the team he once played for, and managed the MLS All-Stars for the All-Star Game against Arsenal this year.

"The MLS is developing at a rapid pace. Getting Lionel Messi into the MLS is huge," said Rooney in the game's press conference. "He's a player I have always loved playing against and watching. It's going to be great for fans in the States to get to watch him up close.

"Obviously the Apple deal for the league is huge and getting Messi could be a real game changer. We saw it with Cristiano Ronaldo in Saudi Arabia, the impact he has had with a lot more players going out there to play.

"I think it was important for the league to get Messi in to show that the MLS can compete against other countries for players."

Arsenal manager Mikel Arteta's allegiance is with the Premier League, but he also noted the importance of Messi joining the MLS. "The way the league has developed over the last 20 years is phenomenal. It is very different now to what it was, thanks to it gaining top talent and now the best-ever soccer player. It's a very clever move by the MLS and it really puts a spotlight on the league."

Past matches include the likes of Manchester United and AC Milan and a Skills Challenge was introduced in 2018, which is more akin to what you see in the NBA league than on the soccer pitch.

There was a real buzz about the events this time, with the All-Stars training within view of Capitol Hill, on The Mall, and even heading to the White House to show off their tricks on the White House lawn.

The MLS All-Star game against Arsenal was played to a sell-out crowd of 20,621. While many in the audience didn't get the win they wanted, with Arsenal managing to put five goals past the All-Star Team, spirits were not dampened and the applause for key "home" players such as Christian Benteke was rapturous.

Having the game played in the same week that Messi made his debut for Inter Miami CF, where he scored the winner from a free kick, has given Major League Soccer the boost that it deserves right now. **Republished from theshiftnews.com**

Hundreds of live feeds are turned into HD streams of each match, with only a few seconds of delay.

MLS Season pricing

> MLS Season Pass is available for $14.99/month or $99/season.

> Existing Apple TV+ subscribers can get access for $12.99/month or $79/season.

The on-pitch action is captured in real time with live feeds sent to outside broadcasting trucks.

Image rights: Apple Inc.

> THE SHIFT

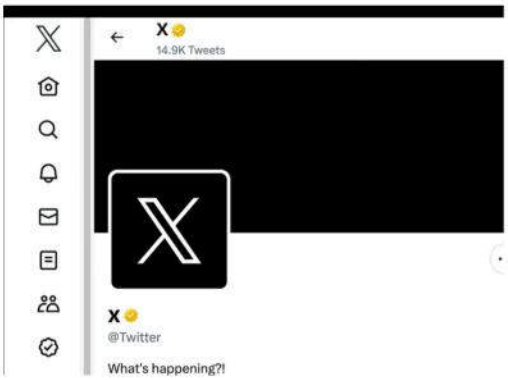
MATT BOLTON says that in the current era of tech madness, it's very welcome for Apple to be a bit boring sometimes

WHEN I SIT down at my fine mahogany desk and dip the quill to begin writing these columns — at my leisure, safe in the knowledge that the magazine's errand boy must wait in the rain until I'm good and finished — I'm obviously looking at the biggest tech stories around as a starting point for ideas, to see whether there's anything that'll affect us Apple users. And I'm looking at leaks and rumors about future Apple products to see if I have something to say about Apple's likely direction of travel, and what that tells us.

On a day like today, when the stories are all about what an incremental change the Apple Watch 9 and iPhone 15 will be, and how Apple won't launch a folding phone for three years if it ever does, I'm not exactly filled with excitement. My instinctual response to this news is that I absolutely refuse to write a(nother) column about how Apple, and the tech world, isn't interesting anymore because all the "new" tech is maturing. I have ploughed this furrow well in the past; we're all used to this new normal.

But then I flick past all the stories about how X (née Twitter) had to take down the sign on top of its building (put up due to the fact the old sign couldn't be removed because the company didn't have the permits) because it was brighter than the sun, or the latest update on the Elon Musk versus Mark Zuckerberg cage match, or about how the new cryptocurrency from the creator of ChatGPT (ooh, that's bingo!)... and I think "Good old boring Tim Cook. And good old boring Apple. Long may they stay this way."

I FIND IT UNLIKELY TIM COOK WILL FIGHT ANY OTHER MAJOR TECH LUMINARIES IN A CAGE



While X careers about like a drunk uncle at a wedding, Apple takes a sip of Kool-Aid and calmly carries on.

The tech world is coming off the rails. Perhaps it's due to the fact that large parts of it are funded by a venture capital system that demands giant growth no matter what's happening in the real world. Maybe it's due to all the companies that are run by people who've never lived a normal day since college. Every day is delivering some fresh new source of "What!? Why!?"

The knock on Tim Cook used to be that he isn't Steve. Now, the praise is that he isn't Elon.

I find it pretty unlikely that Tim Cook will attempt to fight any major tech luminaries, in a cage or any other venue. I don't think the company will start ruining its own products so badly that we start begging Microsoft to make a clone of iOS we can jump to. I don't think we'll ever have to talk about how sometimes your iPhone creates hallucinations you have to ignore when you ask it for information.

I *am* of the opinion that we have to be realistic about what kind of leaps we can expect from affordable consumer tech products in the next few years — not from stuff at Vision Pro prices, where things can still get spicy, but at iPhone or AirPods prices. Nice updates come, but they don't come all at once to change the game — we've reached a plateau. And when I'm in the middle of it, watching all these companies swerve right over the edge of the cliff, the plateau seems very nice thank you.

>>> Matt is Managing Editor at Future's flagship technology website TechRadar and has been charting changes at Apple since his student days. He's skeptical of tech industry hyperbole, but still gets warm and fuzzy on hearing "one more thing."

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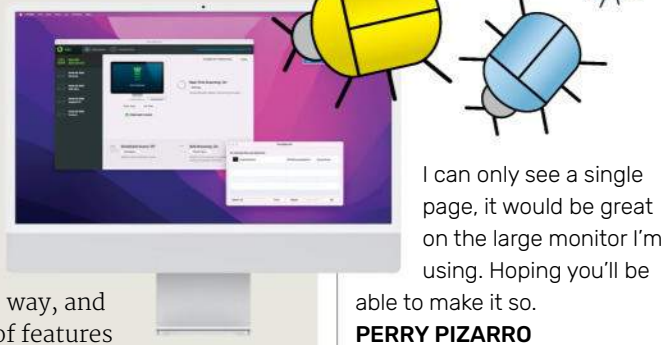
LETTER OF THE MONTH



Like many other readers, I miss the print version. It's too easy to forget a new issue is out amongst all the other digital icons on my iPad. But I know there's no going back on that one. Reading onscreen does make it easier to skip over things I'm not interested in; all the spatial computing stuff from a previous issue, for instance, which is not relevant to me and likely won't be any time soon.

However, I was disappointed to see in the August issue (#209) a malware scare article published that advised readers to "run antivirus software" without any recommendations of such. There wasn't a category for it in "Best of the best", either.

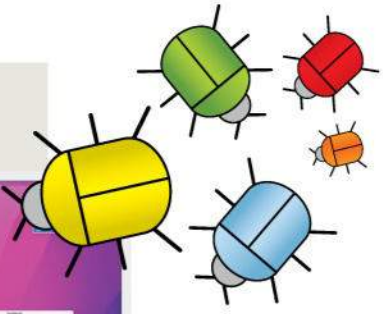
Also, I'd think that with digital publishing, you could have pulled the Apollo Reddit app recommendation, given Reddit's ridiculous pricing scheme killed it.

Even with these quibbles, I'm glad you're still out there, as you're the only publication I trust to give me the latest Mac and iOS news.
JOHANNA DRAPER CARLSON

Johanna — your feedback is greatly appreciated. We're glad that you're liking the digital version of the magazine, it's surprising how you quickly get used to reading in this way, and there are lots of features that make the experience better (in our opinion, anyway).

As to the malware article, it certainly wasn't intended to scare anyone, but more of a reminder that Macs aren't impervious to malware. We have covered antivirus apps in the past, and we even had a group test of the best antivirus apps in issue 192. Admittedly, the recommendation never made it into our Best of the best section, for some strange reason, so we've made sure to add it to this issue.

With the Apollo app tutorial (p32), we're in absolute agreement that the coverage should have been pulled. The Apollo app was shut down after the recent API price hike by Reddit, and somehow in the madness of the summer months, we neglected to pull the coverage.



I can only see a single page, it would be great on the large monitor I'm using. Hoping you'll be able to make it so.
PERRY PIZARRO

Perry — that's a brilliant point you make. The digital has many benefits that can make it far more practical than the print version, having instant access to your issues being one of the most useful of these.

As to the single page issue, that's a limitation of the Mac app being essentially an iOS port. If you read the mag using Pocketmags (which works on Mac) then you can read it as a DPS, although unfortunately that does mean subscribing again as it's a separate platform.

How to print?

I struggle to read the articles on the screen, so I would like to print an article. How do I do this?
MIKE KENNEDY

Printing articles is always useful as a backup, but sadly there's no option to print within the *Mac|Life* app (assuming that's how you're reading the magazine), so the only way to do it is to take a screenshot, open it in the Photos app, and print from there (using the Share option).

Too pricey for most?

Vision Pro is a helmet, a darn expensive topless helmet, that I could hardly imagine using on my bike, in the car, with my friends or family around the coffee table, in a school classroom, at my work desk… But I could probably use it to watch 3D movies, manage a photo gallery, Facetime in the privacy of my living room, attend a sports event or a musical concert. Until the helmet becomes a pocketable $1,000, I don't see this type of gadget as "the one ring" for the masses. How do you (the editors) see it?
IGOR SAJN

As a concept, we on *Mac|Life* love Vision Pro, but how it actually stacks up in reality we will only know when we get a chance to play with it next year. The average person probably won't be buying one until at least 2025 and beyond. We do worry that the time it takes for the device to reach the masses might mean that the current buzz surrounding it might have subsided somewhat.

Magazine on Mac

Good job to everybody on the magazine. I love that it's in digital — no more stocking the old magazines. The only thing I would like to say is that on my iPad I can read it double spread, but on my Mac display

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Mac|Life

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iOS 17 SUPERGUIDE

Find out what's coming with iPhone's next operating system and what it can do for you

WRITTEN BY IAN OSBORNE

EVERY YEAR APPLE unveils a new generation of operating systems at the June Worldwide Developers Conference. It then releases them as developer and public betas a little while later, and as a finished product by the fall. The public beta of iOS 17 was released on July 12, and the developer beta was made available for free too.

iOS 17 boasts a range of new features for any iPhone that can run them. For instance, there are personalized Contact Posters to design and use, and Live Voicemails where incoming messages are transcribed and the text shown in real time, so you can decide whether or not to take the call. Or, if you ring someone using FaceTime and they don't pick up, in iOS 17 you can now leave a voice or video message for them.

The Messages app gets some upgrades too, such as a more comprehensive search feature, inline replies and other cool functions. For safety, Check In can be used to send a friend or family member a message when you've reached your destination. Also look out for new Stickers, sharing contacts via AirDrop, and a new StandBy feature.

Whether you download the public beta or wait until the new operating system's final release, there's plenty to see and do in iOS 17. Over the next few pages we show you some of the latest features and how to use them.

So what are you waiting for? Let's take an in-depth look at the iPhone's latest iOS 17 operating system, right now. ■

Image rights: Apple Inc.

Which iPhones can run iOS 17?

iOS 17 requires a more up-to-date iPhone than previous versions. It's worth noting that even if your device is listed below, it may not support every feature in iOS 17. For example, the new enhancements to autocorrect and predictions require an iPhone 12.

List of supported devices

- ✓ iPhone 14
- ✓ iPhone 14 Plus
- ✓ iPhone 14 Pro
- ✓ iPhone 14 Pro Max
- ✓ iPhone 13
- ✓ iPhone 13 mini
- ✓ iPhone 13 Pro
- ✓ iPhone 13 Pro Max
- ✓ iPhone 12
- ✓ iPhone 12 mini
- ✓ iPhone 12 Pro
- ✓ iPhone 12 Pro Max
- ✓ iPhone 11 Pro Max
- ✓ iPhone 11 Pro
- ✓ iPhone 11
- ✓ iPhone XS Max
- ✓ iPhone XS
- ✓ iPhone XR
- ✓ iPhone SE (2020)
- ✓ iPhone SE (2022)

Image rights: Apple Inc.

Phone, Messages and Stickers

What's new for these key communication apps?

CLEAR COMMUNICATION IS what the iPhone is all about, and Apple has paid a great deal of attention to its capabilities in iOS 17. For the Phone app, there are Contact Posters. You create a Contact Poster by selecting a photograph or memoji to represent yourself and choose whether you want it to be cut out. You can then choose a font and color for your name and, if applicable, a color for the background. When completed, the Contact Poster will appear on other people's phones when you call them. It's also used for your contact card as a consistent visual identity across iOS. Third–party developers can incorporate them into their calling apps too.

Check In

This great new personal safety feature sends a message to friends or family when you've arrived at your destination. Check In automatically detects when you've arrived, and can also detect if you've been delayed and notifies you to end the Check In or add more time. If you don't respond, an alert is sent, showing your location and the route by which you arrived there. All information is encrypted and completely private.

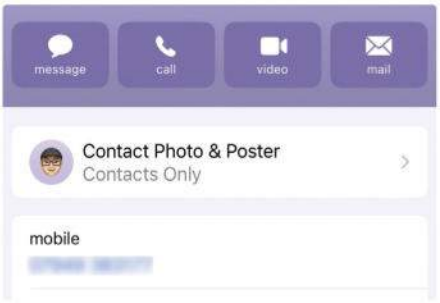
VOICE TO TEXT

The Phone app's voicemail function has also had a boost. Now, when an incoming call goes to voicemail, the caller's message is transcribed and the text is shown on screen. This feature is completely private, and the transcription takes place on the device, with no information sent to Apple's servers for processing.

This is useful if, for example, you get a call from an unknown number. You can see who it is before deciding whether to take the call. Also, if a friend or family member calls at an

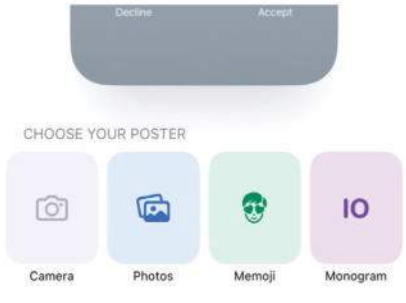
When an incoming call goes to voicemail in iOS 17, it's transcribed and shown on the screen in real time.

HOW TO Personalize your calls with a Contact Poster



1 First steps

Open the Phone app and tap the Contacts icon at the bottom of the screen. Next, tap My Card, followed by the new Contact Photo & Poster option below your main contact details, then click Continue on the next screen.



2 Your Contact Poster

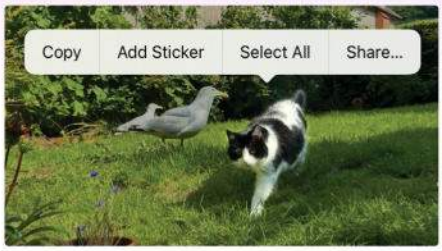
This is your Contact Poster screen. At the top you'll see how your finished poster will look with options below to edit your name, take a photo, add a photo from your Photos library, use a memoji, or simply use a Monogram (your initials).

3 Add a photo

If you want to take a new photo for your Contact Poster, tap the Camera button and do so. To use a picture from your Photos album, tap Photos and accept one of the suggestions or navigate to the one you want.

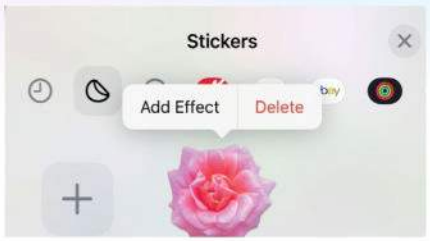
Image rights: Apple Inc.

HOW TO Use iOS 17's new Sticker features



1 Lift a subject

First, to cut a subject out of its background, tap and hold it until it jumps off the photo, then lift your finger. A pop-up menu appears. Choose the new Add Sticker option to make it available to use as a sticker.



2 Live Photos

Use a Live Photo and the sticker is animated, just like the photograph. After tapping Add Sticker, you can add effects such as giving it an outline, using a comic book filter, making it puffy or shiny, and more.

3 Using Stickers

Drag a sticker — or a memoji — into place in an app and you can rotate it, and/or pinch and spread to resize it before dropping it into place, adding extra flair to your messages. Stickers are far easier to use in iOS 17, and more versatile too.

awkward time, you can decide if it's important enough to speak with them or phone back later.

The Messages app is one of the most popular tools on the iPhone, and it gets a few new features in iOS 17. If you want to reply to a specific message in a chat, you can do so by swiping the message to the right and tapping the Reply icon. This is especially useful in group chats, where things can often get confusing.

Another feature for group chats is the icon at the right-hand side of the screen that takes you straight to the last message you read in a conversation. Ideal if you haven't read your messages for a while and the chat has moved on.

Other convenient functions include new Search Filters, which make it easier to find something in the Messages app. After doing a search, you can then add filters to narrow down the results.

MORE CONVENIENCE

As mentioned earlier, incoming voicemails can now be transcribed, but that's not the only thing that's being transformed into text. If someone sends you a voice message in the Messages app, it can also be transcribed so you can read it instead of listening to it.

There's also another handy way to share your location with friends, and you can see where they are directly in the Messages app.

Fans of Stickers should know that the drawer has moved from the top of the keyboard to a new menu. All your stickers are found in one place, and all emoji can be used as stickers and can be rotated and resized when you use them. You can take a subject from a photo and use it as a sticker, and this can also be done with Live Photos, making animated stickers.

4 Position your photo

Choose a picture, then pinch, spread and drag with two fingers to resize and reposition it. Tap the Photos icon (bottom left) to choose a different photo, and the "..." icon (bottom right) to turn the depth effect on and off.

5 Customize your photo

Swipe the screen left and right to switch between various photo effects. If you choose one that features a cut-out picture on a colored background, tap the colored circle icon to the left of the "..." icon to select a color.

6 Change the type

Enter your name at the top of the screen and select a typeface. You can then use the slider to make the letters thicker or thinner. A second slider at the bottom of the screen enables you to change the color of the text.

Image rights: Apple Inc.

FaceTime, StandBy and Widgets

New features that will transform your iPhone

THERE'S ONE PARTICULAR feature that's been requested for a while, and now it's finally arriving. If you make a FaceTime call — audio or video — and the person on the other end doesn't pick up, you can leave a voice or video message. The other person can then listen to or watch your message at their own convenience. It's a great feature, especially for those who prefer free internet-based FaceTime calls instead of standard phone calls.

STAND BY FOR STANDBY

A feature coming to the iPhone, iPad and Mac with the next operating system updates is chat reactions. These can be activated with on-screen menus or simple gestures. For example, two thumbs-up gives you a firework display. Other reactions include hearts, balloons, laser beams, rain and more. These can also be used in third-party video-calling apps as well as FaceTime.

However, the one new feature that really looks amazing is StandBy. Simply turn your iPhone to landscape mode and connect a charger — a wireless Qi-compatible device or Lightning cable — and StandBy will be activated. The screen will be turned on to give you information at a glance — if you have an iPhone with an always-on screen, that is. With an iPhone 14 Pro or Pro Max, the StandBy screen is always on, but if you own an earlier iPhone running iOS 17, simply wake the display with a tap.

When in StandBy mode, the iPhone can display the time using different clock styles. Look out for a digital design with bubbly

If you make a FaceTime call and the person doesn't answer, you can now leave an audio or a video message.

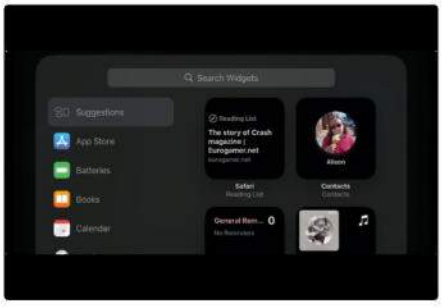
The StandBy Music Player

If you're playing music on your iPhone when you connect it to a charger and activate StandBy, you get a wave form representing your tunes. Tap this and you open the Music Player StandBy screen, offering an album cover, track information and basic controls.

HOW TO Utilize the StandBy features

1 Swipe sideways

When you have activated StandBy mode (by connecting your iPhone to a charger while it's in landscape mode and locked), swipe the display sideways to switch between the clock, photo and widgets screens.



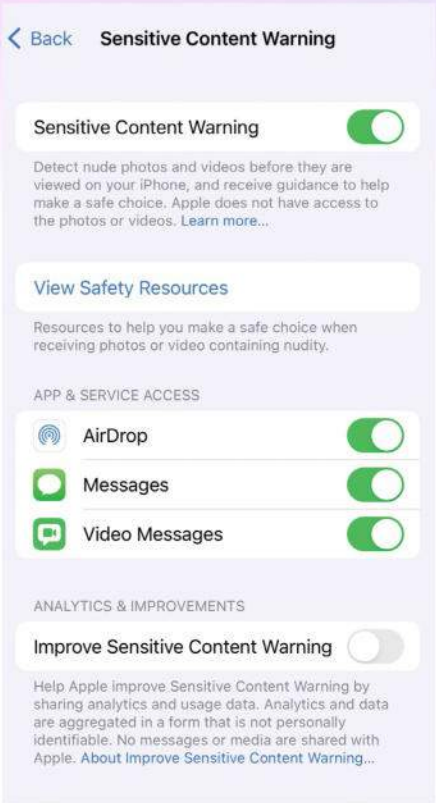
2 Customize screens

Tap and hold the screen for customization options. You can change the pictures displayed by the photos screen, scroll through and customize the various clock options, and change the widgets on the widgets screen.

3 Notifications

When you get sent a notification by an app such as Messages, it will appear on your StandBy screen. If you don't want these to display while the phone is on StandBy, then use Focus to keep the notifications quiet.

Image rights: Apple Inc.



Switch on the Sensitive Content Warning to help prevent offensive images and messages.

FaceTime on Apple TV

The FaceTime app is coming to Apple TV 4K with its own operating system update, tvOS 17. Harnessing the power of Continuity Camera, Apple TV's FaceTime app uses your iPhone as a webcam. Center Stage keeps everyone perfectly framed on the screen, too.

numbers, which you can color-customize, a more sombre digital clock with a gradient background, a rectangular analog clock face that fits the screen beautifully, plus other options. There's also a world clock that displays the time in cities you've saved in the Clock app too.

StandBy can also be used as a digital photo frame, showing pictures curated from your Photos app. If you want to change the Featured, Nature, Pets, Cities and People categories offered, tap the Plus icon and choose one of your photo albums instead.

Two thumbs up triggers a FaceTime fireworks display. You can use these reactions in any video chat app.

When your photos are shown, the time, the location the picture was taken in, and the current date are also displayed. If you'd prefer not to have this showing, then tap the screen to toggle these details on and off.

WIDGETS VIEW

Perhaps the most interesting use of the StandBy feature is the widgets view. Two square-shaped widgets sit side by side on the screen. By default, there's a circular analog clock on the left and a calendar in the month view on the right. Tap and hold either of these widgets to open the widget picker. You can replace the calendar with a weather widget, events list, or a reminders roundup. Tap and hold the clock on the right to change it to the date, a page from Stocks, or a different clock face. Alternatively, you can swipe the widgets up and down to cycle through them instead of tapping and holding for the widget picker.

If none of these appeal to you, tap the plus icon on the widget picker screen and select a different widget, taken from your iPhone. Just about every square-shaped iPhone widget is represented there, so the choice is yours.

The clocks in StandBy look great on your bedside table, and will dim down in low light. You can customize the clock to suit your tastes too.

For those who like to charge their iPhone on their bedside table overnight, the StandBy feature recognizes when the light is low and gives the screen a red hue so your sleep isn't disturbed.

Image rights: Apple Inc.

AirDrop, AirPlay and SharePlay

Introducing new iOS 17 features to help you share, work and play smarter

AIRDROP IS BY far the easiest and most convenient way to share files such as photos and videos between Apple devices. Simply open the file in question, tap the Share menu and select AirDrop. Nearby Apple devices will be shown, and all you have to do is tap the one you wish to send the file to, and it's automatically transferred using an ad hoc wireless connection. But with the launch of iOS 17, AirDrop is about to get even easier — at least when it comes to transferring content between two iPhones.

Instead of going through the Share menu and selecting AirDrop, in iOS 17 all you have to do is bring your iPhones close together and the file transfer is carried out automatically. It's as easy as that. If your iPhones move away from each other and out of AirDrop range while the file or files are being shared, the transfer carries on regardless via iCloud until it's finished — or at least it will once iCloud transfers become available later this year.

The technology used for AirDrop has also been repurposed for another great new feature. Currently, exchanging contact details with another person can be fiddly, and there are a few ways it can be done. You can share a contact card from the Contacts app, hand your phone to the other person so they can type in their details, or have them dictate their information as you do the typing. But in iOS 17 there's a new, super-convenient way of sharing your contact details: NameDrop.

Want to watch films or play music on your travels? Use AirPlay in hotels to connect to your room's screen.

To use NameDrop, simply bring your phones together, and your personal contact cards will be shown onscreen. You'll then see two buttons on the screen: Share and Receive Only. Tap Share to exchange contact information, or tap Receive Only and you'll take the other person's card without passing your own.

To use NameDrop, both iPhones need to be running iOS 17, although you can also NameDrop between an iPhone and an Apple Watch running watchOS 10.

AIRPLAY MADE EASIER

Apple promises that in iOS 17 and its other new operating systems, AirPlay will be "more seamless than ever". The iPhone (and iPad) use on-device intelligence to learn the way you use AirPlay. For example, if you use it to send music to your kitchen HomePod while you cook in the evenings, the iPhone recognizes this and when it's time to start cooking, a notification will show up inviting you to AirPlay to the HomePod.

Another way to get your HomePod to start an AirPlay session is to ask Siri. Apple's digital personal assistant can respond to more instructions, making it easier to enjoy your tunes this way.

If you want to enjoy home comforts when you're away, a new service that's launching soon is AirPlay in hotels. If the screen is compatible, you'll be able to connect your Apple mobile device through AirPlay by scanning a QR code on the TV. You can then enjoy your media on the television in your hotel room. Halfway through a season on Apple TV? Pick up where you left off. Enjoying a new album you discovered on Apple Music? Listen to it through the TV. AirPlay in hotels is coming to selected venues later this year.

If you own an Apple Watch with watchOS 10, you'll be able to NameDrop between an iPhone and your Watch.

Image rights: Apple Inc.

With CarPlay, everyone in the car can soon join in and share.

Control the music even without an Apple Music subscription.

SharePlay and CarPlay

Apple Music and CarPlay will also have an update in the fall, with SharePlay support enabled in the car.

Apple is making it even easier to share and control your music while on the road. When one person's iPhone is connected to CarPlay, other passengers can use their phone to scan a QR code inviting them to join the CarPlayer's session. With this, you can connect and share your music through CarPlay. Listeners can control the music from their own devices, even if they don't have an Apple Music subscription.

SharePlay is another feature that can be achieved by bringing phones together. For example, if you want to share music on a run or want to watch the same live stream on Twitch, you can do so via SharePlay. It works for all compatible Apple and third-party apps.

HOW TO Swap numbers with NameDrop

1 Bring iPhones together

To initiate a NameDrop and exchange contact details with a fellow iPhone owner, all you have to do is bring your phones into close proximity (with AirDrop enabled on both phones). Your Contact Posters will then appear on both your iPhones' screens.

2 Share or Receive Only

As well as the Contact Posters, two buttons will appear at the foot of each iPhone's screen; Share and Receive Only. If you want to send your details to the other phone, tap Share. If not, tap the Receive Only button.

3 Contacts received

The pair of nearby iPhones will then each send the contact card to the other device wirelessly, and the owner will see it appear on the screen. And that's all you have to do. It really is that easy with NameDrop.

Image rights: Apple Inc.

Health and Fitness

Look after your eyesight and more with iOS 17

TAKING CARE OF your eyesight is important when using screens, especially for children whose eyes are not yet fully developed. It's been estimated that around 30 per cent of the world's population is short-sighted (myopic), and this figure is set to rise. According to eyecare experts, there are two key ways that children can look after their eyesight and reduce the risk of short-sightedness, and both are addressed in the iOS 17 update.

Going outside during daylight hours is very good for the eyes, and Apple's new Time In Daylight is great for measuring how much time you and your children are spending outdoors. Find this feature in the Health app — go to the Browse tab in the bottom-right, look for Mental Wellbeing and tap it to find the new Time In Daylight category. The app suggests that for children, spending 80–120 minutes outside each day can help lower the risk for myopia.

This feature works best if you have an Apple Watch running watchOS 10. The feature then uses your Watch's ambient light sensor to identify when you're outdoors, and automatically updates the Health app. If you don't have an Apple Watch, or you have one that's too old for watchOS 10, you can manually add your time spent outside. Just tap the Add Data link in the top-right corner.

SEE DAYLIGHT

Time In Daylight data is shown as a bar graph. You can check your records for the last day, week, month, six months, or year, and by tapping one of the bars, you can see more about your time spent outside on a certain day or hour. Scroll up to add Time In Daylight to your Health app's Favorites.

Another way of preserving your or your children's eyesight is to make sure you don't hold your screen too close to your eyes when you read, causing eye strain. In the Settings app, tap Screen Time and look for Screen Distance. Tap this option to turn the Screen Distance feature on or off. With Screen Distance on, if you spend too much time reading with your iPhone or iPad (with Face ID) too close to your face (a distance of around a foot is recommended), you will see a warning screen. Move the device further away from your face and you will be notified that you're reading at a safe distance, and can continue.

With Screen Distance, you're warned if you hold your device too close to your face for an extended period.

Fitness+ Custom Plans

Go to the Fitness app, tap Fitness+ and under Custom Plans you can build a tailor-made workout schedule for working towards your own goals.

The plan can be set to last between two and eight weeks with program times of between 10 and 90 minutes, on a per-day basis. You can also choose which activities you want to do including Pilates, cycling, dance, rowing, treadmill, meditation and more. You can even choose your trainers and the music you listen to while you work out.

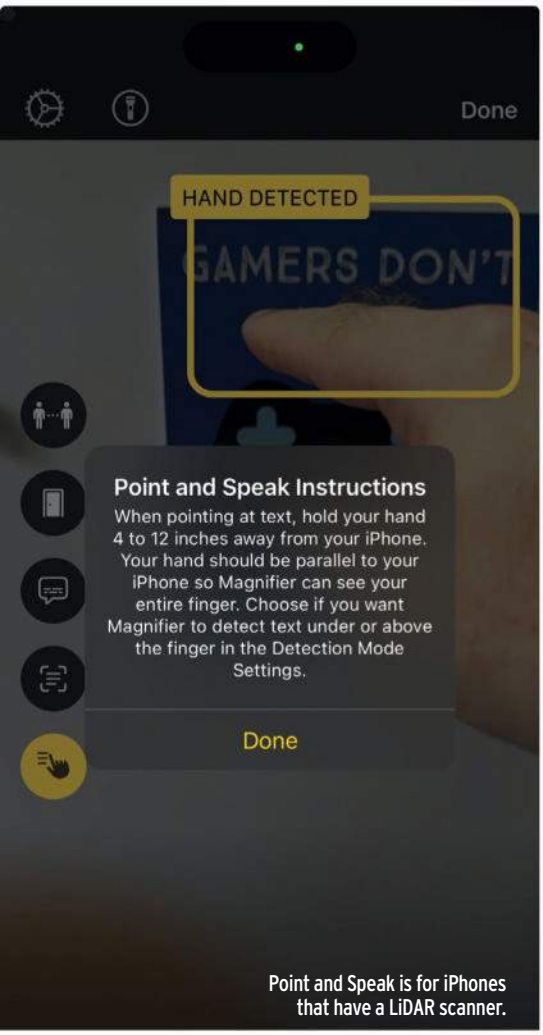
Also look out for a cool Stacks feature that lets you carry out back-to-back workouts, one after another, if you so wish.

Accessibility

Accessibility is getting some new features with iOS 17. Personal Voice records you speaking 150 different phrases and using machine learning, it turns this into a live speech narrator that sounds like you. Assistive Access increases the size of your essential apps to make them easier to use for those who have difficulty pressing buttons. Look out too for features such as Point and Speak, Live Speech, and more.

Image rights: Apple Inc.

THIS FEATURE WORKS BEST IF YOU HAVE AN APPLE WATCH RUNNING WATCHOS 10; IT USES YOUR WATCH'S AMBIENT LIGHT SENSOR AND AUTOMATICALLY UPDATES THE HEALTH APP



Point and Speak is for iPhones that have a LiDAR scanner.

It's recommended children should spend 80–120 minutes outdoors a day. Track it with Time In Daylight.

Image rights: Apple Inc.

Maps, Safari and Passwords

Embrace new features for better browsing, navigation and security

NO UPDATE TO iOS would be complete without new features for Safari, and this one definitely delivers. The way Private Browsing works has been overhauled, giving you more protection when using a private tab.

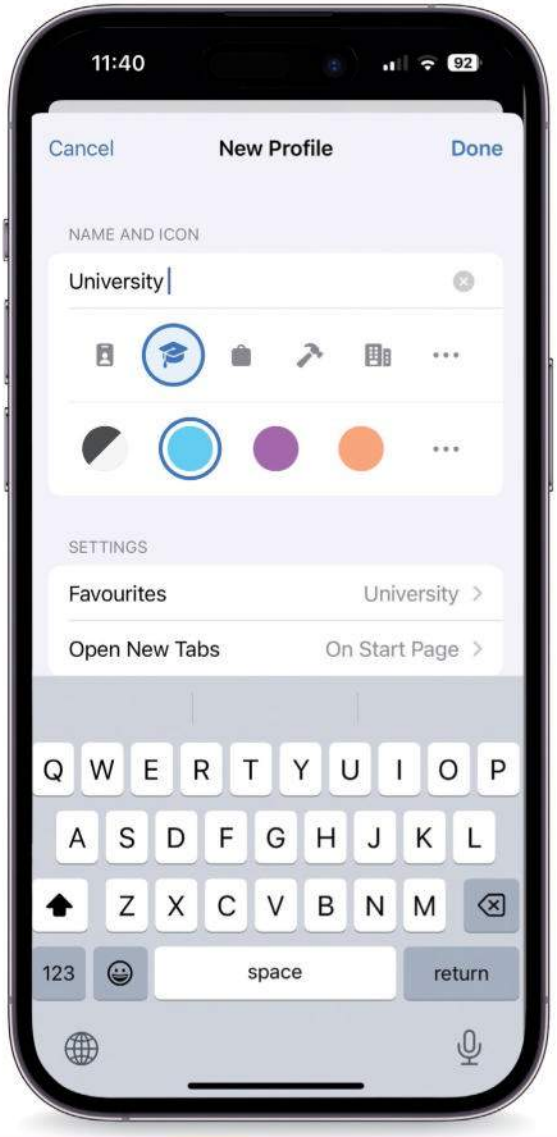
If you leave a Private Browsing tab open and your phone locks, then the private tab also locks. When you unlock your phone again, you have to unlock your Private Browsing tab separately with Face ID, Touch ID or your passcode. This new feature is useful if you forget you had the private tab open and hand your phone to someone else; they can no longer see what you were looking at, which is what private browsing is all about.

A feature that was built for private browsing but has made its way to regular browsing tabs is tracking URL removal. If you open a URL in a Private Browsing tab, Safari automatically strips out tracking information added to the URL, and unknown trackers are blocked. Tracking information is used to monitor your activity online, reporting on what sites you visit and what you do there, building up an online profile that can be used, for example, to target advertising. Thus, eliminating trackers is another way Private Browsing can keep your online activities just that — private.

iOS 17 introduces Advanced Tracking and Fingerprinting Protection for browsing. Fingerprinting is an advanced type of tracking, which uses your device's unique profile to track you online instead of installing cookies. In some countries this is illegal without user permission.

In iOS 17, you can strip tracking information from URLs without switching to Private Browsing, if you choose the option to do so. In the Settings app, tap Safari and at the bottom of this screen, tap Advanced, then tap "Advanced Tracking and Fingerprinting Protection". On this screen, you can switch tracking protection off for all browsing (private and otherwise), have it switched on for Private Browsing only (the default option) or have it active for all browsing in Safari on your iPhone.

Other new privacy features in Safari include choosing separate default search engines for regular and private browsing, hiding your IP address from websites, and search suggestions in Private Browsing, based on popular searches.



Safari Profiles

Another new feature in iOS 17's Safari app is Profiles. An expansion of tabbed browsing, Profiles lets you divide saved websites into groups such as Personal, Work or School. Each profile has its own favorites, cookies, browsing history, Tab Groups, Safari extensions and website data, so your browsing is kept contained within a Profile.

To set up a browsing profile, in the Settings app, go to Safari and tap New Profile. You can then customize it by choosing a name, icon and color. Next, assign already saved Favorites to it and choose which website new tabs open in that profile.

USE MAPS OFFLINE

A very useful — and somewhat long overdue — feature is coming to the Maps app. From shaky beginnings, Maps has evolved into an excellent means of finding your way around… as long as you have a decent internet connection. But now, in iOS 17, you can finally download a mapped area to your iPhone, and then use it offline.

A downloaded map offers a similar set of features to a regular one. You can use it for turn-by-turn navigation, check an estimated

If preventing trackers monitoring your online activity is important to you, turn it on for all browsing.

Image rights: Apple Inc.

Shared Passwords

Apple's three key 2023 operating systems — iOS 17, iPadOS 17 and macOS 14 Sonoma — enable you to share passwords and passkeys safely and securely.

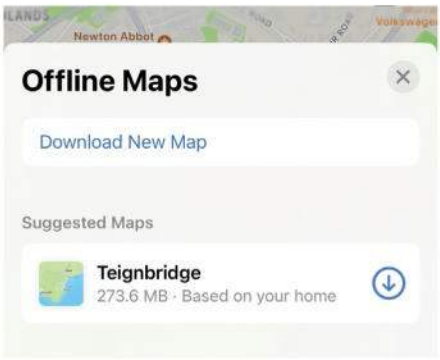
To set up a group to share passwords with friends and family, go to Settings > Passwords and tap "Share Passwords with Family". You can then create a group, by default based on Family Sharing.

You also have the ability to add and remove members who are in your Contacts app and decide which passwords you will share — the feature doesn't simply share all of your passwords.

As the group's originator, you remain in control of who's in and who's out; remember, you can add or remove members at any time.

Other members can also add or remove passwords of their own to the group. Sharing is through iCloud Keychain, so it's end-to-end encrypted and very secure. You can set up as many shared password groups as you like, but everyone in the group has to have an iPhone running iOS 17.

Set up a group, and then share selected passwords between you.



In iOS 17's Maps app, you can download the map of a given area and use it offline on your iPhone.

time of arrival, find places of interest in the locality, and more. This will prove especially useful when visiting remote locations that might have a patchy — or even no — cell phone coverage.

To download a map, tap your initials or profile picture, tap Offline Maps and then follow the on-screen instructions.

Also coming to Maps in the US is information on park trails, and real-time charging information for electric vehicle drivers.

IN iOS 17, YOU CAN STRIP TRACKING INFO FROM URLS WITHOUT SWITCHING TO PRIVATE BROWSING

Listen to Pages in Safari

If you find a web page that interests you but you'd prefer to listen to it instead of read it, you can now do so in iOS 17. Open Safari, and navigate to the web page you want to have read out loud. Tap the "Aa" icon in the Search field at the top or bottom of the screen, then tap the "Listen to Page" option. If the option is grayed, this feature isn't available on the web page. If it's available, then the web page's text will be read out in a very natural-sounding voice. To stop listening, tap "Aa" and the "Listen to Page" option again.

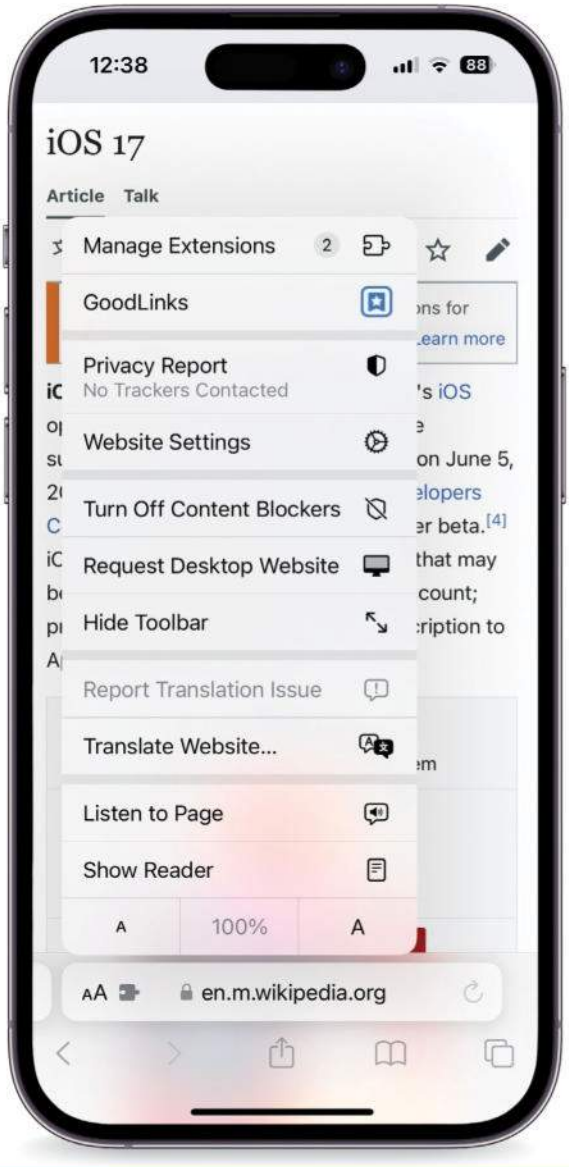


Image rights: Apple Inc.

Everything else

What else is new in Apple's forthcoming iOS 17?

THERE ARE EVEN more fantastic features coming to iOS 17. For instance, the Health app will now enable you to log your moods and emotions, and when sufficient data has been built up, it will offer information to help you manage your wellbeing.

If you use AirTags — Apple's Bluetooth trackers used to keep tabs on your possessions — there's a new feature just for you. In iOS 17, an AirTag can be shared with up to five other people, a feature that also works with all other Find My network accessories. This means your designated contacts can also track the location of an item protected with an AirTag using their own Find My app. They can also ping the AirTag so that it plays a sound, and when you're close to the AirTag, use Precision Finding to determine its exact location.

To share an AirTag, open it in the Find My app, and tap Share This AirTag. You can then add others to share it with.

AIRPODS EXTRAS

AirPods users also get some great new features. You can mute and unmute calls by pressing the stem (or Digital Crown with AirPods Max). This works with AirPods Pro, Max or third-gen AirPods. Meanwhile, new listening mode Adaptive Audio (second-gen AirPods Pro only) blends Transparency and Active Noise Cancellation.

Another feature limited to second-gen AirPods Pro is Conversation Awareness, which, when the user starts speaking, lowers the volume, reduces background noise, and enhances voices in front of the user. Finally, if you use your iPhone in Dark Mode, the connection pop-up you get when pairing your AirPods is also dark.

SIRI, MUSIC AND MORE

iOS 17, iPadOS 17 and macOS 14 are also bringing some interesting changes to Siri.

Instead of having to say "Hey Siri" to activate the Apple assistant, you'll only need to say "Siri". You can also chain multiple commands together instead of having to repeat them one by one.

One Music app feature people have been asking for is crossfades, and at long last, it arrives with iOS 17. Activating the Crossfade option in Settings > Music makes your tunes fade out, as the next one fades in, so the music never stops.

If you use the Home app to control smart home security devices, you'll now be able to view up to 30 days of activity history across door locks, garage doors, alarm systems and contact sensors. Plus, two features in HomeKit — tap to unlock and PIN codes — are being made available for Matter-compatible locks too.

Ping Your Apple Watch

The Apple Watch has been able to ping your iPhone for years. And now, in iOS 17, you can use your iPhone to ping your Apple Watch right back.

It's a feature found in the iPhone Control Center, but you need to add it manually before it can be used. Open the Settings app, tap Control Center and tap the "+" to the left of Ping My Watch. Now, when you open your iPhone's Control Center, you'll see a ping icon for your Watch. Tap that and your Watch plays a tone.

In iOS 17, you can use multiple timers in the Clock app. Tap the Plus icon (top right) to add one.

Image rights: Apple Inc.

Dictation & Typing

Text input is set to get even easier in iOS 17. The on-screen virtual keyboard, which appears when you need to enter text, is now more intelligent. Autocorrect is also more accurate, and if an autocorrection isn't what you want, the word you typed is offered as a replacement. An autocorrected word is underlined, with the word you typed shown above it. If you want to go back to your typed word, just tap it. This way, you can revert a mistaken autocorrect without having to retype the word you intended.

Predictive text already offers words to help you complete your sentence with a single tap. And now in iOS 17, inline completions are also offered for partial sentences as well as single words. These appear in gray where you type. If the inline completion offered is what you want, accept it by tapping Space.

Finally, a convenient new Dictation engine makes the keyboard's speech-to-text facility even more accurate. Like autocorrect, Dictation is powered by machine learning.

Inline completions make typing even faster and easier in iOS 17.

Drop the "Hey"; in iOS 17, you'll be able to activate Apple's assistant simply by saying "Siri".

Meanwhile, the Photos app uses machine learning to better recognize people in your pictures; it can also recognize cats and dogs.

STAY ORGANIZED

The Reminders app now has a Shopping list that automatically groups items into categories. Open Reminders, tap Add List, and under List Type, select Shopping. Correct items assigned to the wrong category and the app will learn from its mistakes over time.

The Health app can send medication reminders 30 minutes after an alert, in case you missed the first one. In the app, tap Browse then Medications and turn Follow-Up Reminders on and off.

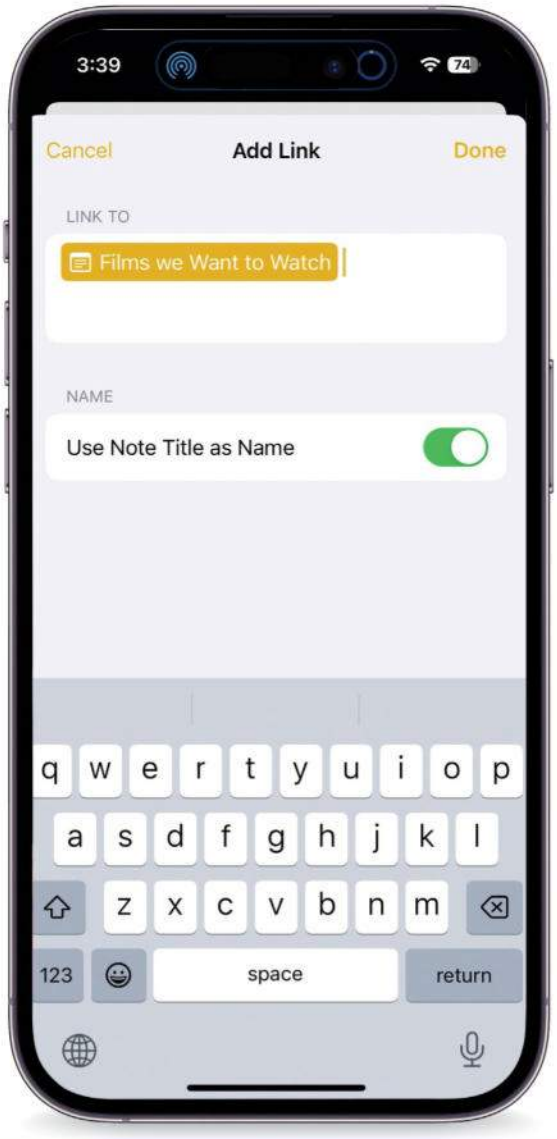
Have you ever wondered why, in the Clock app, you can only set one timer at a time? This can be an issue if, for example, you're cooking. Well, now in iOS 17, you can set multiple timers. Woo-hoo!

Watch out for more iOS 17 tips, tricks and secrets over the next few issues!

Link Notes

If you have entries in the Notes app that are about a similar or connected subject, you can link them in iOS 17.

It's easy to do. Open the note where you want the link to appear, then tap and hold to place the link. In the pop-up that appears, tap Add Link. Enter a URL or a note title in the box and, if you want, give it a name. Tap Done when finished, and a link to another note will be placed on your original note.



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Improve your home movies

PART 1 of 3

Trim, adjust, enhance, and resize your videos for social media

REQUIRES
Adobe Premiere Elements 2023 ($99.99), macOS 11 or later

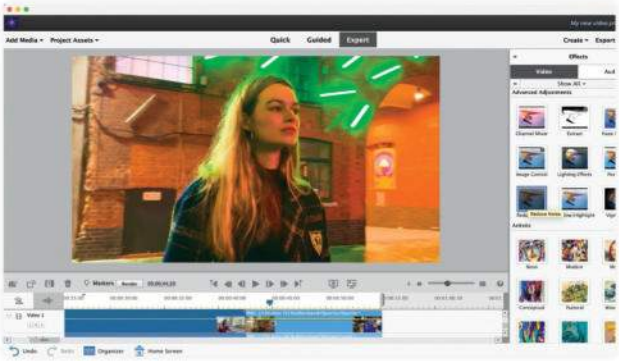
YOU WILL LEARN
How to edit, improve, and export videos

IT WILL TAKE
15 minutes

THANKS TO OUR ever-present iPhone we tend to shoot a lot of video footage of everyday events. Unedited clips are dull to watch, but thanks to Premiere Elements 2023's machine learning (ML) features we can quickly cut and trim out the boring bits to create slick social media sequences that our friends, family and followers can enjoy.

Adobe Premiere Elements uses the AI-assisted Candid Moments tool to analyze a long clip's rambling content and then quickly cut it into shorter and more interesting sections that tell a story more succinctly (while also removing sections with poor focus and bad lighting). If a clip doesn't quite look its best (due to exposure issues or color casts for example), we can tweak its colors and tones to create more attractive-looking footage. We can even use Premiere Elements 2023 to resize our horizontally shot footage so that it will fill the frame in our iPhone's vertically displayed social media streams.

GEORGE CAIRNS

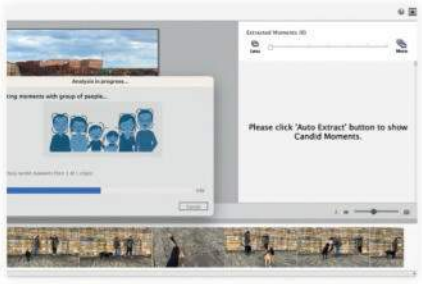


Make quick and easy adjustments using Premiere Elements' tools for reducing noise, fine-tuning color, fixing underexposure and more.

HOW TO Extract using Candid Moments

1 Import unedited clip

Choose File > Add Media from > Files and Photos. Browse to import a clip. Drag the clip into the timeline. In our example, we have just over a minute of footage featuring a mix of interesting action and boring bits.



2 Auto extract

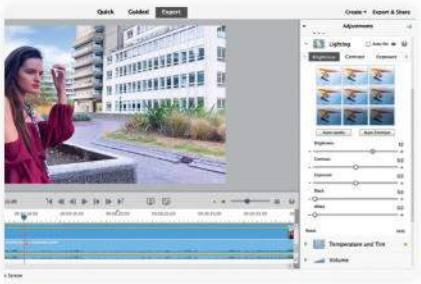
To find the best bits, click on the clip in the timeline. Choose Tools > Candid Moments. Click Auto Extract. The tool will examine the clip for faces to keep. It will also look for focus and lighting problems to remove.

3 Export to timeline

Here Candid Moments found six sections where faces were visible and the action was interesting. It removed out-of-focus sections and bits where people weren't facing the camera. If you're happy, click "Export to Timeline".

Image rights: Apple Inc, Adobe.

HOW TO Fix image problems



1 Improve exposure

Our subject is underexposed. In the Fix section of the toolbar, click the Adjustments icon. Toggle open Lighting. Click thumbnails to brighten the shot in increments. Click More to fine-tune the result using sliders.

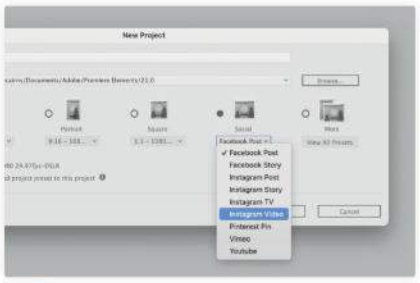
2 Banish the blues

Our subject has a cold (blue) color cast. Go to "Temperature and Tint" and tap the preview thumbnails to warm up the clip. Click More and fine-tune the Temperature slider. Green and magenta tints can also be removed.

3 Reduce noise

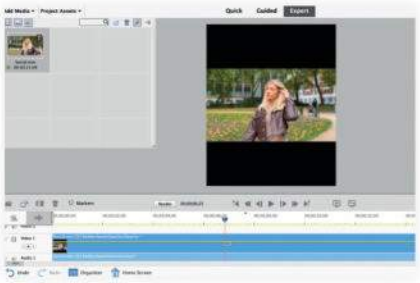
In low light, video clips can suffer from grain (noise). Click on the FX icon and drag the Reduce Noise effect onto the noisy clip. Click the Render button in the timeline to smooth noise while preserving key details.

HOW TO Prepare for social media



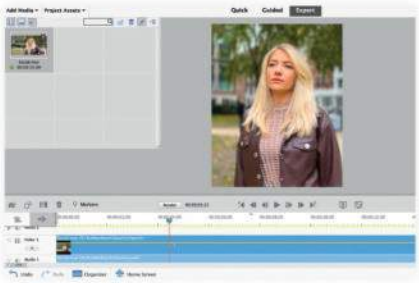
1 Go social

Some social media sites (such as Instagram) prefer to display clips in portrait (vertical) rather than landscape (horizontal) orientation. Choose File > New Project. Click the Social button and choose Instagram Video.



2 Add to timeline

Import a horizontal clip into the vertical project. Drag it to the timeline. Choose Keep Existing Settings in the dialog window. The horizontal clip will have black bars above and below it because the project's shape is vertical.



3 Reframe

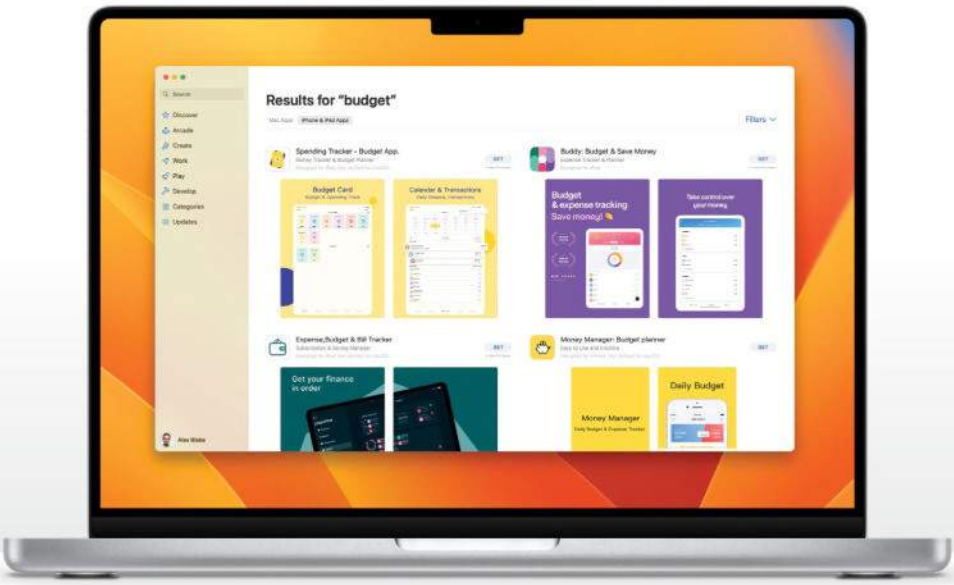
Click on the Auto Reframe icon above the timeline. Premiere will use AI to analyze the position of a person. It will reposition them throughout the sequence so that they stay visible within the vertical frame.

> SHARE TO SOCIAL

Render a reel to upload to Instagram

Once you've used the Auto Reframe tool to make sure that your subject remains visible in a vertical frame (see the "Prepare for social media" steps), go to File > Export and Share. Click the Social Media icon and then click on the Instagram tab. Select the 1,080x1,350 shape. Check the Output Preview to make sure there are no bars at the frame's edges. Use a Standard file size to make a lighter and easier clip to upload. Click Save and Premiere Elements 2023 will render a portrait-shaped movie that is suitable to be uploaded to Instagram.

Image rights: Apple Inc, Adobe.



Use mobile apps on macOS

Run iPhone and iPad apps and games on your Apple silicon Mac

REQUIRES
An Apple silicon Mac, macOS 11 or later

YOU WILL LEARN
How to download and install iOS and iPadOS apps and games on to your Mac

IT WILL TAKE
10 minutes

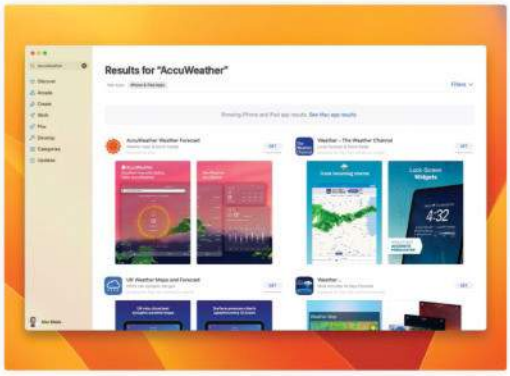
EVER SINCE THE first Apple silicon Macs arrived in 2020, they've offered an additional benefit — the ability to run iPhone and iPad apps too with no messy conversion required. That's because devices like your iPhone, iPad, and M1 and M2 Macs effectively run on identical architecture — the major difference being that while Mac apps are designed to be used with a mouse or trackpad and a keyboard, iPhone and iPad apps use touch-based taps, swipes, and other gestures.

To get around that, macOS has a feature called Touch Alternatives that "remaps" iPhone and iPad apps so they can be used with your Mac's input devices. This should work with the overwhelming majority of iPhone and iPad apps, but there are exceptions. Developers can, if they wish, explicitly prevent their iPhone and iPad apps from running on Apple silicon — often because they already offer a perfectly good Mac version. For apps that aren't available, try iMazing ($39.99, https://imazing.com). Read on to find out more. **ALEX BLAKE**

GENIUS TIP

Some iPad apps say "Not verified for macOS" in the App Store. They will work, but they haven't been tested on macOS by the developer, so they may be a bit buggy.

HOW TO Run mobile apps on Mac



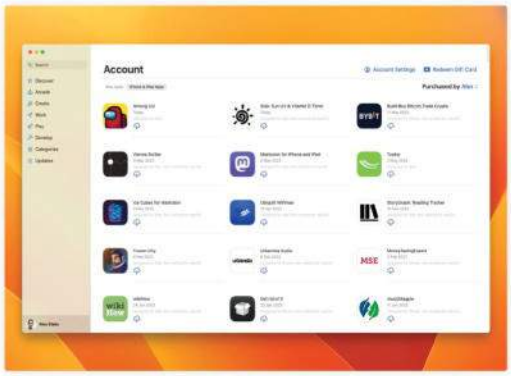
1 Search the Mac App Store

In the Mac App Store, try searching for an app. On the results page, click the iPhone & iPad Apps tab, then click an app. Under the app's name you will see "Designed for iPad", indicating that it is an iPadOS app.

2 Get a new app

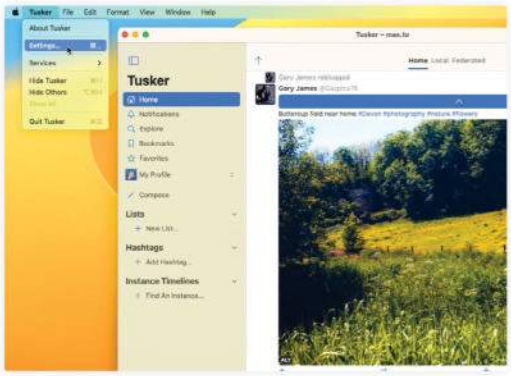
You can download the app from here. You don't need to do any additional work, as macOS-compatible iOS and iPadOS apps will simply work straight away once they are downloaded and installed.

Image rights: Apple Inc, Vaccor LLC, Innersloth LLC, DigiDNA SARL.



3 Apps in your account

You can also download iOS or iPadOS apps already tied to your iCloud account. Open the Mac App Store and click your account in the bottom left. Under Account, select iPhone & iPad Apps and pick an app to install.



4 Touch Alternatives

Apps for touchscreen devices come with tweaks called Touch Alternatives in order to work on Macs. In the downloaded iPhone or iPad app, click the app's name in the top left, then select Settings > Touch Alternatives > On.

5 New controls

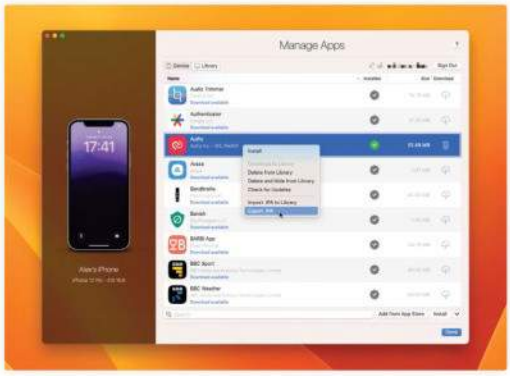
The Touch Alternatives menu shows the controls that let you use gesture–based apps on Mac. You'll see a diagram of your keyboard and mouse or trackpad, with touchscreen swipes and taps mapped to their buttons.

6 Game optimizations

Games have their own touch alternatives that are better optimized for gaming. Click [App name] > Settings > Game Control to use your keyboard and mouse in place of a controller, tweak pointer sensitivity, and more.

7 iMazing

Some iPad apps aren't available in the Mac App Store, but if they're on your iPhone or iPad you can install them with a Mac app called iMazing. Install iMazing, then connect your unlocked iPhone or iPad to your Mac.



8 Export .IPA

In iMazing, click Manage Apps > Library and click the Download button next to your chosen app. Now Ctrl–click the app and select Export .IPA. Save the file, then open it. This will install and run the app on macOS.

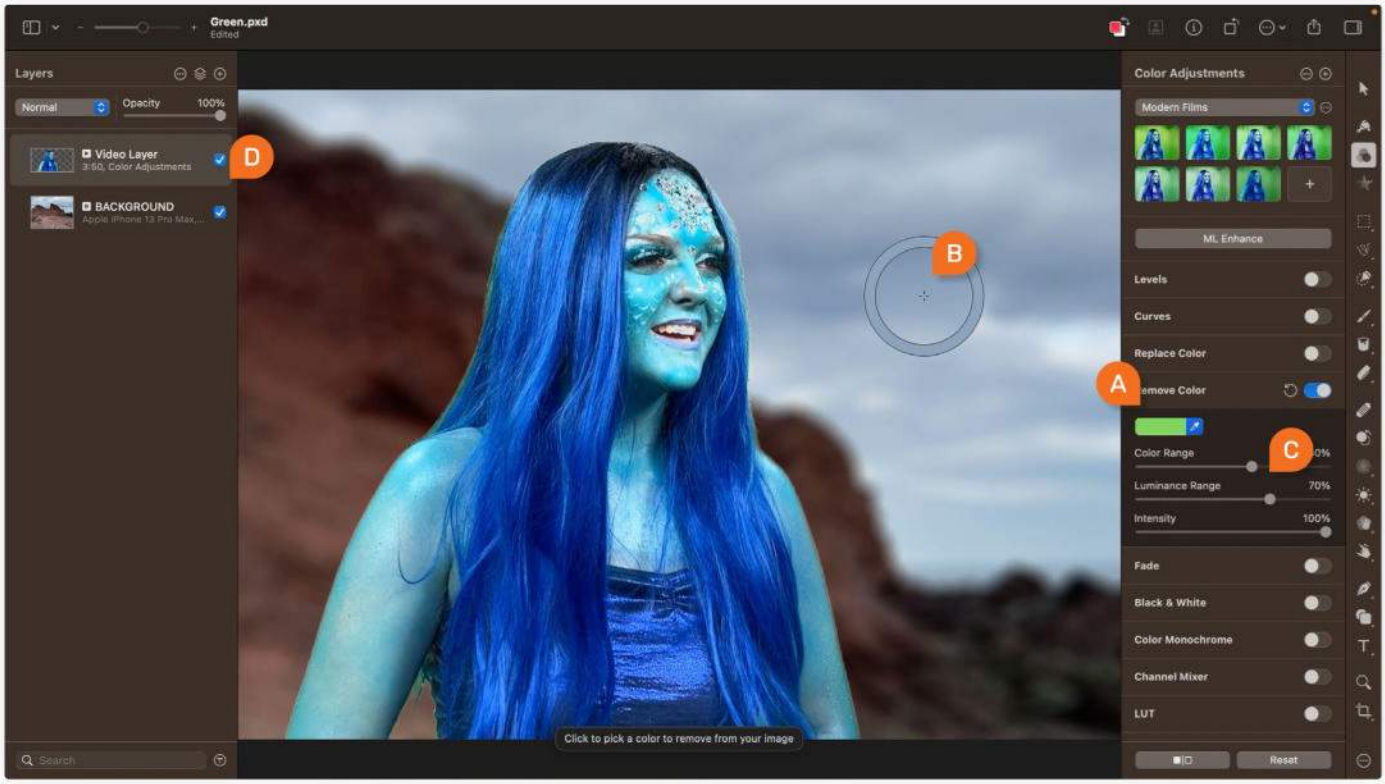
JARGON BUSTER

Touch Alternatives are controls that mimic touch gestures on your Mac, letting you use the arrow keys to swipe left and right, for example.

GENIUS TIP

Not all iPhone or iPad apps downloaded via iMazing will work on your Mac. You might get an error message, in which case you'll need a replacement app.

Image rights: Apple Inc, Vaccor LLC, Innersloth LLC, DigiDNA SARL.



QUICK LOOK Work with the Remove Color feature

A

REMOVE COLOR
The new Remove Color tool lives in the Color Adjustments panel. Toggle it on to get started.

B

SAMPLE
After picking the eyedropper use the Loupe tool to magnify and sample the color that you want to remove.

C

FINE-TUNE
These sliders fine-tune the range of colors that are removed, which is effective for removing unevenly lit backgrounds.

D

LAYERS
Once you've created a transparent background on the top layer you can add a new background on the layer below.

Selective color editing

Indulge in creative compositing using Pixelmator Pro 3.3's handy tool

REQUIRES
Pixelmator Pro 3.3 ($49.99), macOS 11 or later

YOU WILL LEARN
How to remove a specific color and add a new background

IT WILL TAKE
10 minutes

THE MACOS VERSION of Apple's Photos app has a Selective Color panel that enables you to target a specific color in a picture and change its hue, saturation and brightness. This powerful tool is a springboard to a range of creative looks such as turning a blue sky into a cinematic cyan. You can also selectively darken the blue sky to make the clouds pop out in contrast. Pixelmator Pro has a very similar selective color panel, but thanks to the latest upgrade that app now boasts an additional tool that Photos doesn't have: Remove Color.

This useful tool enables you to target a specific color (such as a green background) and turn it completely transparent. You can then place another image on a layer below to give your isolated subject a new background. Remove Color works with stills and videos, so we'll put it through its paces with a green screen video clip (though the techniques are identical for removing color in still images).

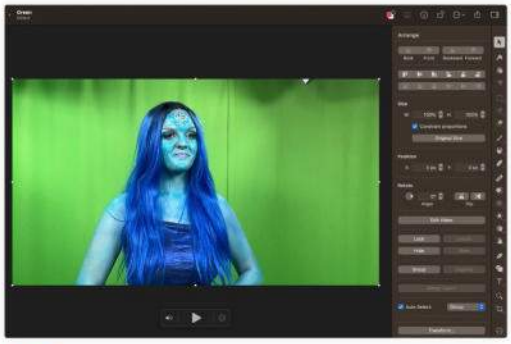
BLUE SCREEN ON A BUDGET

We shot our subject against a colored backdrop in a dedicated green screen studio, but you could purchase a large green (or blue) card and use it as colored background for your subject. This green/blue screen compositing technique could be handy for YouTubers who want to add a more exciting backdrop to their "talking heads" footage.

GEORGE CAIRNS

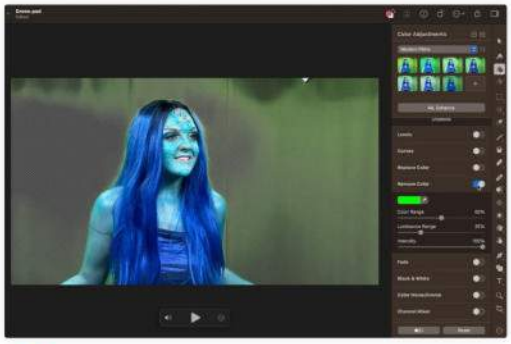
Image rights: Apple Inc, Pixelmator Team.

HOW TO Remove colors



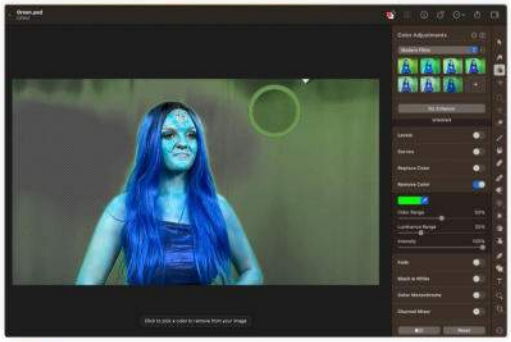
1 Import asset

At Pixelmator Pro's launch screen, click "Browse files on your Mac" to select a clip or still. Here we can view our video clip by tapping the Play icon. We shot our blue "alien" girl against a green background.



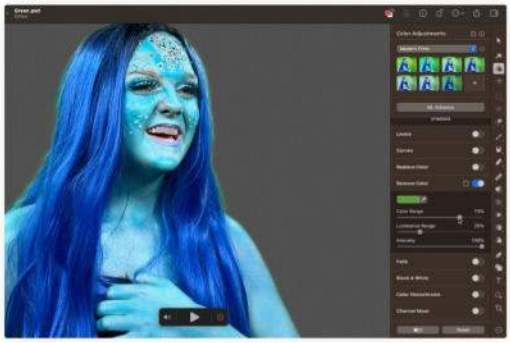
2 Remove color

Press the "A" key to summon the Color Adjustments panel. Scroll down to the Remove Color tool to toggle it on. The tool is designed for compositing, so the green background automatically becomes semi-transparent.



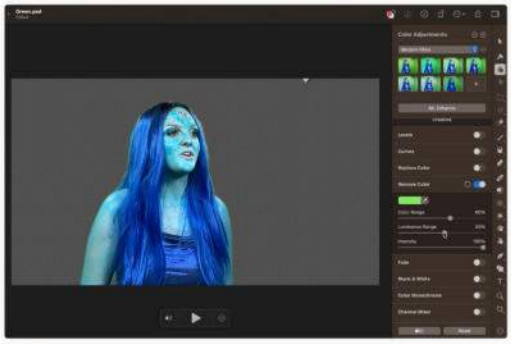
3 Take a sample

As the green screen is unevenly lit some parts are more transparent than others. Click the eyedropper tool and then click to sample a remaining section of green. More background green pixels will become transparent.



4 Erase variations

To remove variations of green backdrop from the clip, drag the Color Range slider to the right. Note: if you drag it too far you may cause highlighted areas on your subject (such as teeth) to become transparent too.



5 Luminance range

Thanks to shadows on the background, the brightness of the green curtain varies, causing patches. We can include more variations of green in our sampled color by dragging the Luminance Range slider to the right.

6 Add background

The Intensity slider makes the green background semi-transparent, so leave it at 100%. To composite our character into a new location drag a background image on to a layer below the clip in the Layers panel.

GENIUS TIP

When working with video it's important to check the background transparency throughout the sequence. Click the "..." icon by the playhead and scrub through the sequence.

GENIUS TIP

To remove green fringing round the edge of the subject, click the green swatch in the Selective Color panel and drag the Saturation slider to 0.

Image rights: Apple Inc, Pixelmator Team.

Start journaling with Day One

Day One gives you all the tools to create multimedia journals

REQUIRES
Day One Journal app, iOS 16 or later

YOU WILL LEARN
How to keep a digital diary

IT WILL TAKE
5-10 minutes a day

JOURNALING IS A great way to clear your head, organize your thoughts, and can really benefit your mental health. If you don't want to dust off your old paper diary, the Day One app for Mac, iPhone, iPad and Apple Watch can help you build a multimedia journal, or even multiple journals. You can include photos and text, and the app can tag your location too, mapping where you journal.

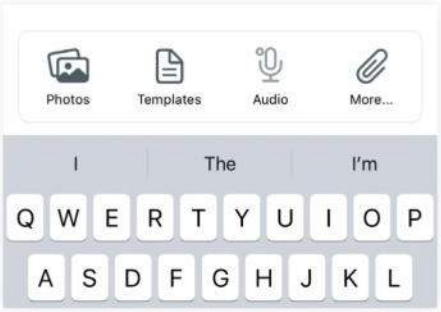
For a more authentic journaling experience on iPad, Day One will accept input from either an Apple Pencil or from a third-party device such as a Logitech Crayon. A free version is enough to get you started, but the Premium tier ($34.99/year via in-app purchase) offers cross-device syncing, support for unlimited photos/video and input via audio recording, among other additional features.

Day One is very intuitive to start using, but also offers plenty of features to explore and use as time goes on, and could be a great alternative to Apple's Journal app, which will arrive later this year. **CHARLOTTE HENRY**

HOW TO Journal with Day One

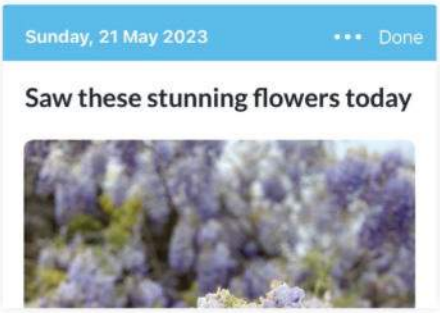
1 Create an account

You need to create an account. You can do that manually or simply sign in using your existing Apple ID. Various other options are presented the first time you use the app — for example, whether you wish to receive notifications.



2 Add your first entry

Tap on the "+" sign at the bottom of the screen and that will open a new journal entry where you can start putting your thoughts down. Day One automatically records the date and time on which you create an entry.



3 Start adding photos

It is not just text you can add. Tap on the photo option to add pictures from your Camera Roll that mean something to you. Day One uses metadata from your snap to record when and where it was taken in your journal.

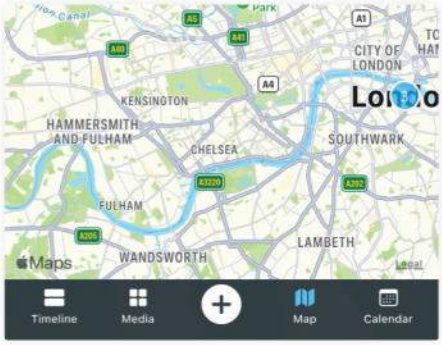
Image rights: Apple Inc, Automattic Inc.

4 Import your Insta

You can import your entire Instagram account. Tap the gear icon to open Settings, scroll to Instagram, then tap Connect Instagram Account. Importing photos can take a while, but new ones are then automatically added.

5 See your calendar

There are different ways to see your journal entries. They are all accessible from the toolbar at the bottom. Calendar view is nice as you can see exactly what you added on which day, just like a traditional journal.

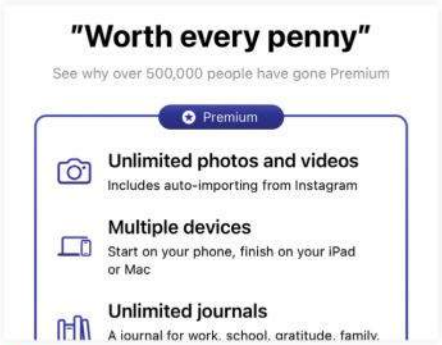


6 Check your map

You can also see the map of where you have journaled from by tapping the Map option from that same timeline at the bottom. The number in a blue circle on the map shows how many entries you've made from a particular location.

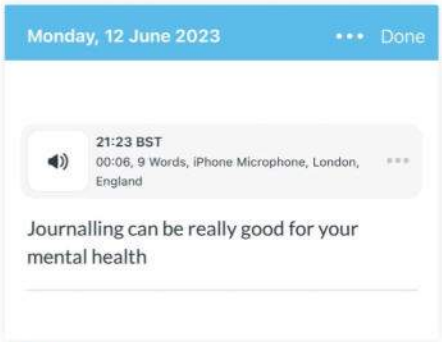
7 Get on a streak

To encourage you to add to your journal regularly, Day One monitors how many days in a row you have made an entry. You can check your streak in the blue toolbar at the top when in timeline view (accessible in the bottom toolbar).



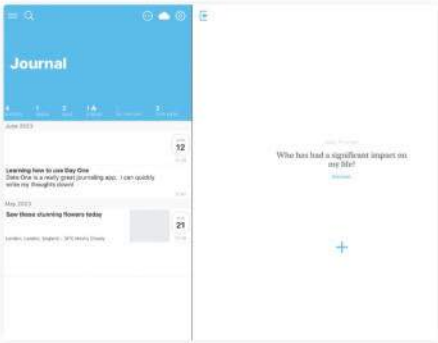
8 Time to upgrade

If you're in a journaling flow, it might be time to upgrade to a Premium account. Go to Settings > Account Status and start the one-month trial. You can always cancel if you don't want to continue with a Premium subscription.



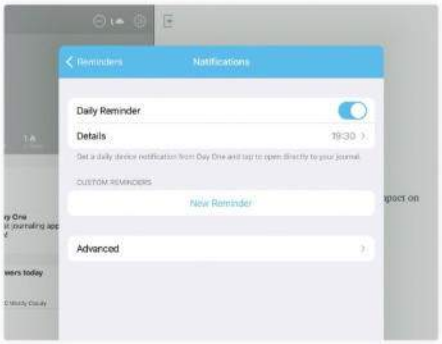
9 Add some audio

With a Premium account you can record audio entries too. Tap the Audio button, press Record and both the audio and the transcript get saved. You can record for up to ten minutes and still add extra text afterwards.



10 Sync across devices

Another great premium feature is being able to journal across devices. Open your journal on your Mac, iPhone or iPad and everything from your other devices will be synced across them when you have an internet connection.



11 Set a reminder

To keep up your habit of journaling, you can set a reminder. Go to Settings > Reminders and set as many as you want at whatever times are preferred. The Advanced settings let you turn Apple Watch notifications on or off.

12 Add new journals

A Premium membership allows unlimited journals, so you can set up a personal one, a work one, etc. Go to Settings > Journals, then press the New Journal option to create a new one and pick settings like name and color.

Image rights: Apple Inc, Automattic Inc.

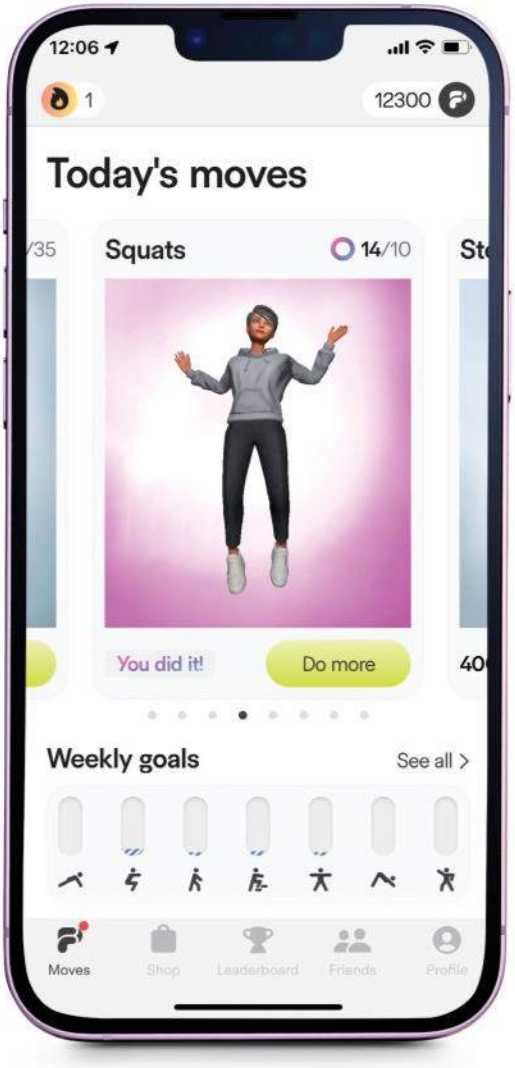
Gamify your fitness with Playfitt

Earn rewards as you push your fitness goals

REQUIRES
Playfitt, iOS 14 or later

YOU WILL LEARN
How to use Playfitt to build a strong and enjoyable exercise habit

IT WILL TAKE
10 minutes



WE ALL KNOW that exercise is hugely beneficial, not just for our physical capabilities, but in terms of the positive effects it can have on our happiness and mental state. Yet turning exercise into a consistent habit is often tricky.

Enter Playfitt. This app aims to build exercise into a strong, lasting habit that sticks with you. It does this by "gamifying" your activities with goals, achievements and rewards, encouraging you to keep coming back for more.

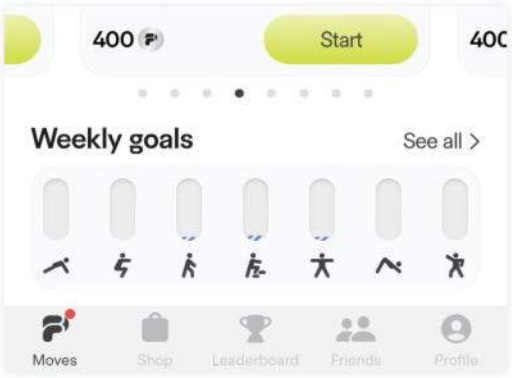
How does this work? Simple: every time you complete an exercise goal, Playfitt rewards you with coins that can be spent on real-world prizes like gift cards. It sets you challenges and shows your place on a leaderboard, tapping into the type of competitiveness that helps habits form. Before you know it, this approach will turn exercise into something you want to do day after day. It's fun, satisfying, and free to start, while a premium subscription unlocks extra rewards and faster progression.

ALEX BLAKE

GENIUS TIP

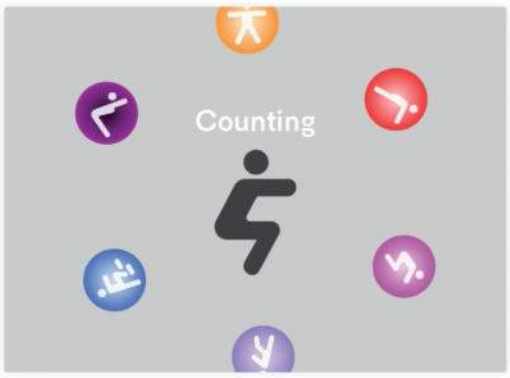
Playfitt rewards you for exercising on consecutive days. If you want to protect your streak while you're away, you can use a Streak Saver token.

HOW TO Make fitness fun



1 Daily goals

Goals that Playfitt has set you for the day are on the Moves tab, with the reward shown under each one. Swipe through to choose an activity. Some (like steps) are measured automatically; others are done manually.



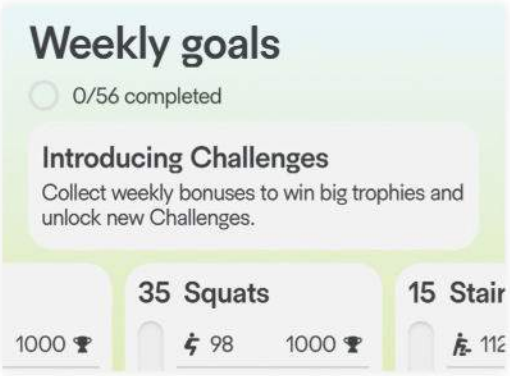
2 Get started

Choose a manually measured exercise and tap Start. Here we'll do squats. This requires you to put your iPhone in your pocket and listen to the instructions. Playfitt logs your squats for you as you do them.

Image rights: Apple Inc, IntelliSports Inc.

3 Coin rewards

Once you hit your target, you'll earn coins from the app. Accumulate coins over time and you can spend them on rewards such as gift cards. Return to the Moves tab and you'll see your goal has now been completed.



4 Weekly targets

Scroll to the bottom of the Move tab to see your weekly goals. Tap "See all" to find out how you're doing against your target. Each exercise has several tiers, and reaching each one lets you collect more rewards.

5 Spend your points

Once you've collected enough coins, you can spend them on the Shop tab. You can pick up boosters, which help you earn more rewards for each activity, or exchange your coins for gift cards and charitable donations.

6 Get competitive

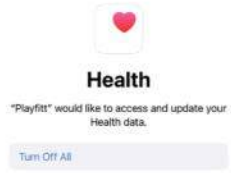
Playfitt also has a competitive element. You can view your current ranking on the app's Leaderboard tab and move up through the ranks, or invite your friends and compete against them for points from the Friends tab.

7 Stat history

On the Profile tab, select "See all" next to "Your stats". Here you can see your past performances and filter by exercise type and time period, and also see your rewards. Tap a bar on the graph for specific metrics.

8 Breakthroughs

Your profile also shows the boosts and upgrades you have earned (such as a streak preserver), as well as your "breakthroughs". Think of these as achievements that mark your progress, like performing 100 crunches.



GENIUS TIP

Playfitt doesn't sync all your Apple Health data by default, but enabling it in the app's settings lets the app log more accurate exercise data.

JARGON BUSTER

As well as coins, Playfitt lets you earn trophies by doing activities. The more trophies you have, the higher your leaderboard ranking.

Image rights: Apple Inc, IntelliSports Inc.

Use alternative keyboards on iPhone

How to put many more options at your fingertips

REQUIRES
A keyboard app installed from the App Store; Microsoft SwiftKey (Free) requires iOS 11 or later/ Gboard (Free) requires iOS 12 or later

YOU WILL LEARN
How to swap Apple's default keyboard for third-party alternatives

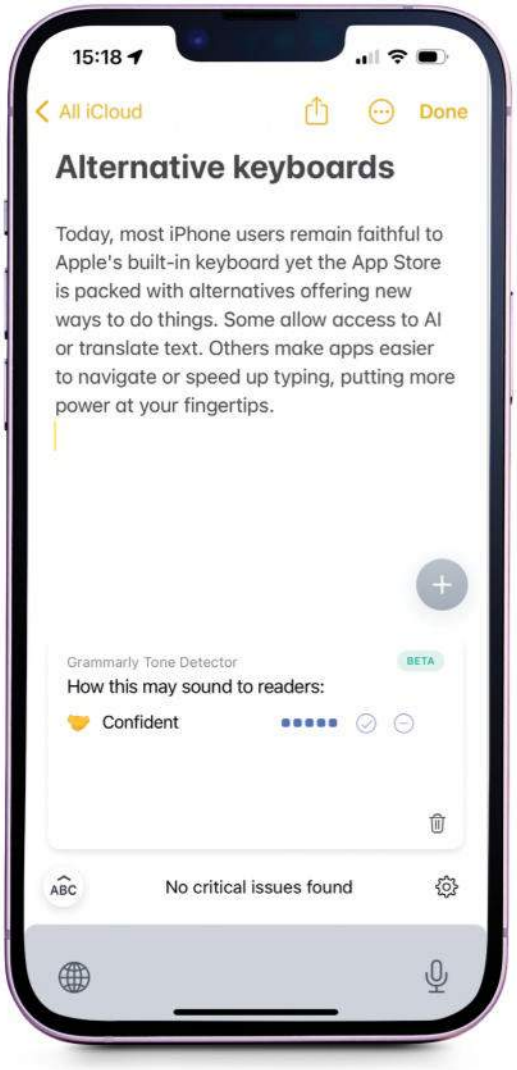
IT WILL TAKE
10 minutes

WE TAKE ON-SCREEN keyboards for granted but let's pay tribute to Ken Kocienda, a software engineer at Apple for more than 15 years. He worked on the iPhone's inaugural virtual keyboard and invented keyboard autocorrect. For those used to repeatedly pressing a physical key on a mobile phone until the required letter was shown, it felt like progress.

Today, most iPhone users remain faithful to Apple's built-in keyboard, yet the App Store is packed with alternatives offering new ways to do things. Some allow access to AI or translate text. Others make apps easier to navigate or speed up typing, putting more power at your fingertips.

But before taking the plunge, a warning. Grant a third-party keyboard full access and developers can potentially view what you type. So always check the privacy policy of a keyboard before entering sensitive details, although many promise to only store information on your device.

DAVID CROOKES



HOW TO Change your keyboard

1 Launch Settings

First, launch the App Store and download a third-party keyboard. Then open the Settings app and select General > Keyboard. You can also edit your keyboard preferences here — toggle the buttons next to each option.

2 Add new keyboard

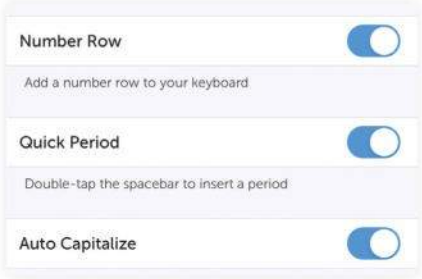
Select Keyboards to see your current selection. The top entry is the one you're using, tap to switch between different layouts (Qwerty, Azerty, Qwertz and Dvorak). For third-party alternatives, tap Add New Keyboard.

3 Third-party options

Select your pre-installed third-party keyboard — once added, you may need to tap it to grant full access. Now go to an app that uses a keyboard. Touch and hold the globe icon (bottom left) and select your alternative.

Image rights: Apple Inc, Microsoft, Google Inc, Typewise.

HOW TO Master Microsoft SwiftKey

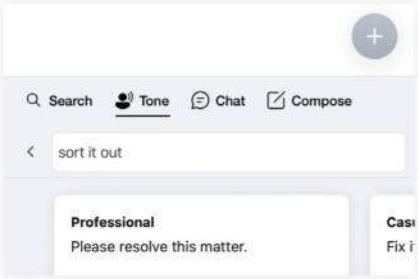


1 Add a number row

Set up SwiftKey by tapping the Microsoft icon above the keyboard. Tap Settings, sign in, then choose Settings to perhaps add a number row or revert autocorrect when tapping backspace. Or tap Themes for a fresh look!

2 Translate/copy text

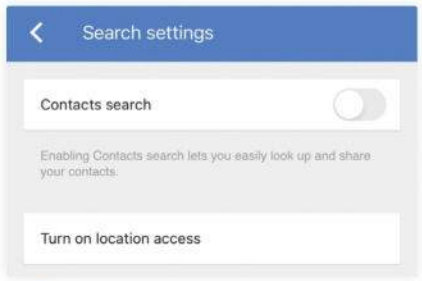
Want to type in a foreign language but don't know the lingo? Tap the Translate icon! Select the language you want to translate to, type and tap the arrow. You can copy text and review it by tapping the Clipboard icon.



3 Use Bing Chat

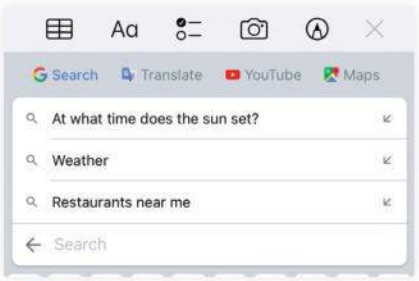
The AI-powered Bing Chat has been integrated with SwiftKey. Tap the Bing icon and you can use AI to find answers from the web, assess your text for tone, and have a conversation. Use it to write text for you.

HOW TO Utilize Gboard



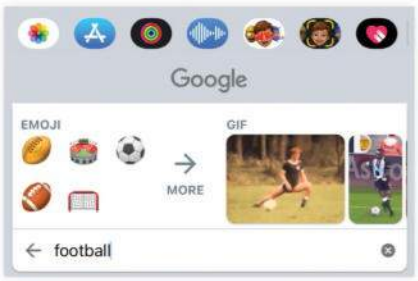
1 Turn on location services

Gboard lets you search Google directly from the keyboard. Open the Gboard app and, when Gboard's settings appear, tap "Search settings" > "Turn on location access", allowing for localized searching.



2 Search Google

Now, when using the keyboard, tap the Google icon. You can select one of Gboard's suggestions or type your own query. You can also look for locations via Maps, find YouTube videos, share contacts or translate text.



3 Quickly add a GIF

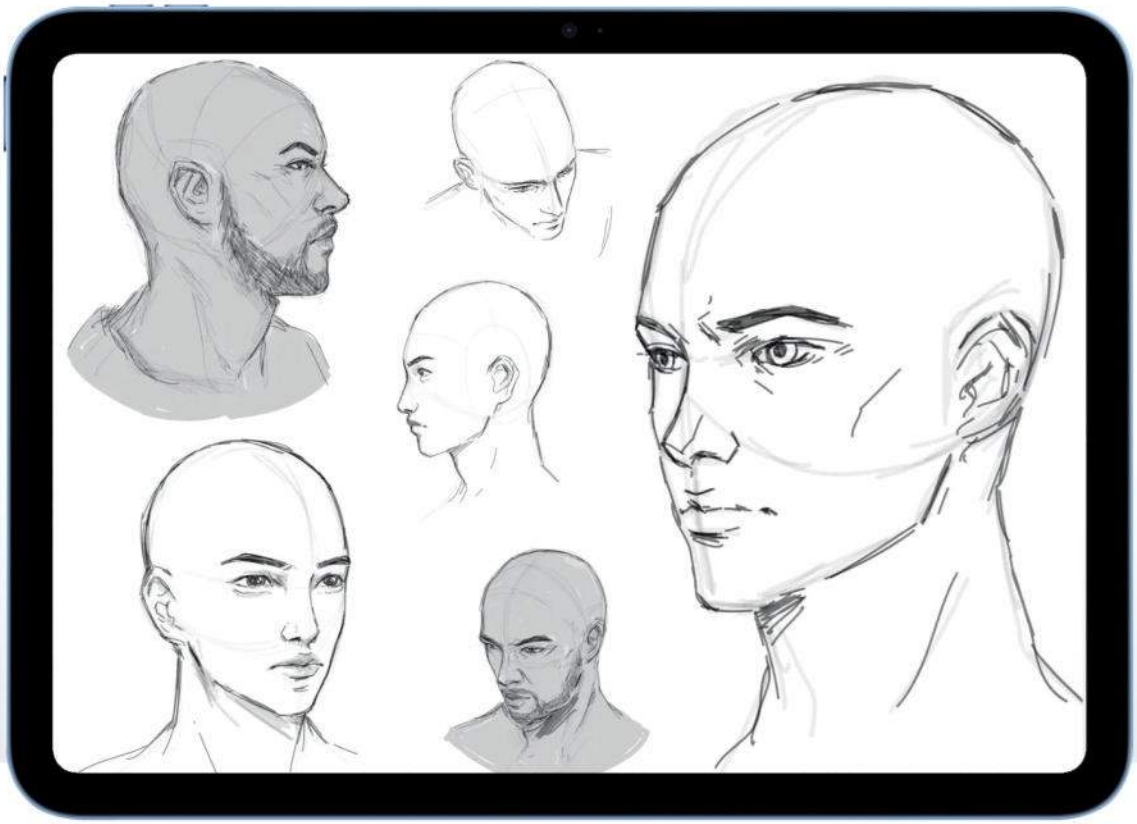
If you want to express yourself with an image rather than words, you can use a sticker, emoji or a GIF. Gboard gives access to all three. Just tap the icon above the keyboard and enter a search term to see your options.

> KEY TO SUCCESS

More alternative keyboards to write home about

Some alternative keyboard options offer extra benefits. Typewise Custom Keyboard (**www.typewise.app**) helps to reduce typos by having larger keys aimed at two-thumb typers. URL Quick Keyboard is perfect for quickly navigating through a web address in Safari, while Grammarly (**www.grammarly.com**) checks for gobbledegook and improves your language. Phraseboard Keyboard (**www.phraseboard.com**) lets you store phrases so that you don't always need to type them in full, while ReBoard (**https://reboardapp.com**) integrates with many popular apps and is hugely flexible, enabling you to customize layouts, fonts and more.

Image rights: Apple Inc, Microsoft, Google Inc, Typewise.



Learn to draw on iPad

Think you can't draw well? ShadowDraw will teach you how

REQUIRES
ShadowDraw app (Free, offers IAPs), iPadOS 14.3 or later

YOU WILL LEARN
How to create accomplished drawings

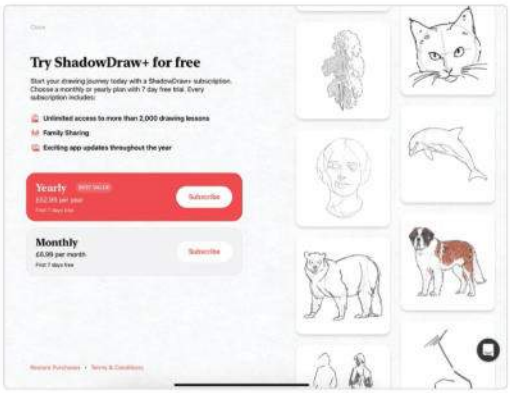
IT WILL TAKE
30 minutes

GENIUS TIP

Some of the lessons here are quite fiddly, but you can pinch and stretch your fingers to zoom in and out to make things much easier.

THE MAIN THING that prevents us from being global art superstars is, well, our complete lack of drawing skill! ShadowDraw promises to help with that. If, like us, you've always wanted to draw but haven't been taught how, or if you just don't feel very confident, it's a great way to bring out your inner Degas or Dürer.

The app is designed for absolute beginners, and it takes you step by step through the process of turning an idea into an artwork. Rather than tell you how to draw something, it shows you; you'll see the pen or brush strokes of an artist on your iPad's screen, and you learn how to draw by copying the artist's own moves. Get it right and you'll move on to the next bit; get it wrong and you'll be gently guided towards the correct positioning.



The most cost-effective way to use ShadowDraw is with a subscription. There's a free seven-day trial.

WHAT IT'S WORTH

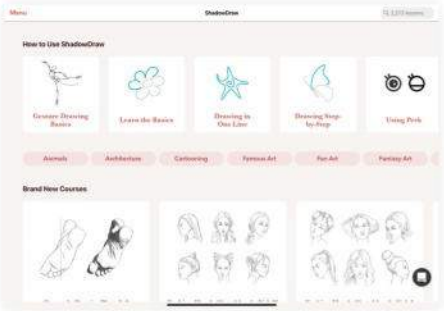
ShadowDraw is a free app, but monthly/yearly memberships, as well as individual add-on packs for particular kinds of drawings, are also available. A guide to drawing kittens, for example, is $1.99; it's also $1.99 for a guide to illustrating really angry cats, and you'll pay the same price for a guide to drawing many artists' least favorite body part: hands.

If you'd rather pay a flat subscription, ShadowDraw is $7.99 per month or $49.99 per year. It supports Family Sharing so you can share the full library — up to 1,000 guides — with up to five other family members. We'd say the subscription option will work out more economic in the long run. The app is really easy to get started with, so let's do just that...

CARRIE MARSHALL

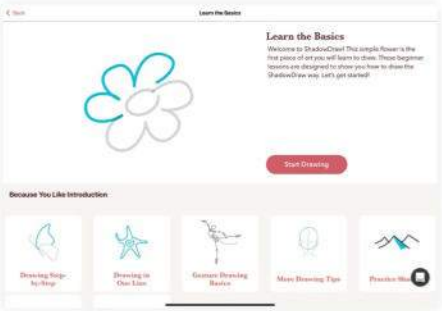
Image rights: Apple Inc, Shadow Draw Inc.

HOW TO Improve your drawing skills on iPad



1 Choose a section

The front page of ShadowDraw is organized into sections, with free lessons at the top and paid–for courses below. While there are lots of courses for more experienced artists, we're going to start with the basics via Learn The Basics here.

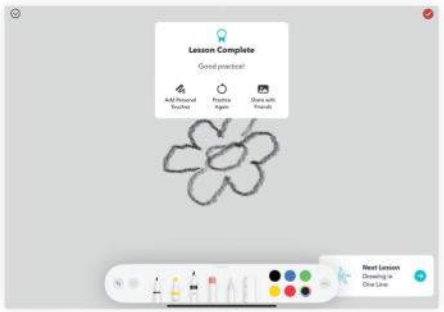


2 Pick your lesson

As you can see, there are lots of introductory lessons here. Let's go with the simplest one, which will show us how to draw as well as teach us how to use ShadowDraw's key features. Tap on Start Drawing to begin your first lesson.

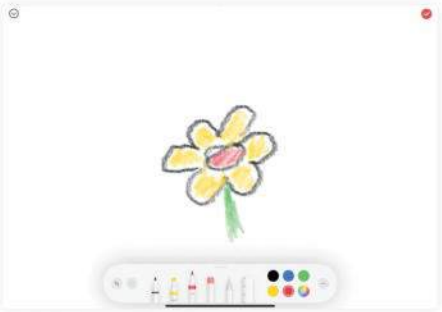
3 See and repeat

ShadowDraw doesn't tell you how to draw; it shows you. Each image is broken down into single–stroke steps, and you simply draw on top of the turquoise lines. When you do, the guide lines vanish and the app draws the next step.



4 Do it your way

It's hardly Van Gogh's *Sunflowers*, we know, but having drawn our first flower we can now share our artistic genius with others, repeat the lesson or play with our drawing. Let's do that last one. Tap on Add Personal Touches.

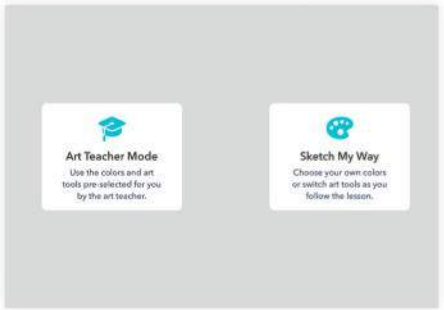


5 Enhance your art

As you can see, the drawing remains on screen but we've been able to use the drawing tools to add flourishes: simply tap on the tool you want to use and on the color. The "…" icon provides access to more detailed controls.

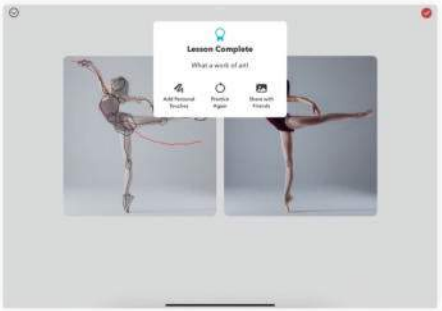
6 Get more advanced

Tap on the check mark (top right) to return to the menu. This time we're going to pick something a bit more involved, which is figure drawing. Before ShadowDraw gets you to follow it, it shows you what you're going to be producing.



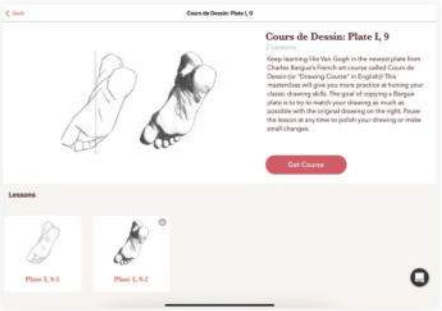
7 Pick a mode

There are two modes you can use here. Art Teacher Mode chooses the brushes, pens and colors for you; Sketch My Way enables you to pick your own tools and colors. We'll stick with Art Teacher Mode for this one.



8 Follow the teacher

This time the lesson isn't about creating a finished drawing; it's about understanding the different bits of a body and how they connect. The app outlines each key area as a circle or a line and your job is to copy each one.



9 Get seriously arty

We've focused on absolute beginner lessons here, but ShadowDraw can teach you much more advanced drawings — for example here you can do a masterclass in form and shading. These advanced courses require a subscription.

Image rights: Apple Inc, Shadow Draw Inc.

Master the Find My apps

Find people, iPhones and AirTags on your Apple Watch

REQUIRES
Your Apple Watch, some things to find

YOU WILL LEARN
How to set up and use Find My apps

IT WILL TAKE
10 minutes

GENIUS TIP

Can't find your Apple Watch? Find My can locate that too. If your iPhone isn't handy you can use iCloud.com to locate your missing Watch.

NO PUN INTENDED, but we've lost track of the number of times the Find My app has helped us locate lost items or warned us of items we've left behind. From errant AirPods to misplaced iPhones and the odd AirTag–enabled wallet, purse or bag, the Find My apps have saved us a great deal of stress and probably a lot of money too.

Your Apple Watch has three apps that use Apple's Find My service: Find Devices, Find Items, and Find People. They all use Apple's Find My network, which is enormously clever; whenever your device or AirTag is within range of an Apple device, it sends an encrypted signal to Apple via the device's Bluetooth connection. The other device doesn't see the signal; it just passes it on to Apple — and when you activate the Find My app, the app simply asks Apple "hey, where's that device?"

The new Check-in feature in iOS 17 can automatically tell friends or family when you arrive at a particular location.

SOUNDS AND WARNINGS

When you locate a missing device, the apps do several things. They tell you where it is or where it was last located, enabling you to see that location in Maps. They enable you to play a sound to help you find it if it's nearby, or alert others in the area. And you can use the apps to warn you if you leave a particular item behind. We have an AirTag in our bag for exactly that reason.

In this tutorial, we'll show you how the three Apple Watch Find My apps work, and what they can and can't do across all kinds of Apple devices and accessories.

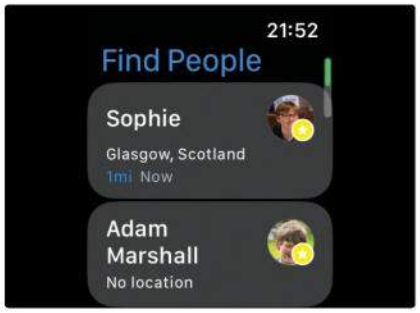
CARRIE MARSHALL

Image rights: Apple Inc.

HOW TO Locate your stuff with Find My

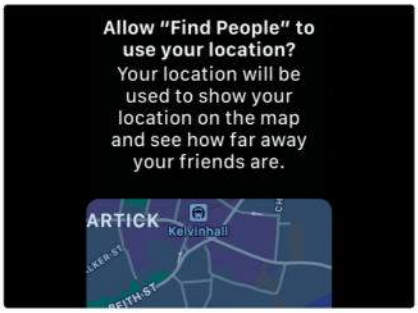
1 Find the finders

The Find apps on your Apple Watch are the sensibly named Find Devices, Find Items, and Find People apps, which share the same icon colors but have different images. We'll start with People first, so let's tap that icon.



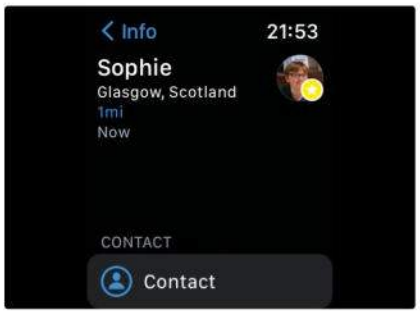
2 Locate a person

In order to find a person, they need to be sharing their location with you. Here we have two family members; because we use Family Sharing, we can enable location sharing in the Family control panel on iPhone, iPad or Mac.



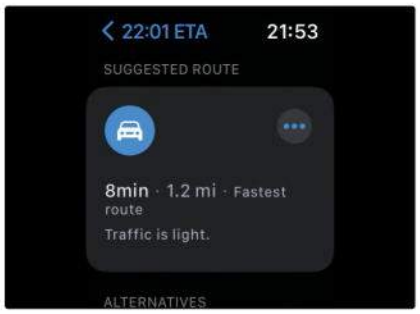
3 Share yourself

The first time you use one of the Find apps on your Watch, you'll be asked whether you want to use your location. Say yes to this request, because any direction–based information needs to know where you are.



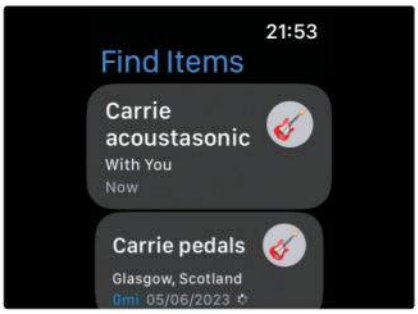
4 See where they are

We've blacked out the details for privacy here, but trust us: this screen shows the exact location of our child on a map as well as details such as the approximate house or flat number, the street name, and the postcode.



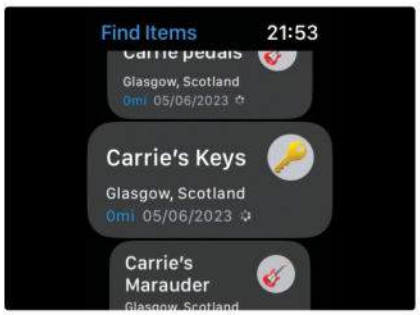
5 Get directions

If you want to find that person, scroll up until you see the Directions icon (immediately under Contact). This will bring up info from Maps telling you how far away they are, how long it'll take, and what the traffic is like.



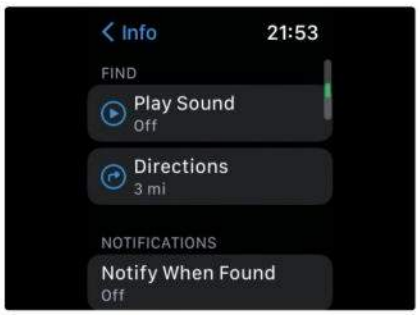
6 Find lost items

Find My works with AirTags too. You can use AirTags on musical equipment, say. As you can see here we're in the same place as our guitar and pedals. That's fine with something big, but what if you lose your car keys?



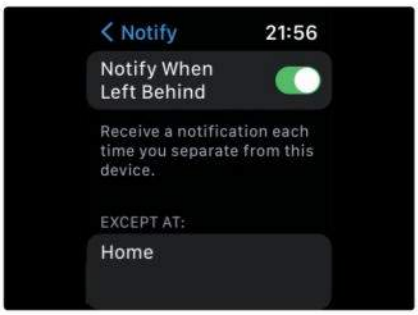
7 Find your keys

Not to worry — we've got an AirTag on our key ring too. Knowing the location isn't really helpful here — just because we're in the same building as our car keys doesn't mean we know where they are. Apple has a solution.



8 Make some noise

In both the Find Items and Find Devices apps, you can play a sound to help locate an item that's within range but not visible — so you can get the AirTag on your keys to announce where it is, or make your iPhone ping.



9 Learn the lesson

If like us you're prone to forgetting things, you can set the Notify When Left Behind toggle for individual devices or people — so if you go out without your bag or keys, you'll get a notification on your Apple Watch.

Image rights: Apple Inc.

End-to-end encryption

The gold standard for security and privacy? But what exactly does it offer?

HOW IT WORKS

YOU WILL LEARN

What end-to-end encryption does, how it can differ between apps, and why it's not always welcome

ENCRYPTION USES KEYS TO SAFELY LOCK DATA AWAY BY CONVERTING IT INTO A RANDOM CODE

KEY FACT

If you want to use end-to-end encryption in Facebook Messenger, you'll need to use your iPhone or iPad and begin a secret conversation. Start a chat in the usual way but toggle the lock icon in the top-right of the screen. You can then choose who you want to message, but bear in mind that these conversations can only be viewed via iOS, iPadOS and Android.

PSST! WANT TO know a secret? Then jump on to a messaging service that has end-to-end encryption so we can discuss it more discreetly. Don't worry, nobody can intercept what we share. End-to-end encryption (or E2EE) means that only those allowed to join the chat can access messages, with third parties prevented from reading any sensitive data and there being no fear that documents will fall into the wrong hands.

If that sounds too good to be true, then let's make one thing clear. E2EE is of great importance to anyone who values their privacy. It's used by WhatsApp, Signal, Proton Mail and many other apps and services, protecting your data from cybercriminals, hackers and snoopers. It ensures data sent by a user remains secret until it reaches its intended endpoint — which, in the case of a messaging app, is another user's device.

Not that E2EE is limited to messages. Banks use it, as do many other businesses. Apple also understands the benefits of E2EE for storage, which is why it offers a setting called Advanced Data Protection. Use it and you can encrypt the majority of iCloud data end-to-end with the exception of the Calendar, Contacts and Mail apps. Data can only be decrypted when you're signed in with your Apple ID on your trusted devices. It's scrambled on Apple's servers.

You will be able to encrypt iCloud Drive, Photos, Notes, Messages Backup, Reminders and more with Advanced Data Protection for iCloud.

PRIVATE EYE

But just how does it work? In general, encryption uses cryptographic keys to safely lock data away by converting it into a random code. Such code can only be converted back into its original state by using the correct key and this allows you to encrypt data on a computer, phone or tablet or send scrambled info to other devices or cloud servers via the internet.

The important thing is who has access to the keys. If, say, you're using Google Drive, you're allowing Google to keep hold of them. Any files you upload to its cloud server will be encrypted with AES-256 (a strong symmetric encryption algorithm which prevents third parties from snooping), but it's possible for a Google worker to unlock and decrypt your data.

Store files in iCloud using Advanced Data Protection, however, and the situation is different. Apple will still encrypt your files but it won't have the keys to decrypt them. That's because E2EE comprises a set of public and private cryptographic keys. After users sign up to a service that makes use of end-to-end encryption, a public key is generated and saved onto the service's

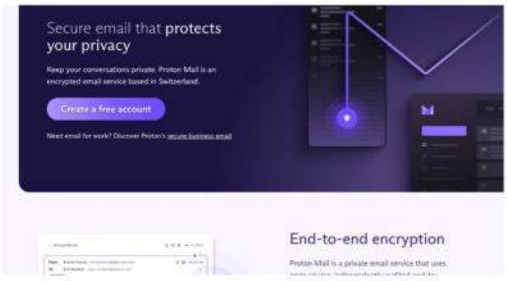
Image rights: Apple Inc, Proton AG.

> WHAT DO GOVERNMENTS THINK ABOUT END-TO-END ENCRYPTION?

There is growing pressure on companies to weaken end-to-end encryption systems. Policymakers would like services that use the technology to scan messages in order to identify and remove material related to child abuse. It could also prevent terrorists and other bad people from using end-to-end encryption to hide their activities.

In the US, there are three bills before Congress: the STOP CSAM Act, the EARN IT Act, and the Kids Online Safety Act. In general, they seek to make companies, non-profits and individuals liable for harmful content being shared in an encrypted environment and could see the end of end-to-end encryption. Yet while there is support for such measures, some groups, including the Internet Society, argue that the bills, if passed, would make the internet *less* safe. Similar measures against E2EE are also being taken in other countries: the UK is considering the Online Safety Bill.

If you open your WhatsApp settings, tap Chats and Chat Backup, you can turn on E2EE backup when saving your archive to iCloud or Google Drive.



Proton Mail says end-to-end encryption protects against data breaches and it promises no-one else will be able to read your messages.

server. A private key is also created and this is stored on the user's device. The idea is that no-one other than the user can access that latter key. This works particularly well when sending messages: the recipient's public key is used to scramble the data into a long series of digits and the recipient's private key is then used to unscramble the information so that it can be read on the recipient's device. If anyone managed to intercept the data during its journey, they would be faced with gobbledegook and have no means of making sense of it. Crucially, since the service providers themselves don't have the private key, they can't read it either — they simply don't have access.

But that's not all. Services including Signal, WhatsApp and Facebook Messenger use the Signal Protocol developed by Open Whisper Systems and this includes the Double Ratchet Algorithm developed in 2013. It generates temporary keys whenever a new message is sent providing an extra defense mechanism. Hackers somehow gaining access to a private key would be limited to decrypting just one message. It's incredibly secure.

PICKING HOLES

So why isn't end-to-end encryption standard? Well, that is a question for developers, although there are legitimate reasons. Google, for instance, will read messages to pick out contextual data such as a calendar entry, or scan emails for potential spam.

But there are some odd situations such as Meta offering E2EE by default in WhatsApp (and recently introducing the ability to verify E2EE backup passwords for additional security) while forcing Facebook Messenger users to start a secret chat for the same benefits. What's more, there are different levels of E2EE. Pay for an X subscription, for instance, and you'll be able to send encrypted direct messages, so long as they don't contain media and other attachments or form part of a group chat. Metadata is not encrypted either so information about the date, time, who is involved and so on is not concealed. "When it comes to Direct Messages, the standard should be, if someone puts a gun to our heads, we still can't access your messages. We're not quite there yet," X states.

Still, it's a step in the right direction and E2EE is certainly proving vital for anyone concerned about privacy and security. If you don't want others snooping on your data, there is no better way.

DAVID CROOKES

KEY FACT

To make use of Advanced Data Protection for iCloud and use E2EE, you will need to update all your devices (you'll need at least iOS/iPadOS 16.2 and macOS 13.1). Open the Settings app on iPad (or System Settings on Mac), select your name and tap iCloud. Now choose Advanced Data Protection, turn it on and set up your recovery methods to avoid being locked out.

Image rights: Apple Inc, Proton AG.

ASK

TECH SUPPORT & TECHSPLANATIONS

EXPERT ADVICE
Our resident genius **Howard Oakley** solves your Mac and iOS problems

A missing key in virtual macOS

BRITISH AND US ENGLISH are so different they require separate keyboards: ISO in the UK, and ANSI in the US. They're easy to distinguish as the ISO version, commonly used in Europe, has different Shift and Return keys. Count the keys, though, and there's a more "sinister" difference, as the ISO keyboard has an extra key at the left of the numbers.

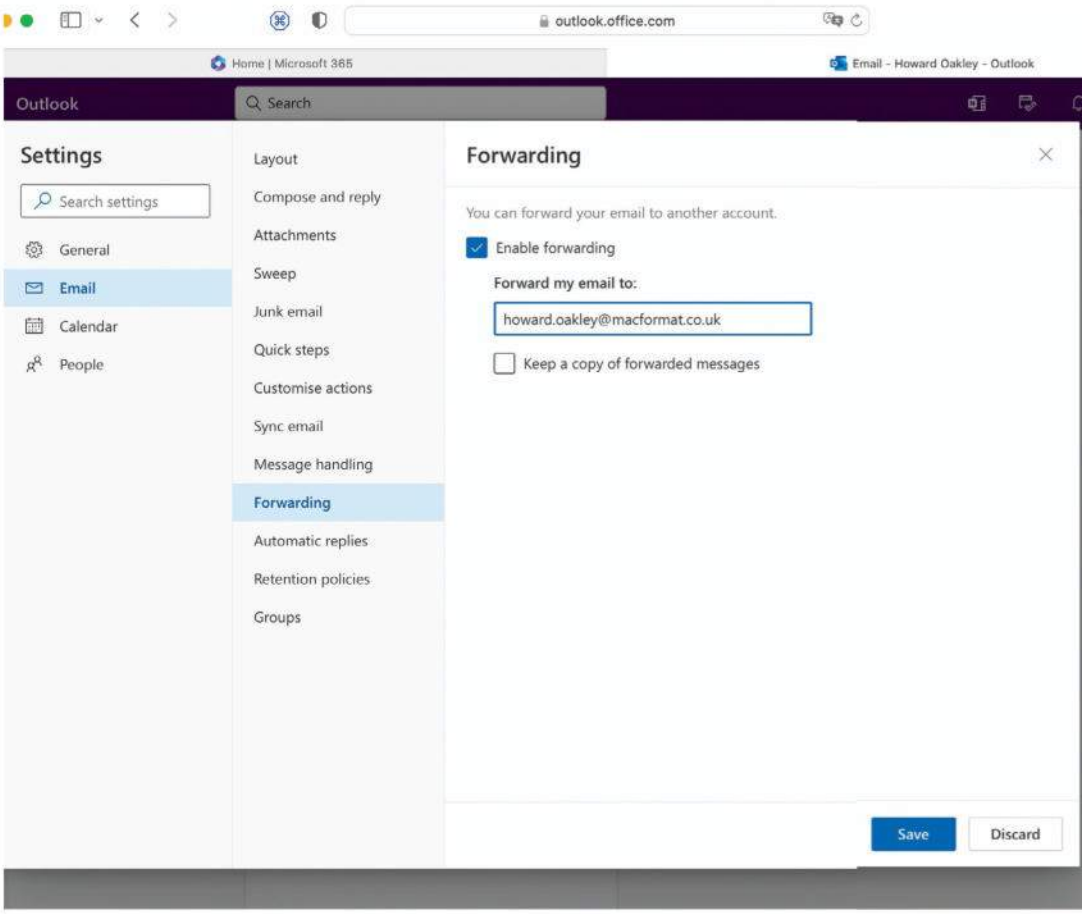
Apple supplies ISO keyboards and layouts for many languages, but macOS virtualization for Apple silicon Macs is an exception as it only supports ANSI. In practice, the difference you'll notice is that missing key: in ISO English layouts, it won't cause a problem, as that provides § and ± symbols. But in French, the ANSI layout loses @ and #, which are commonplace in computing, and make a virtual machine almost unusable.

> Blocked email accounts

My ISP says it's going to block basic authentication, so I can't collect my email using an app on my Mac, but have to use its web interface. How can I keep my local mailboxes?

Some ISPs are telling those with bundled mail facilities that this authentication block is being done by Microsoft to improve mail service security. Authentication using a username and password has been replaced with modern authentication, typically OAuth2. That requires your mail client to run a one-time setup with the mail server, so it can log in and fetch your mail using either POP or IMAP, and send using SMTP. But those providers aren't enabling that to let Microsoft's own Outlook 365 or clients like Postbox collect their mail securely. Instead, the only services they're supporting are webmail, or Outlook on iOS/iPadOS.

The best workaround is to set up accounts with another mail provider like Gmail or Titan, and set your original mailboxes to forward email to that account, from where you collect and read them using your email client. That's easy to configure in Outlook's webmail, although you'll still want to check your original mailbox on the web from time to time.



If your provider only allows web access to email, set it to forward everything to another account to collect it from.

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Mac|Life

Get official documentation at **support.apple.com** | Get help with hardware at **support.apple.com/repair**

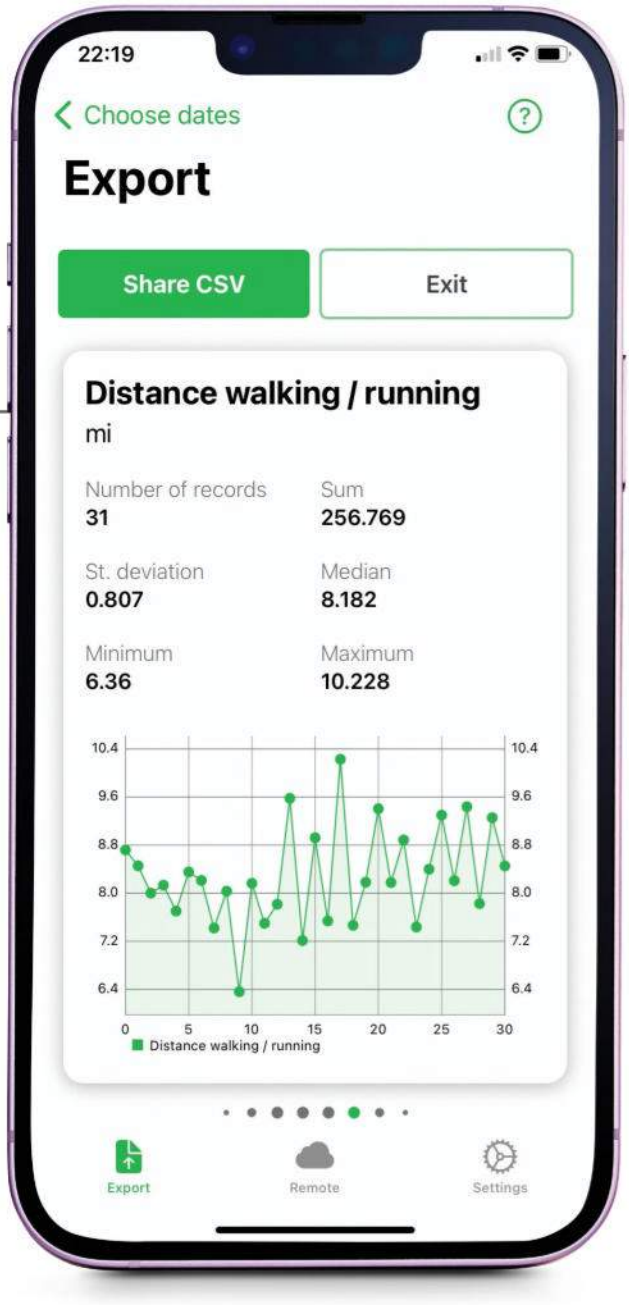
> Export your Health data to a spreadsheet

How do I go about downloading details of my daily walking distance from the Health app so I can turn the info into charts?

The Health app only provides a way to export all your data in formats unsuitable for spreadsheets. To use that, tap on your user picture at the upper right of the Summary, then on Export All Health Data. The app can take several minutes to prepare those files, and you can then AirDrop them to your Mac or another device, or save them to iCloud Drive. As they contain personal data, you may wish to protect them using encryption. In addition to ECGs and workout routes, there will be two large XML files containing all the data that the Health app uses to create its charts. Finding an app to then do anything useful with those is more of a challenge.

To make your own charts using Numbers or another spreadsheet you need a simpler summary of just the data you want in CSV format, available from Tomáš Pařízek's HealthExport app (**https://healthexport.app**). Once you've given permission for that app to access your data, select the data you want it to export; in your case, this is an "aggregated" type listed as Activity. This can include distances covered by walking, cycling, exercise time, and more.

Then tap on the "Export aggregated data" button and select the date range and period such as days. The app provides graphical previews of the data being exported, and you can send or save the CSV file as you need, so you can open it in Numbers or Excel.



Preview your Health data before HealthExport shares it in CSV format, to import into your preferred spreadsheet.

Quick-fire questions & answers

WHY WON'T MY iPAD CONNECT TO THE APP STORE?

Ensure your device has a good Wi-Fi connection. Shut it down, and wait 30 seconds before starting it up again. Then check in Settings > [your name] that it's signed in correctly with your Apple ID. If those are good, check service availability at **https://apple.co/30o527B**.

HOW TO TELL WHICH APPS TRACK MY LOCATION?

Tap Settings > Privacy & Security > Location Services to see a list of all the apps you've allowed to access your location data. To tell which apps use that data the most, those that have accessed location in the last 24 hours are marked with gray arrows, and those that have accessed it most recently have purple arrows.

Image rights: Apple Inc, Tomáš Pařízek.

Mac Hardware

We're here to help solve your hardware issues

Quick-fire questions & answers

WHICH PRINTERS ARE SUPPORTED BY MACOS VENTURA?

Macs can print to all those with full AirPrint support. Apple maintains a list of AirPrint devices at **https://apple.co/3KwzafV** including a dozen AirPrint-enabled print servers, and some that connect via USB only.

CAN I CONNECT A USB-C HUB TO MY STUDIO DISPLAY?

Yes, but you may prefer not to. It has three USB-C ports supporting up to 10Gbps, and three snags: these don't support faster USB 3.2 Gen 2x2 speeds, and all are fed through one Thunderbolt 3 connection with your Mac. They're active all the time the display is plugged in, but power down briefly whenever the connected Mac shuts down.

> Connect an enterprise U.2 SSD

Can I connect a U.2 SSD and use it with my Mac?

Many U.2 and U.3 SSDs are coming onto markets like eBay at present because enterprise users, who have relied on them in their servers, are getting rid of them as they are end of life and need replacement. Models like Samsung's PM1733 originally cost over $1,000 for 15TB storage and speeds of over 7GB/sec. They present challenges connecting them to Macs.

Some may have had hard working lives. Although Samsung claimed that they "never die", they do still age, and those in heavily loaded servers may be nearing their end of life. If you can, read its SMART indicators before spending any more money on it.

If you happen to have a 2019 or later Mac Pro, you can buy an add-in PCIe card for it with U.2 support. For all other Macs with Thunderbolt 3 ports you'll need a special enclosure with a suitable power supply and active cooling, otherwise they'll get exceedingly hot, suffer thermal shutdown and stop working. An OWC Mercury Pro U.2 Dual enclosure at around $230 is ideal, and accommodates a single U.2 SSD in each of its two bays. You can also populate an OWC U2 Shuttle carrier with up to four M.2 SSDs, and use that instead.

It's also possible to put together a string of adaptors to make the connection, including a U.2 to M.2 adaptor, an M.2 enclosure, and a supplementary 15-pin SATA power adaptor, but in this instance you'll then need to provide your own cooling fan.

Enterprise SSDs in U.2 and U.3 formats require the right connections and power supply, and good active cooling or they won't work.

Image rights: Apple Inc, Other World Computing Inc.

Try resolving problems with external displays and Intel Macs by disconnecting them and resetting the SMC and NVRAM.

> External displays stuck in standby

After updating Ventura, my Intel iMac's two external displays refuse to come out of standby mode. How can I fix them?

Problems connecting to displays aren't easy to resolve as they should just work automatically, and there are precious few controls.

First shut your Mac and both displays down, and disconnect their cables from the ports on your Mac. Then start your Mac up and reset its NVRAM and SMC according to the instructions detailed at **https://bit.ly/3rWlJyp**. Once your Mac is up and running again, power up and connect the first external display. Hopefully that will appear in System Settings > Displays, where you can set it up. After that, repeat the process with the second display.

If that doesn't work, consider changing the cables connecting the displays to your Mac for better-quality branded ones, or changing any settings offered by the displays, if that's possible. If you still can't have any luck with them, contact Apple Support, who may be able to escalate this to someone who can do something about it for you.

Quick-fire questions & answers

HOW TO DEFRAGMENT AN APFS EXTERNAL HARD DRIVE?

The Apple File System has its own support for defragmentation, and no third-party utility is available. This doesn't help fragmentation of the file system metadata itself, though, which is thought to be largely responsible for slowing access to the hard drive.

CAN I USE A TOUCH ID KEYBOARD WITH MY INTEL MAC?

No, only Apple silicon Macs. Intel notebooks with T2 chips have built-in support for Touch ID on their internal keyboards, but even they can't support it in an external keyboard.

> Self-disconnecting SSDs

Why do some USB 3.2 SSDs connected through a Thunderbolt 3 dock suddenly disconnect themselves from my Mac?

There are two main issues to focus on: cables and sleep. To connect to Thunderbolt 3 ports, cables should have a positive click to lock them home at both ends, which some USB-C cables don't have. The sockets on some external drives don't provide this either, and don't give confidence in their connection. Careful selection of a Thunderbolt 3 or 4 cable should provide a more positive feel and ensure that they don't drift. It can be worth trying several different cables until both connections are secure.

Sleep is a little more tricky, and it's worth observing carefully whether this disconnection occurs when your Mac goes to sleep or wakes up. If there is an association, use Ohanaware's Sleep Aid from **https://ohanaware.com** to fully investigate what's going wrong to cause this.

Some SATA enclosures need firmware updates for them to become reliable with recent versions of macOS, so it's worth checking with the manufacturer's support site to find out. If you still can't avoid these sudden disconnections, it could well be that the SSD is faulty and needs replacing.

Image rights: Apple Inc.

macOS

Shine a spotlight on the solutions to your most irritating Mac problems

> Customize your apps

How much can I customize an app in Ventura without breaking it?

In the case of third-party apps you've installed, it's perfectly safe to change their icon and name, but little else. Look inside an app and you'll see it's a "bundle" consisting of a single folder named Contents. You should avoid tampering with anything inside that, as that would risk breaking the app's signature, so rendering it unusable: every time you'd try to open it, macOS would crash it deliberately because the hash fingerprints of its code files no longer matched those baked into its signing certificate.

Giving it a different icon can be performed safely by pasting a replacement image into the existing place at the top left of the Finder's Get Info dialog, which saves that icon into a hidden file named "Icon?" outside its Contents folder. You can also change its name in the Name & Extension section below, but don't try changing its extension as that too will cause problems. You can of course lock it and add tags and comments as you wish.

Apps bundled by Apple within macOS are baked into the system and can neither be changed nor copied elsewhere. The latter is the result of launch constraints introduced in Ventura, which mean the only place a bundled app can be run from is where it is in the macOS System volume.

Customizing app icons and names can have practical value should you need to run two copies at the same time.

> macOS updates have changed

How do I obtain a "Combo" updater for Ventura 13.5?

Since Big Sur, macOS installers and updaters have been quite different from those of the past. Instead of just copying across system files to a volume on your startup disk, they now have more work to do to create the snapshot that forms the bootable system, to firmlink parts of that to its paired Data volume, and to secure the whole system using hashes to verify its integrity.

From Big Sur onwards, Apple has provided only two ways to update macOS: online updates, delivered through Software Update or its command-line equivalent, softwareupdate, or using a full installer app. Updates completed online automatically cater for different starting versions, so they can take any previous version of macOS 13 straight to the latest version, but that's the only destination available.

Combo updaters of the past sometimes fixed problems with broken updates. That's no longer necessary, as the hash system used to verify the integrity of the system ensures that it's perfect down to the very last byte.

What you can do instead is install the macOS version of your choice. Those available can be listed in Terminal using the command

softwareupdate --list-full-installers

and you could download the full 13.5 installer using

sudo softwareupdate --fetch-full-installer --full-installer-version 13.5

then entering your password. You'll get an installer package containing the full installer app for macOS Ventura 13.5. Apple guarantees the result is identical to updating from any previous version of Ventura.

Full macOS installers should now try to update an existing installation when you select that at the disk to be used.

Image rights: Apple Inc.

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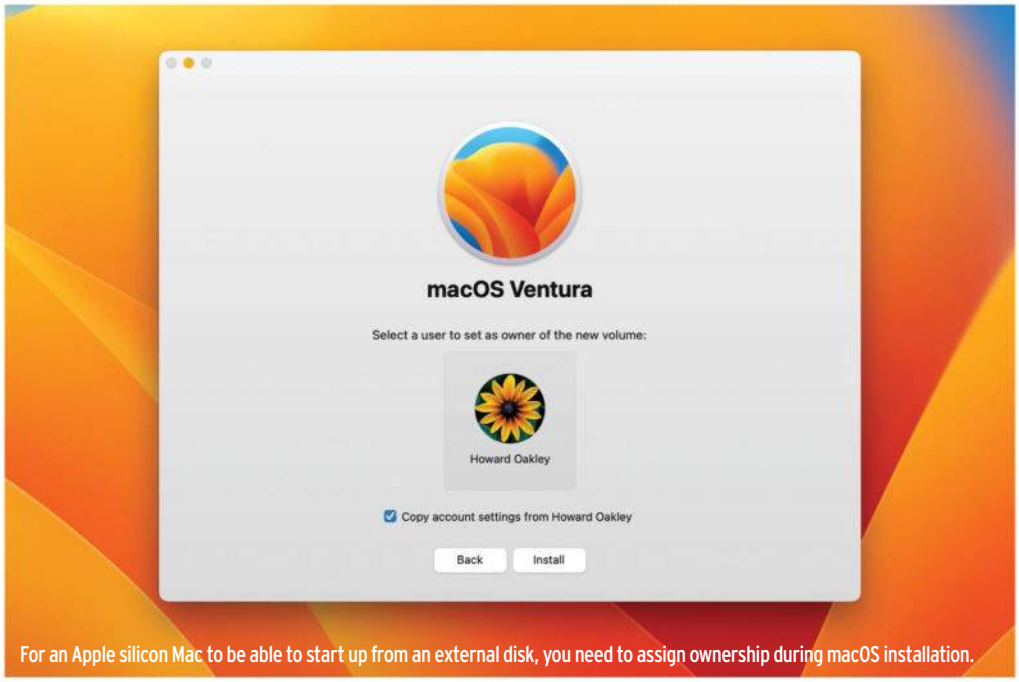


For an Apple silicon Mac to be able to start up from an external disk, you need to assign ownership during macOS installation.

> Keep two versions of macOS

How can I keep Ventura available on my M2 MacBook Pro when I upgrade it to Sonoma?

The best solution depends on what you still want to be able to do in Ventura. If you want to run App Store apps, access iCloud or do anything else dependent on your Apple ID, then the only way to keep access to an older version of macOS is to install it on your Mac's internal or an external drive. If you don't need those, then it's quicker and simpler to run Ventura in a virtual machine (VM).

Dual-booting between different macOS can prove tricky to set up, and some find it unreliable. While you could install both on your Mac's internal SSD, if anything goes wrong it could put your primary Sonoma system at risk. Running Ventura from a bootable external SSD is safer, but requires assignment of "ownership" to that disk for it to become bootable (detailed at **https://bit.ly/30Khpvd**).

If you can live with the limits imposed in a VM situation, you could use Parallels Desktop, UTM, or the free Viable from **https://bit.ly/44Z6ggE**. Performance is near-native, you don't have to restart into Ventura to use it, and it's really convenient.

Quick-fire questions & answers

HOW TO RESET A FORGOTTEN FIRMWARE PASSWORD?

The only way to remove or change a firmware password is in Recovery, and requires you to enter the firmware password. If you can't do that, take your Mac with proof of ownership to an Apple Store and get them to remove the password for you.

HOW TO COPY TIME MACHINE BACKUPS TO A NEW DRIVE?

If your backups are made to APFS, you can't copy or move its backups from that storage because they're snapshots that can't be copied to a different volume. You can still copy backups from older HFS+ volumes.

HOW TO STOP APPS SAVING OLD VERSIONS OF DOCUMENTS?

There's no control to do this, although some apps might offer it in their Settings. One potential workaround is to delete the hidden folder named .DocumentRevisions-V100 on the volume storing your documents, and replace it with a locked file of the same name. This could cause other problems, though.

WHY CAN'T SPOTLIGHT FIND ANY APPS ON MY MAC?

It's likely that you've inadvertently disabled that from its results. Open System Settings and select Siri & Spotlight. In the Search results section, tick Applications. As Spotlight should still have been indexing your apps even though it wouldn't return any results, that shouldn't require any re-indexing before it works fully.

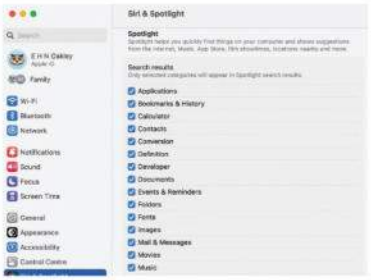


Image rights: Apple Inc.

Broadcast yourself!

Calling all influencers! With some hardware, software and a little know-how, you too can become a YouTube superstar

WRITTEN BY CARRIE MARSHALL / ARTWORK BY GRACE MORRIS

The artist Andy Warhol is famously quoted as saying that in the future, everybody will be famous for 15 minutes. He got the number right and the unit wrong: today, everybody can be famous for a mere 15 seconds, with short-form content on the likes of TikTok earning creators viral fame.

There's been an explosion of people uploading music, video and podcasts for audiences to stream live or listen to at their leisure, a huge increase in places to share content, and a whole new world of hardware and software to help make the most of it. It's never been easier to share on social media – although making money from it is more difficult. But money isn't the only reason to broadcast yourself. It's a lot of fun, and you never know where your clips might take you.

Over the next few pages we'll discover the hardware, software and hosts you need to get the most out of sharing. We'll look at the gadgets and apps that do all the difficult stuff for you, editing your video to make it pop, and how to look good on camera. Although we'll mainly be talking about the Mac here, lots of the kit, apps and advice apply to iPad and iPhone too.

Image rights: Apple Inc.

Image rights: Sony Europe BV, Native Instruments GmbH, Logitech, Elgato.

What you will need

The hardware and software you need to save and stream

First things first, in order to turn your bright ideas into something others can see or stream, you're going to need a few items of both hardware and software.

The hardware you need depends on the content you plan to make and where you're going to put it. For example, you can make videos for TikTok or Instagram reels with just an iPhone and Apple's free Clips app, and you can also get iMovie for free in order to access more professional tools, such as effects and editing. You can record a podcast directly into GarageBand and use its built-in effects to make it sound great, and if you want to record people over Zoom or FaceTime there's our old favorite Audio Hijack, which can record pretty much any audio that plays on your Mac.

If you're recording podcasts, Audio Hijack makes it easy to bring in Zoom or FaceTime guests, record multiple mics, or capture any Mac audio.

The most important part of your setup is the hardware that records your sound or your video. For podcasting or voiceovers that means a good-quality USB microphone to plug directly into your Mac (or your iPhone or iPad via USB-C or Apple's USB to Lightning converter); or a non-USB microphone connected via a USB audio interface such as a Focusrite Scarlett Solo, M-Audio M-Track Solo, or a Komplete Audio box.

For video, if you have a reasonably recent iPhone then its camera is better than many budget cameras and almost all webcams, and if you have macOS Ventura and iOS 16 or later you can use Continuity Camera to make your iPhone work as a webcam for any video app.

If you're a fan of gaming or other video streamers, you might have seen the Elgato Stream Deck on the streamer's

OBS Studio is one of the most popular video recording and streaming apps. It takes a bit of learning, but it's very powerful.

Must-have hardware

You don't need to spend a fortune on studio-quality equipment, but there are some upgrades that will make a huge difference. A good-quality mic, a warm white light, or a decent video camera will seriously improve the quality of your content.

Blue Snowball Ice

> $49.99 > www.logitech.com

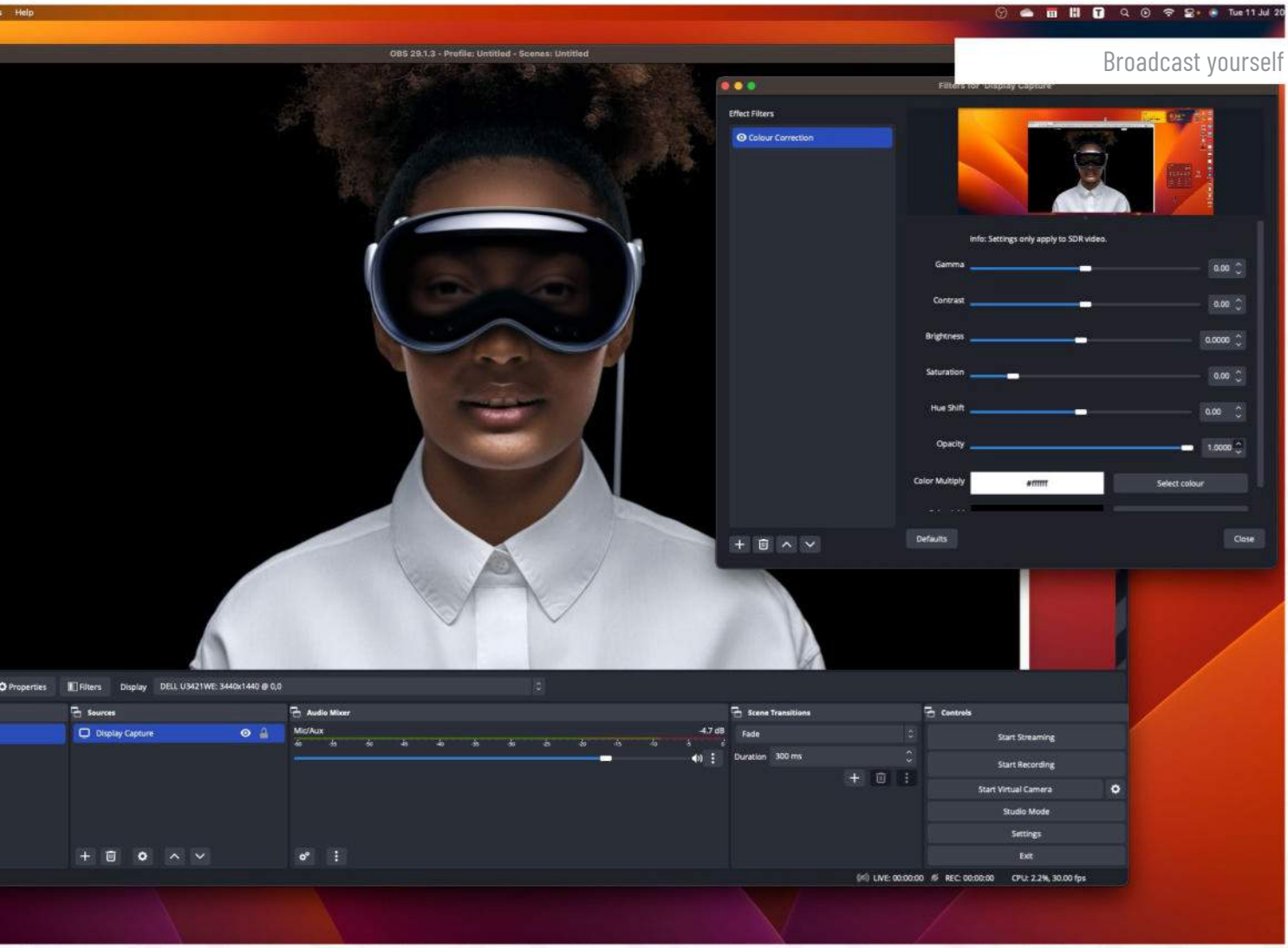
A USB microphone can plug directly into your Mac or a recent iPad and, with the right adaptor, you can use it on Lightning iPads and iPhones too. Designed for podcasting and streaming, this Snowball Ice desktop mic is a huge audio upgrade over the built-in mics on your Mac.

Stream Deck Mk.2

> $149.99 > www.elgato.com

Turn your Mac into a radio or TV studio with this brilliant little add-on. You can program its 15 LCD keys to play jingles and stings, control your lighting, play back recorded audio and pretty much anything else media-related you can think of. No wonder video influencers love it so.

Image rights: Apple Inc, Logitech, Elgato.



desktop. That's an interface designed specifically for live streaming, and it features 15 programmable LCD keys you can use to control your video app, trigger audio effects, adjust your audio, control smart lights and more, and there are over 100 plug-ins for specific streaming platforms and hardware.

For recorded audio and video you can simply export your completed content and upload it. But for live streaming you'll need an app. There are lots to choose from, and one of the most popular is OBS Studio. That's free and open source, and if you're willing to take some time to find your way around it's enormously powerful and customizable.

You don't need OBS Studio to live stream; if you have a YouTube account, you can tap on the Go Live button (although when you first go to use it, you'll have to wait 24 hours for authorization), and Twitch has the Twitch Studio Beta app. But the benefit of learning OBS Studio is that if you change where you stream, you don't need to learn a whole new app to do it.

Joby Beamo Ring Light

> $34.95 > https://joby.com

Ring lights with adjustable color temperatures are the little secret of big-time social media streamers; put it in front of your phone and it'll bathe you with flattering light. It's handy for work video calls and taking selfies too. This ring light from Joby features ten brightness levels and three color temperatures.

Sony ZV-1 II

> $899.99 > https://electronics.sony.com

It's not cheap, but Sony's ZV-1 II photo and video camera has been specially designed for vloggers and podcasters and will make you look and sound spectacular, thanks to its wide-angle lens and triple mic array. The ZV-1 ($749.99) and ZV-1F ($499.99) are also still available.

Komplete Audio 1

> $109 > www.native-instruments.com

The Komplete Audio 1 from Native Instruments is a simple but great-sounding single-input audio interface for microphones and other audio sources, and it comes with a good software bundle. We've used its big brother for years and it's never let us down.

Image rights: Videndum Media Solutions Spa, Sony Europe BV, Native Instruments GmbH.

Script, create, edit

Make sure you get your message across when talking to the camera

Talking confidently into a mic is a craft; the more you do it, the better you get. But that doesn't mean you can't cheat.

If you don't feel confident enough to ad lib, it's a good idea to spend a bit of time scripting what you're going to say. How you do this very much depends on what kind of person you are. Some people prefer to tightly script everything and rehearse. If that's the case, you can use your iPhone stopwatch to get the timings right; and writing apps such as our old favorite Ulysses can give you a good estimate of reading time too. Pages' Presenter Mode can turn your iPhone or iPad into a kind of autocue, or you could do the simple, low-tech comedian's trick of scribbling keywords on your hand.

You'll probably find that the sweet spot for you is to script it a little bit, but not so much that you're simply reading. And you'll find that the more you practice, the more relaxed and able to go off-script you'll become.

Of course, if you're talking over a gaming stream or in a multiple-guest podcast, there's no space for scripting. In these instances, write down key questions you want to ask or any key points that you want to get across.

Get the light right

Don't film yourself with the sun or another very bright light source right behind you; that turns you into a silhouette. And don't do the reverse either, because you're more likely to squint. Plus, overly bright light will make any imperfections more apparent.

Many vloggers and streamers use artificial lights, even in daytime. They're typically positioned in front of and slightly to the side of the camera, or they're ring lights that circle around the camera — a popular choice for filming on iPhones. Your light should be warm toned — yellowish, not blue.

Professional streamers use one or more LED light to make them look better on camera.

The 5 best editing apps

You don't need to go Pro with Apple's most expensive apps. Whether you want to take the umms and aahs out of your audio, resize and resample your video, or produce a Hollywood-worthy production, these free or very affordable apps will help you organize your audio and make your videos even more vivid.

Audacity

> Free > www.audacityteam.org

Audacity is a wonderful, free audio editor. The software makes quick work of fixing recording problems, removing background noise and generally making you sound fantastic. And as it's a multi-track recorder you can use it to record your audio too.

LumaFusion

> $29.99 > luma-touch.com

Prefer to edit your video from the sofa or do it when you're out and about? If so, LumaFusion is one of the best heavyweight mobile video editors around. It makes full use of an iPad touchscreen and, if you have an M-series Mac, it'll run on Mac too.

Premiere Rush

> $9.99/month > adobe.com

This streamer-friendly sibling of Adobe's famous video-editing app is exceptionally easy to use. The app is designed specifically for online sharing, and there's a free starter edition to give the app a try without having to subscribe to the full version.

iMovie

> Free > www.apple.com

Apple's free movie making software hasn't had a significant update for a while. The most recent release was last fall, but if it ain't broke, why fix it? iMovie remains an easy and effective way to edit video on Mac, on iPhone and on iPad too.

OpenShot

> Free > www.openshot.org

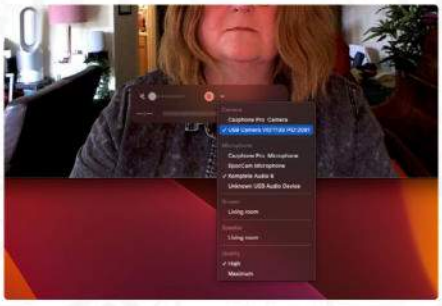
This free and open-source video editor is like an even friendlier iMovie. It's cross-platform, so you can use it on PCs as well as Mac — handy if you're in a mixed computer environment. It's not as polished as some apps, but it's great for beginners.

Image rights: Audacity, Luma Touch LLC, Elgato, Adobe, Apple Inc, OpenShot Studios LLC.

HOW TO Edit video easily

1 Open QuickTime

For simple recording, you can use a webcam on your Mac: just open QuickTime Player and choose New Audio Recording, New Screen Recording or New Movie Recording. Let's go for the Movie Recording option.



2 Change the camera

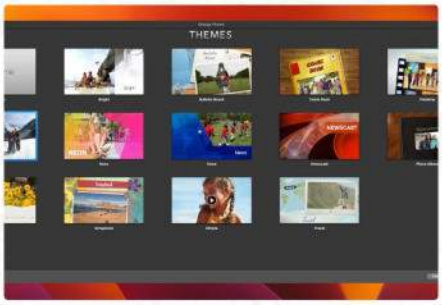
If you have an iPhone, its camera is probably better than the FaceTime camera on your MacBook or any external USB camera. Click the dropdown next to the red Record button and you can select your iPhone under Camera.

3 See the results

Switching to your iPhone should happen immediately, and you'll now see the live feed from your iPhone's main camera. The next step is to position it: you can buy iPhone mounts that sit on your monitor or prop it up on your desk.

4 Click the red button

Clicking on the red Record button starts recording; clicking it again stops recording. To the left of the control panel you'll see the elapsed time, and to the right you can see how much SSD or disk space you're using so far.



5 Open iMovie

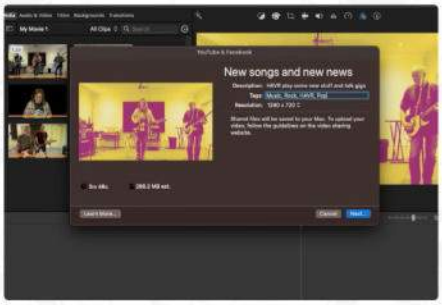
When you're finished recording you can save it or export it in a particular resolution. The next step is to open iMovie, create a new project and pick a theme. This is a design for on-screen elements such as titles.

6 Add your clip(s)

You can import your video file(s) either by dragging and dropping them from your Desktop or the Finder, or by using the Import Media button. You can then drag individual clips to the timeline to arrange them.

7 Combine your clips

One of the simplest ways to combine multiple clips is to drag them onto the timeline area one after another. You can then adjust clip lengths, apply transitions between clips, and add any visual effects you might like.



8 Export for YouTube

In addition to the usual export options, iMovie has a Share > YouTube & Facebook option. This enables you to output video in a social-media friendly format, and makes sure you tag it by getting you to fill in this screen first.

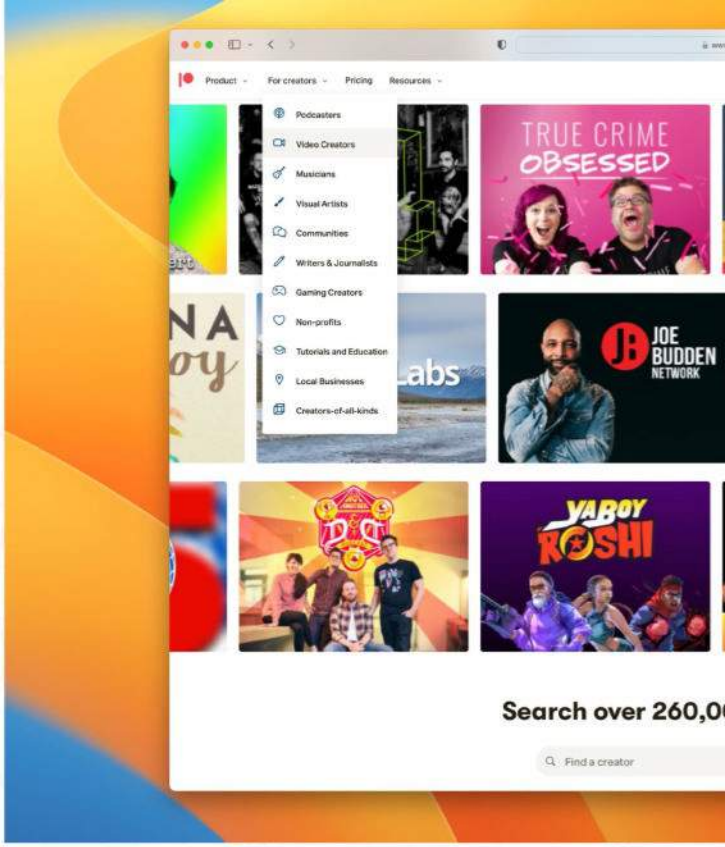
9 Test your video

The export process takes a while, especially if you're using 1,280 x 720p resolution, so this would be a good time to take a quick break. Once your clip has finished, test it first before uploading to the social network of your choice.

Image rights: Apple Inc.

Become internet famous

You've baked your content cake. How do you get people to consume it?



Making a podcast, vlog or live stream won't magically attract an audience. And unfortunately, attracting an audience is where the bulk of the work is.

There's no single trick to successfully building your following, but there are lots of little things you can try and everything starts with knowing who your potential audience is and where to find them online. Collaborating with other creators, for example by going on their podcasts or having them in your videos, is a great way of introducing yourself to new audiences. And using your existing social media is a good method for introducing what you do to the people who follow you.

Go where your target market is – so if they're on Reddit, be a good contributor to appropriate Subreddits; if you're on social media, contribute positively to trending hashtags and topics; if you're looking for gamers, join their Discords. Remember that blasting people with promotional messages and links is a turn-off for most, so if you want to grow your audience then you need to be interacting constructively.

If you're doing longer content, consider clipping it: a punchy 15-second TikTok or Facebook Reel can be an effective way of promoting the bigger picture of your YouTube video or podcast, just like trailers do for movies. Funny is always good, but so is surprising or helpful.

Collaborating with other creators is a great way of introducing yourself to new audiences

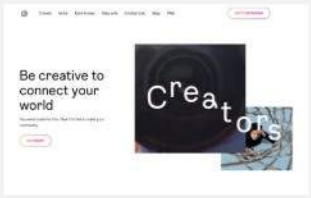
Don't forget about your visual identity too. There's a reason why YouTube thumbnails for particular genres all look the same and have incredibly similar headlines; that particular format is what people on YouTube are used to, and expect.

MONEY, MONEY, MONEY

It's very hard to make money from online media if you're not successfully reaching large numbers of consumers, but if you are beginning to build an ever-growing fanbase, then there are quite a few options out there for monetizing your content. The simplest one is to get a cut of advertising revenues. So for example, in YouTube, you can join the YouTube Partner Program if you have 1,000 subscribers and 4,000 public watch hours in

Sharing your videos online

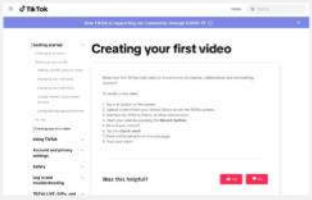
Whether you're uploading funny clips, streaming from your desktop or producing podcasts, there are plenty of places to post and stream your content. Many of them have lots of handy hints, tools and tips to help you learn the ropes and build your brand too.



Instagram

> **https://creators.instagram.com**

The original home of the influencer has lost some of its cachet with the rise of rivals such as TikTok, but Insta is still the place to be for all kinds of creatives and its Instagram Creators section offers useful advice on how to attract an audience.



TikTok

> **www.tiktok.com**

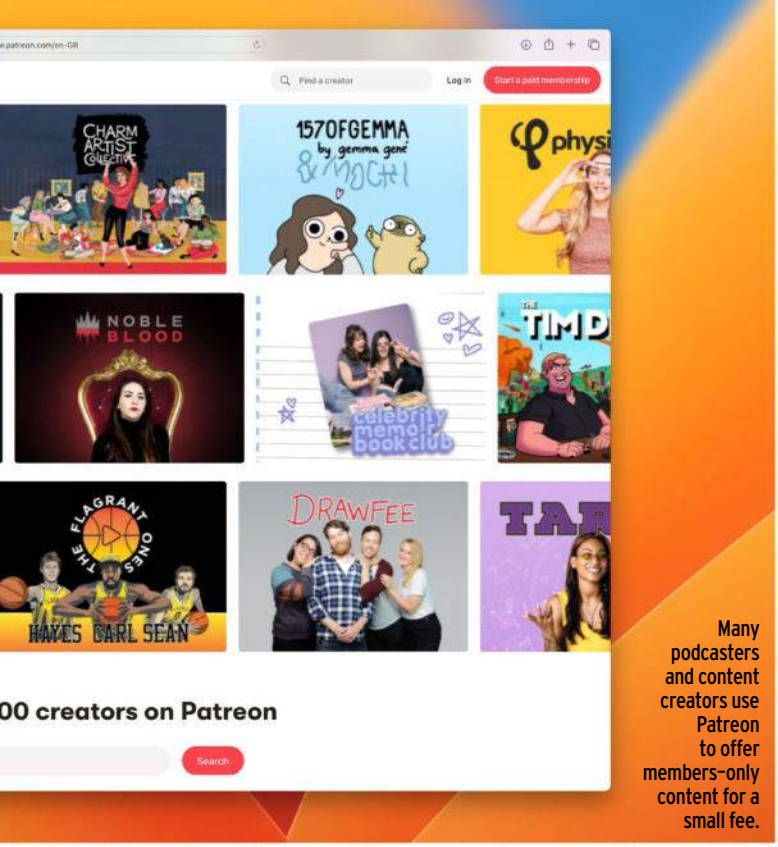
Going viral on TikTok is the goal of many content creators, and that means lots of competition – but, if you go viral on TikTok, you have a serious hit! You'll find a dedicated creator portal offering advice at **tiktok.com/creators/creator-portal**.

Twitch

> **www.twitch.tv**

Anyone can stream on Twitch, and you don't need a huge audience – affiliates only need to have three average viewers per stream in order to unlock special features – but you'll need 75+ per stream if you want all the advertising options.

Image rights: Patreon, Meta, TikTok, Amazon.com Inc.



Many podcasters and content creators use Patreon to offer members-only content for a small fee.

the last year (or 1,000 subs plus 10 million public Shorts views in the last 90 days). You can then run ads on your channel and access other monetization features. For game streamers, Twitch Affiliates can integrate ads, and you might be approached by someone who wants to sponsor your channel too.

Just watch out if you're going to be promoting other people's products in your feeds; for example, in the USA, if you endorse a product through social media, you need to make it clear when you have a material connection or financial relationship with the brand.

For many online broadcasters, the money comes from additional extras rather than ads; many podcasters sell merchandise, use Patreon to offer paid subscriptions that deliver extra episodes and other exclusive subscriber-only content, and might even sell tickets to their own tours and events. Just be careful: if you're too aggressive in trying to monetize your broadcasting, you could end up driving some of your hard-won listeners or viewers away.

YouTube

> www.youtube.com

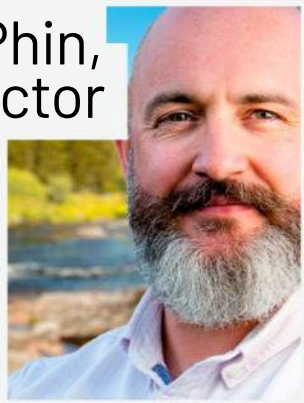
With a YouTube account, you can create your own channels and then upload video or live stream. The analytics offer lots of useful info including where viewers give up, and if you have enough followers you can monetize with ads.

Podcasts Connect

> podcastsconnect.apple.com

Apple Podcasts Connect is an iCloud-style dashboard that makes it easy for you to upload podcasts and see how well they perform, with graphs to show who's listening, what they're listening to and where they're coming from.

Q&A: Chris Phin, creative director



Chris Phin has moved from publishing to podcasting.

Former Apple editor Chris Phin now works as a creative director in podcasting, where he presents, produces and advises others on how to broadcast better.

ML> Is there a particular piece of valuable wisdom you could share with us?

With very few exceptions, everybody feels like a chump when recording, and hates how they look and sound when they're editing or reviewing. Be kind to yourself. I promise that you'll get used to it, and I promise the result isn't as bad as you fear – both because, well, first, it just isn't! There's literally nobody outside your head who's a harsher critic. But also because unless you're working live, you can do it again and again, or tweak takes, until you merely hate the clip, rather than hating yourself!

ML> Is there a particular piece of hardware or software you can't imagine doing your work without?

Bad audio is more tiring to consume than lackluster video. Get your mic right. Though there are exceptions, a dynamic mic with a cardioid pickup pattern, such as the entry-level Samson Q2U (about $70, samsontech.com), is a good choice – but learn how to use it. It should be a fist width from your mouth and angled away at 45°.

ML> What kind of mistakes do people tend to make when they're new to all of this?

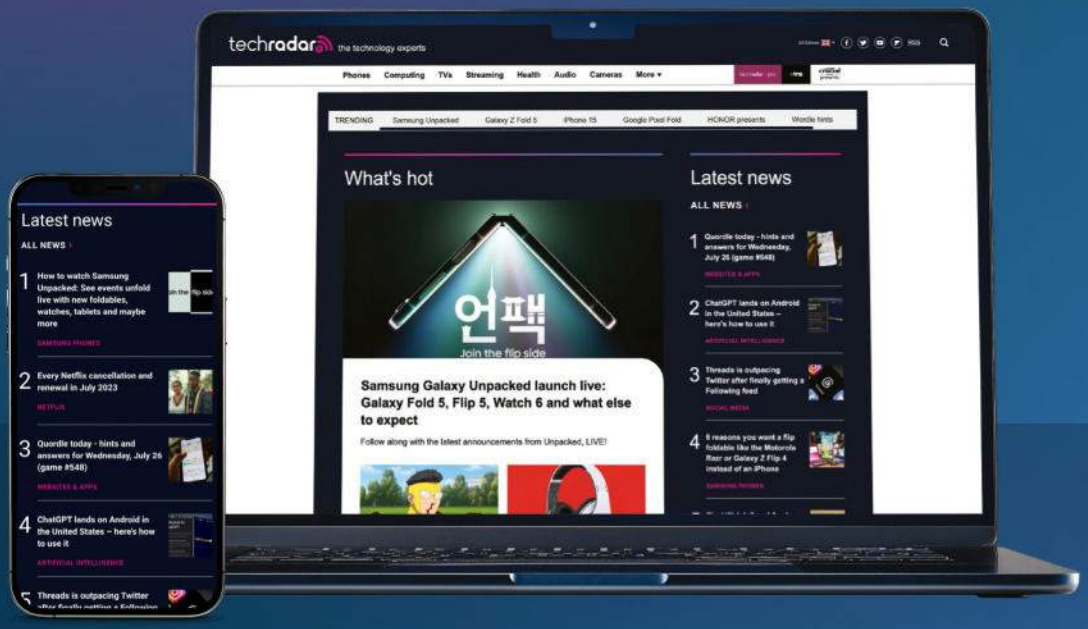
The sooner you can take the plunge into more advanced apps (say, Logic vs Audition – though actually GarageBand is great); processes (for example, recording each voice on to its own track); and platforms (say, Riverside.fm rather than Zoom), the quicker you'll realize pros don't use them just because pros like being fancy. They are daunting, but as well as usually being capable of better results, they are ultimately faster and, counter-intuitively, easier too. The learning curve is steep though.

ML> What one piece of advice would you offer would-be vloggers and content creators?

Script the intro, script the outro, and wing it a bit in the middle!

Image rights: Google LLC, Apple Inc.

Meet the technology experts



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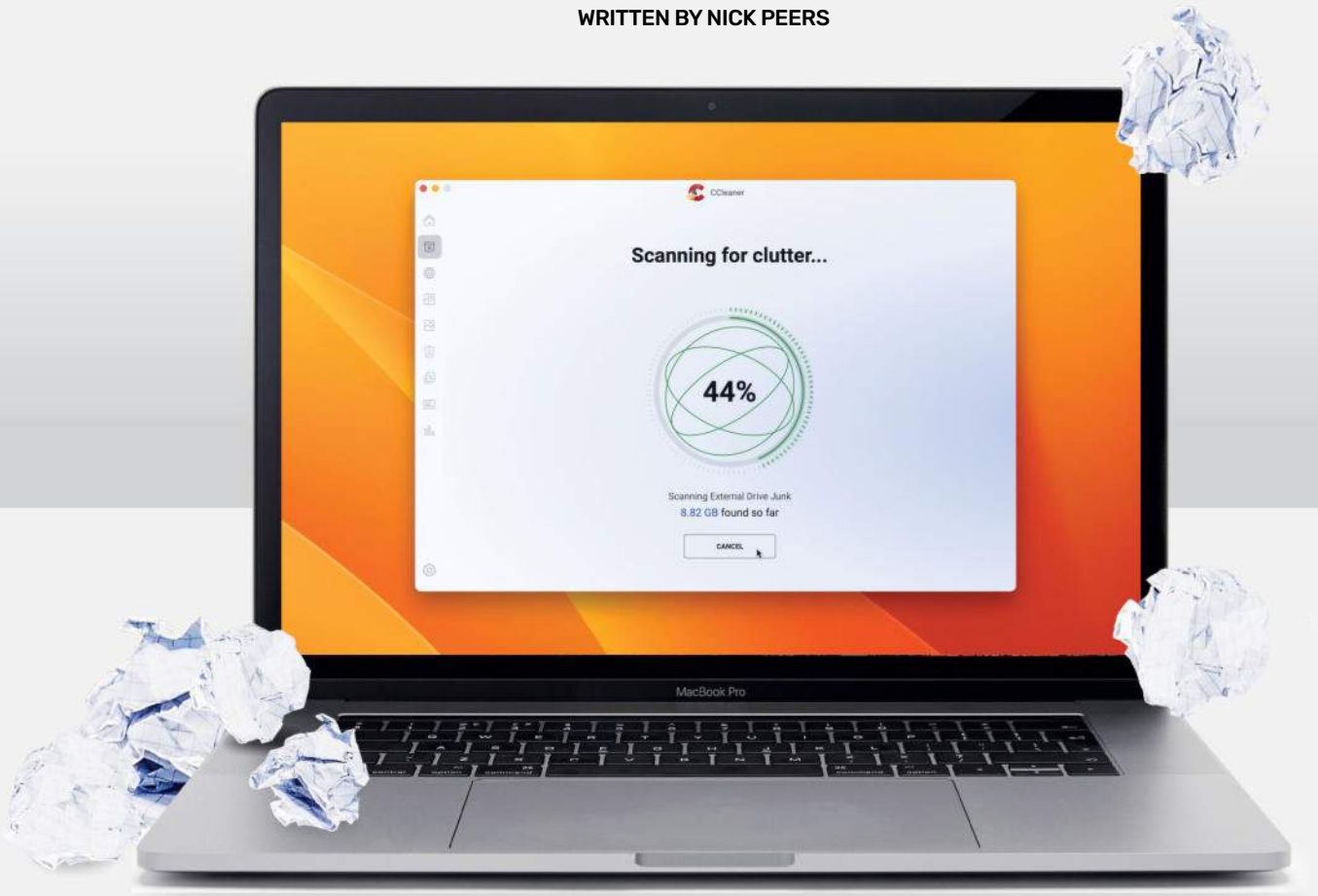
CLEAN UP YOUR HARD DRIVE

Whether you're rapidly running out of space or simply want to put your files and apps in better order, the answer lies with a cleanup of your Mac's storage

WRITTEN BY NICK PEERS



HOWEVER MUCH STORAGE you have on your Mac, you'll always find a way to fill it. You might vow every time you buy a new model to keep it running swift and smooth, but over time your best intentions get overwhelmed, whether that's down to a lack of time or falling into bad habits.

Even if your Mac's storage is still relatively empty, you'll have noticed it start to fill up. Perhaps you've taken a brief tour of your personal user folders and realized there's junk on there that needs clearing out. Or maybe you're just desperate to find a new home for files you no longer need on a daily basis but might want access to later.

Whatever your motivations for clearing out your Mac's storage drive, we're here to show you everything you need to know, from easily identifying those files that you no longer need, to ensuring redundant apps get thoroughly removed when you're done with them. Over the next few pages you'll discover the best tools to comb through your system, and learn how to move your largest files without disturbing your current setup.

So without any further ado, let's get out our virtual dustpan and brush and start cleaning up!

Image credit: Apple Inc.

Clear out junk quickly

Let's begin by identifying and removing those files you no longer need

BEFORE YOU CAN start to clear the clutter off your Mac, you need an overview. Open System Settings and navigate to General > About, then click Storage Settings. At the top, you'll see a color-coded chart representing your internal storage and how the space on it has been used up; this will be represented in categories such as Documents, Apps, and System Data.

Beneath this chart, you'll see these and other categories (iCloud Drive, Mail, Messages and Other Users), all displayed with the actual amount of space they're taking up shown in gigabytes (GB) or megabytes (MB). Next to most of these is an "i" button; click this and a new window will open enabling you to view the selected category in more detail, such as a list of applications with the largest apps displayed first. Documents gives you a choice of four views: Large Files, Downloads, Unsupported Apps and File Browser.

Find elusive files

System Settings does a good job of revealing the largest files and apps on your system, but if you want a more visual overview of your storage drive's layout then you need a tree map. This provides you with the ability to identify not just large files on your drive, but discover where they're hiding in your file system, speeding up the clearout process. If you find the tree map provided by Grand Perspective (right) a little confusing to follow, you could try DaisyDisk ($9.99, **https://daisydiskapp.com**) instead, which uses a sunburst map to help you navigate to large files on your drive.

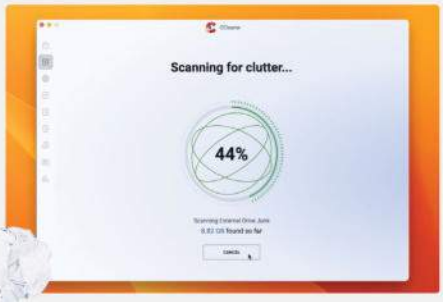
A fail-safe backup

What happens if you accidentally delete the wrong file — one that might contain a precious, irretrievable memory if lost forever? The answer lies in making sure your Mac is backed up. The simplest way to do this is through Time Machine (System Settings > General > Time Machine). By default, it's set to back up every hour, so should have you covered. Should you need to recover any accidentally deleted files, open your Time Machine backup drive, click "Enter Time Machine Backup", then browse to the folder containing the file you deleted to retrieve it.

Automatic cleanup

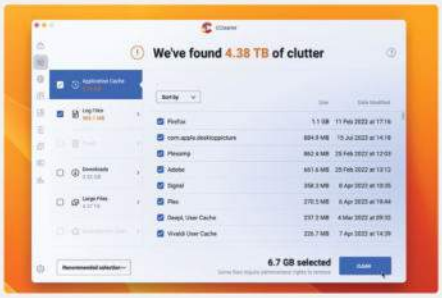
There's one automated cleanup function built into macOS, and that's the ability to prevent the Trash from filling up over time. Open Finder, then select the Finder > Settings > Advanced tab and tick "Remove items from the Trash after 30 days". If you want to automate any other folder cleaning, however, you'll have to investigate Hazel for $42 (14-day trial, **www.noodlesoft.com**). This makes it easy to build a script that will — for example — enable you to automatically move files that have been in the Downloads folder for more than four weeks into the Trash.

HOW TO Clean up your hard drive with CCleaner



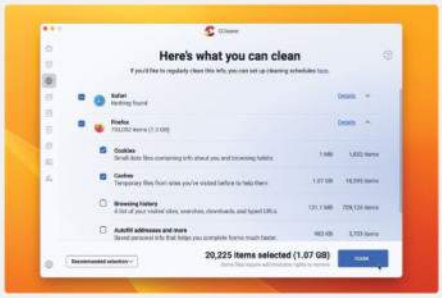
1 Quickly remove clutter

Open CCleaner (**www.ccleaner.com**) after installation and click the Scan button next to "Clean clutter", giving access to any drives CCleaner requests. You'll see a progress bar appear revealing how much potential trash has been found.



2 Review and remove

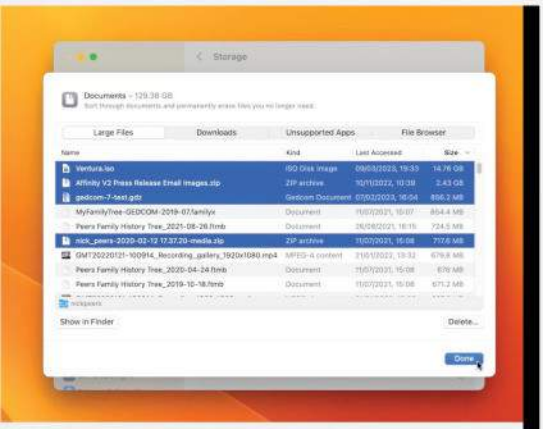
You'll be shown a summary of what's been found, with certain sections automatically ticked for removal. Click one to review the details of what's been found (and untick individual items). Click Clean to remove your selected files.



3 Clean up your browser

Over time, your web browser can accumulate quite a lot of junk. Click Scan under Clean Browser to see how much you might save. You can go with CCleaner's recommended selection, or click Details to pick and choose what to remove.

Image credits: Apple Inc, Piriform Software Ltd.



System Settings can help you quickly reclaim lost space by revealing the files taking up most space on your system.

From here, you can identify the largest files on your system and clear them off to free up space if you're running low. Note that when you click Delete, you'll be warned that the files will be immediately removed – they won't end up in the Trash as a fail-safe.

Although a good start, this merely scratches the surface; in order to perform a much more thorough clean of your system, we recommend looking at the list to the right here, which reveals five free cleanup tools that can do a better job than System Settings. Then follow the step-by-step guide below to discover how to use the free version of CCleaner to perform a deep clean of your Mac. ■

Top 5 Free cleaning tools

The following collection of tools are designed to help you with your clearup – they're all free to use and will enable you to reclaim even more space from your overburdened Mac storage through a variety of techniques.

GrandPerspective

›https://bit.ly/3sjkuKV

Let GrandPerspective scan your system drive for a handy visual tree map of your Mac's storage, with your files represented relative to their size and location. Roll your mouse over one for its name and file path.

Monolingual

›https://bit.ly/3QK3Luw

Monolingual makes it easy to reclaim hundreds of MBs of space by removing unused languages – your default language isn't selected, so review the list and click Remove. Read the warning and click Continue to finish.

AppCleaner

›https://bit.ly/3qEEhnN

While you can thoroughly clean apps in CCleaner, AppCleaner lets you see exactly what files it's found when scanning for program leftovers. If you want complete control over app removal, this is the tool to choose.

Maintenance

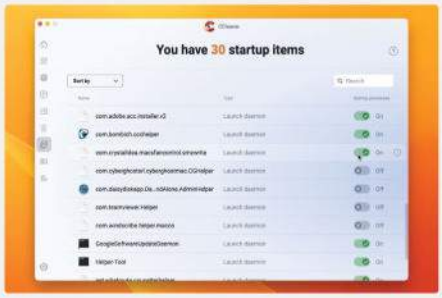
›http://bit.ly/3P82Bru

Maintenance is a cut-down version of the Onyx system tool. It's more user-friendly and offers four tools: System, Applications, Internet and Other. Click the "i" next to each one to decide what to clean.

CCleaner

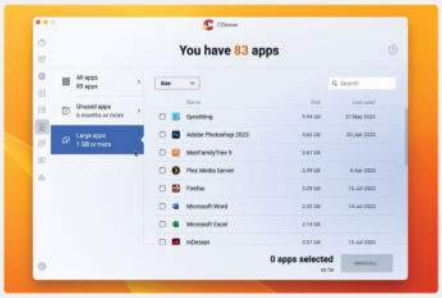
›www.ccleaner.com

As general-purpose cleaning tools go, CCleaner has plenty going for it, not least the fact its key functionality is free. The step-by-step guide below reveals how it can help quickly clear lots of clutter from your Mac.



4 Weed out startup items

Click Show under "Manage startup items" to reveal what programs and processes are set to start with your Mac. Reclaim memory and speed up login by flicking the switch next to unused or unwanted items to Off.



5 Uninstall apps

Click Show next to Uninstall Apps for a quick and easy way to remove unwanted apps from your Mac. You can view three lists: All apps, Unused apps (those not opened in six months or more), and Large apps. Tick those apps you want gone.

6 Complete removal

Like AppCleaner, CCleaner doesn't simply remove the app from the Applications folder, but it also hunts down leftover files such as library items, plug-ins, preferences, and more to ensure more traces of the programs are gone.

Image credits: Apple Inc, Erwin Bonsma, Ingmar Stein, FreeMacSoft, Titanium Software, Piriform Software Ltd.

Recover even more drive space

If space remains tight, find out how to restore — and increase — capacity

Find visually similar pictures

If you're looking to find more than just exact duplicates, then we recommend giving dupeGuru (**dupeguru.voltaicideas.net**) a spin. This free tool offers two additional scan modes — Music and Picture.

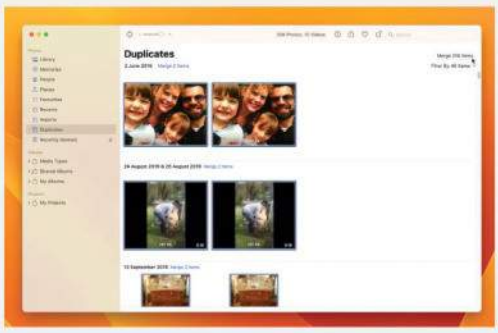
Music lets you scan your files for tags to weed out duplicates in different formats, while Pictures offers a "fuzzy" scan that enables you to identify visually similar — but not identical — photos.

dupeGuru can help you remove close variants of a photo.

AFTER YOUR FIRST cleanup, you'll be able to use the tools we've covered so far to keep your system in check, but over time you'll find the space being regained lessens even as your drive capacity continues to shrink. So what else can you do to ensure you're not left facing dreaded "disk full" messages?

One major cause of wasted storage space is duplicate files. Don't confuse these with backups; they're simply redundant copies of files and may be spread across multiple folders or even storage drives. Duplicates don't have to be identical either — how many times have you taken multiple photos with the aim of keeping only the best shot, only to leave them all piling up, slowly eating away at your storage space?

There are two free tools we recommend for this task. The first is our old friend CCleaner



Duplicate files can be responsible for a lot of wasted space on your Mac — so weed them out.

When you're looking through duplicate items in Music, be sure to check for different versions of the same song.

(see p.62) and its "Find duplicates" tool, which scans files by their contents as opposed to merely comparing filenames to identify exact duplicates. By default, your home folder is selected for scanning — if you're simply looking for possible duplicates within your Mac's storage drive, simply click Scan to see what it finds. Alternatively, you can widen your search to include other drives and folders by clicking Add, remembering to exclude any folders containing actual backups.

The initial scan can take some time to complete — particularly if you're scanning non-solid-state drives — so be prepared to leave CCleaner for an hour or two to complete the scan. Once it's complete, a summary of how much file space is taken up by potential duplicates will be shown — you can click View

Expand your storage

If your Mac has limited storage capacity, one long-term solution is to upgrade it. Since the internal storage in most Macs these days is fixed at the time of purchase, that may not be an option.

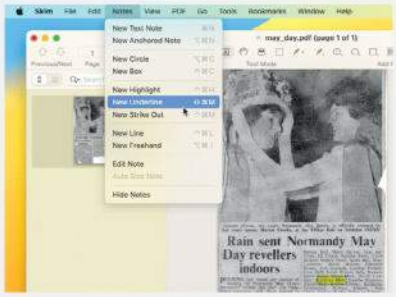
The solution lies in purchasing a new external drive, but rather than go for the biggest capacity, look for the fastest drive you can afford to maximize performance. This means pairing a NVMe drive with a Thunderbolt 3/4 enclosure that can deliver speeds to rival your Mac's internal drive — around 2,000–3,000MB/sec.

You can expect to pay around $180 (500GB) to $210 (1TB) for a Samsung 980 Pro NVMe drive (**www.samsung.com**) and Anyoyo enclosure (**www.amazon.com**). If you can make do with slower speeds (around 1,000MB/sec — still quicker than a SATA SSD), you can pair the Crucial P3 1TB drive (**www.crucial.com**) with a Ugreen USB-C enclosure (**www.ugreen.com**) for under $80.

Image credits: Hardcoded Software, Apple Inc.

Find slimmer apps

Obviously removing apps is one way to quickly free up space, but you don't necessarily have to give up functionality to do so. For example, do you really need Adobe Reader (517MB when installed) when you can view PDFs in Preview or your web browser? Also look to see if you can source slimmer versions of the apps you currently use – for example, if you want a dedicated PDF viewing app, then Skim (**https://skim-app.sourceforge.io**) takes up just 29MB of space. Visit (**https://alternativeto.net**) to track down more alternative apps.



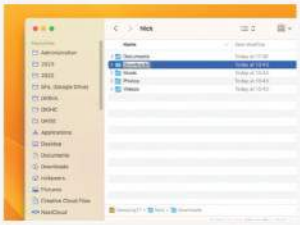
Don't burden your Mac with bloated apps – Skim takes up just 5% of the space Adobe Reader demands.

Move large files

Still running out of storage space despite your cleanup efforts? Attach a USB SSD or NVMe drive to double or even treble your drive capacity, then discover how to move items across without disrupting your experience.

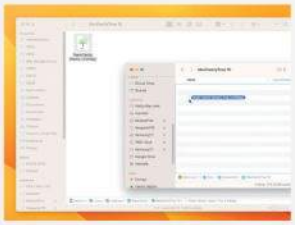
Prep new drive

If you're connecting a new drive for the first time, open Applications > Utilities > Disk Utility. Select the drive; assuming it's not already APFS-formatted, click Erase, make sure APFS/GUID Partition Map is selected, and click Erase again.



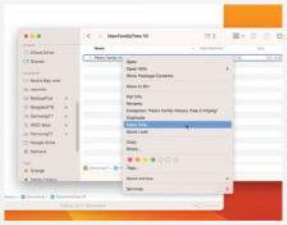
Set up folders

Browse to your new drive and set up a simple folder structure that mirrors your user folder on your system drive; so, a parent [Your name] folder, inside which are separate sub-folders for Pictures, Documents and so on.



Copy file/folder

Locate your first large file or folder on your main storage drive, then copy it across to the relevant folder on your secondary drive. Once it's been copied across, you can delete the original on your main drive to free up space.



Create aliases

Once copied, Ctrl-click the file or folder and choose "Make Alias" to create a shortcut. Move this back to its original location for easy access – the alias will always know where to find the original, even if you move it again.

Update backup

Once you've freed up space on your main drive, open Time Machine via System Settings > General. Click Options and check to see if your new drive is in the excluded list – if it is, select it and click "-" followed by Done.

Duplicates to see them all side by side, or use the categories on the left to filter by specific file types. Use the "Sort by" button to change the sort order (choose Size to zero in on those duplicates taking up most space, for example). Double-click an item to open its path in Finder, enabling you to compare each duplicate to determine which one to keep.

You can also manually comb through the list, selecting which duplicate you want to keep or click the "Nothing selected" drop-down menu to choose "Keep oldest" or "Keep newest" to make a quick selection. Once you're happy with your choice, click Clean. Again, there's no fail-safe move to the Trash before files are removed, so make sure to proceed with caution.

CLEAN UP MUSIC AND PHOTOS

One way to remove visually similar photos is to use dupeGuru as outlined opposite, but if you're already managing your photos using Apple's Photos app, then you'll find tools for managing duplicate photos in there too – particularly for those photos synced to your Mac from your phone via iCloud.

Simply open Photos and select Duplicates for a list of all images that match Photos' definition of a duplicate: visually identical, but not necessarily having the same metadata, formats or resolutions. You can then "merge" these individually, or press Cmd+A to select them all and click "Merge [xxx] items" in one go.

Photos will pop up a fail-safe dialog giving you the option of merging only exact copies of files, or you can go ahead and merge all items. Whichever option you choose, the redundant files will be placed in the password-protected Recently Deleted folder from where you can recover any you've mistakenly removed or delete them now, rather than wait for Photos to delete them automatically after around 30 days.

You can also rationalize your music collection in a similar way – open Music and choose File > Library > Show Duplicate Items. You'll get a list of all items that share the same title and artist, but be careful to properly scrutinize each one, particularly the track's length and album – you could find that different versions of the same song are marked as duplicates. Ctrl-click an item and choose Get Info for a detailed view, then choose "Delete from Library" followed by "Delete Song" for any tracks that you're happy to lose.

Image credits: Apple Inc, Christiaan Hofman/Adam Maxwell/Michael McCracken.

A very flexible display with plenty of nifty features; rotate the monitor 90 degrees for a portrait view.

Dell UltraSharp U3224KB

An amazing 6K display – but a hefty price tag

$2,559.99 **From** www.dell.com/en-us

Features 31.5-inch LED backlit IPS LCD display, 6K (6,144x3,456 pixels) resolution, 5ms response time, 450cd/m2 brightness, DCI-P3 color (99%), integrated 4K webcam (3,840x2,160 pixels) with 5x digital zoom, 2x array microphones, 2x 14w speakers, height-adjustable stand

WHETHER YOU'RE LOOKING for a best-in-class monitor for work or for home, the Dell UltraSharp U3224KB is a great place to start. The price, though, will make you wince; it's over a $1,000 more than Apple's Studio Display – and that was hardly cheap to begin with.

Let's start with its design: the monitor itself is clad in silver and pale gray plastic with thick black bezels around its 31.5-inch 6K screen. The bezel is particularly thick at the top, where the soundbar and the webcam reside. The soundbar itself is covered In black fabric, while the webcam is adjustable, tilting forwards and backwards, enabling you to frame yourself perfectly when making video calls, no matter how high or low the monitor sits on the supplied stand. With the thickest bezel at the top comprising the soundbar and camera, the second biggest bezel is at the bottom. There's a reason for that too. Wave a hand over the bottom left of the display and its five touch-sensitive webcam buttons light up: Hookswitch (to answer or reject an incoming video call), Volume Down, Volume Up, Microphone Mute and Camera Mute. Also secreted in the bottom bezel is a pop-out containing the display's front-mounted Quick Access ports – 2x USB-C and 1x USB-A for connecting and charging devices such as an iPhone.

BUILT-IN FUNCTIONALITY

The generous port selection continues around the slightly curved back of the U3224KB where you'll discover a Thunderbolt/USB 4 port with 140W of power delivery (PD), enough for the latest 16-inch MacBook Pro, a second Thunderbolt/USB 4 port, three USB-C ports and four USB-A 3.2 ports. Alongside them, you'll also find an HDMI port and a DisplayPort 2.1 (which both support the HDCP 2.2), plus an Ethernet port. Having all those ports to hand turns the U3224KB into a desktop hub as well as a monitor, making it easy to hook up your Mac to all kinds of peripherals.

Where the standard Apple Studio Display limits you to just tilt adjustment, the stand supplied with the U3224KB goes all in. Made from metal and plastic rather than aluminum, it has a hefty base to keep the monitor firmly planted on your desk and also offer both 26 degrees of tilt adjustment, and 60 degrees of swivel adjustment to make sitting in front of it suitably comfortable. But the biggest boon is the built-in height adjustment, which enables you to raise or lower the monitor by up to 6.3in. Push it gently up to its maximum height and you'll discover another bonus: the U3224KB display can also rotate by up to 90 degrees, enabling you to view documents and other content in portrait as well as landscape, even if you have to tilt the monitor back on its axis to enable it to perform a full landscape-to-portrait sweep. Having that flexibility right out of the box is great, but the bigger question is: does the Dell U3224KB's picture and sound quality justify its steep asking price? The answer is a qualified yes.

The Dell U3224KB's big, beautiful display is a delight to behold, delivering a high level of color accuracy and deep contrast whatever kind of content you throw at it. Fire up a 4K HDR movie from iTunes and you'll be truly immersed in the events unfurling on-screen, while gaming looks great too – we rarely experienced any issues with lag, thanks to the monitor's 5ms response time. When web-surfing and document editing, everything looks pin-sharp with even tiny text remaining legible, even if at 450cd/m2 the Dell U3224KB can't match the Apple Studio Display's 600 nits brightness. Creative pros will be disappointed too by the lack of Adobe RGB support, but for general productivity and home use, the U3224KB looks great.

Indeed the only slight letdown is the sound quality. Having the soundbar perched on top rather than below the display has resulted in somewhat thin-sounding speakers that are passable when used with the 4K webcam and for interface effects, but soon becomes wearing when streaming video content or even music – the Apple Studio Display's downward-firing speakers sound much better.

ROB MEAD-GREEN

THE BOTTOM LINE

The Dell U3224KB's 6K screen can go toe to toe against Apple's Studio Display and win. However, its high price and so-so sound quality count against it.

- ✚ Big, beautiful 6K display
- ✚ Flexible stand
- ✖ Eye-wateringly expensive
- ✖ Soundbar audio is poor

GOOD

Image rights: Dell Inc.

THE BIG, BEAUTIFUL DISPLAY IS A DELIGHT TO BEHOLD, DELIVERING A HIGH LEVEL OF COLOR ACCURACY

Image rights: Dell Inc.

Designed for travelers, the Tour Pro 2 provides good battery life and an ingenious charging case.

JBL Tour Pro 2

Ideal for traveling, with an innovative charging case

$249.95 **From** https://jbl.com

Features Bluetooth 5.3, AAC; 10 hours battery (8 hours with noise cancellation); charging case with 1.45" touch display; True Adaptive Noise Canceling; Find My Buds feature

AT FIRST GLANCE, JBL's Tour Pro 2 earbuds look like just another AirPods clone. However, a quick look at the ingenious design of the charging case tells you that JBL has brought some of its own ideas to the table too.

Available in black or silver, the little earbuds are light and comfortable to wear, but they're rated IPX5 for water resistance, so they're tough enough for outdoor use or exercise. They also provide impressive battery life, lasting for ten hours on a single charge, or eight hours when using noise cancellation. The case also lets you recharge the earbuds three more times, so you don't have to worry about the battery dying on a long journey.

In fact, the charging case turns out to be the star of the show, with a high-tech design that even Apple can't match. The case has a 1.45-inch touch-sensitive screen on the front, which you can activate by swiping your finger to the right, and then swipe again to view a series of additional controls. This allows you to quickly adjust all the main settings without having to take your iPhone out of your pocket, or turn on your iPad to use the JBL app.

But, of course, none of those features would matter if the sound quality didn't meet expectations. The Tour Pro 2 delivers the goods, though, supporting Apple's AAC codec and providing a taut, sinuous sound for the electronic bass on *Prime Evil* by The Orb. The bass isn't overwhelming though, and the Tour Pro 2 also picks out the sharp ticking of the percussion that gives the track its nervous, manic energy. It can handle delicate classical sounds too, with a light, wistful tone on the melancholy piano and violin duet on Arvo Pärt's *Spiegel im Spiegel*.

The noise cancellation features aren't quite as noise-crushingly effective as Apple's AirPods Pro, but they should still help you to relax on a noisy train or plane, and there's even a "silent" mode that turns off the music but leaves noise cancellation on for a set amount of time so that you can have a nice quiet nap. **CLIFF JOSEPH**

THE BOTTOM LINE

A little pricey, but good sound quality and battery life make the Tour Pro 2 a great option for people who travel a lot.

- ✚ Good sound
- ✚ Impressive battery life
- ✚ Innovative charging case
- ▬ Average noise cancellation

GREAT

Image rights: Harman International Industries, Incorporated.

Firmament

We're solving puzzles... but why?

$34.99 **From** https://cyan.com

Needs macOS 13.3 or later

Firmament's beautiful steampunk setting is a visual pleasure.

***FIRMAMENT* IS THE** latest puzzle game from Cyan Worlds, the creators of *Myst* and *Obduction*. It's got plenty to offer, but lacks some of the magic that infused the company's previous attempts. What it does not lack is beauty though, and it's full of gorgeous environments. The landscapes rise and fall and are dotted with ladders and elevators, providing ample breathtaking vistas to the grateful gamer.

The world is comprised of a series of long-abandoned realms, where all that remains are enormous steampunk structures that guard the lands and help traverse them. The eerily empty worlds are punctuated by an atmospheric score that swells at just the right moments, making itself known when you discover a strange device or solve a challenging brainteaser.

NOT QUITE PUZZLE PERFECTION

Puzzles in *Firmament* are a mixed bag. Some are straightforward, while others had us scrambling for a walkthrough, and there were occasions when our bafflement ticked over into frustration. Some puzzles appeared to stall or become stuck for no reason, and the game could do with a touch more visual exposition at times.

Your ticket to solving the puzzles is the Adjunct gauntlet. Hold the left mouse button to fire a beam into sockets and activate nearby structures, such as opening a locked door or raising an elevator. Unfortunately, this feels rather clunky, and at times the Adjunct will refuse to connect when you're sure you're within range.

Some of the game's puzzles can be baffling, and as there are no hints, you're on your own.

LIGHT ON LORE

The game's biggest problem, though, lies in its lore. A mysterious ghost explains that you are a Keeper and that you must use the Adjunct to protect the Realms on the Firmament. What all that actually *means*, though, is unclear for much too long. You find yourself wandering the beautiful Realms solving puzzles without the foggiest clue why you're doing it. Add that vagueness to the human-free worlds and dearth of interactive environmental objects and you can't help but sense that something is missing.

Ultimately, *Firmament*'s striking world feels a little bare. At its core is the same puzzle-filled heart you'll find in other Cyan games, but the body that surrounds it is strangely hollow. **ALEX BLAKE**

THE BOTTOM LINE

A reasonable puzzler that doesn't live up to Cyan's previous efforts.

- ✚ Gorgeous environments
- ✚ Some challenging puzzles
- ✚ Excellent music
- ✖ Clunky Adjunct

GOOD

Image rights: Cyan Worlds.

Anker 548 Power Bank

Portable power for your smaller devices

Recharge the power bank from a wall outlet or via an optional solar charger attachment.

$169.99 **From** www.anker.com

Features 2x USB-C, 2x USB-A, 60,000mAh capacity, built-in light, solar input option

STRIKING A GOOD balance between capacity and portability, Anker's 548 Power Bank is designed for recharging your devices on the move. It has a convenient carrying handle, though oddly for a product that makes mention of camping, no specific water resistance rating. It charges over USB-C and a cable is supplied. The internal LiFePO4 EV-grade batteries have a capacity of 60,000 mAh, 192Wh. Anker says that's enough for 2.9 full charges of a MacBook Air, 3.2 of an iPad Pro, or 7.4 of an iPhone 14 Pro Max. They're also rated for 3,000 charge cycles, which should ensure longevity.

There are two USB-C ports on the front panel, one of which accepts input for charging the bank and allows 60W output to a laptop. The other is output-only and provides 27W of power, which is plenty for smaller devices like iPads. The 60W port will be slower to charge 16-inch MacBook Pros, and you won't be able to take advantage of the features of some of the latest MacBook models which support 140W charging and fast charging. That said, the 548 isn't billed as a super-powered charger but as one that's portable, so this is an acceptable trade-off. You also get two USB-A ports for charging smaller devices and the bank has an input for a solar panel, making it handy for when you go off-grid.

An unusual feature is the built-in LED light that you can extend from the top of the unit and then use on one of two brightness settings for up to 42 hours. It can also function as an emergency light — plugged into the wall and in auto mode, it will activate if it detects a power outage. Pressing the SOS button will cause it to flash a distress signal too, if you're really stuck. Of these it feels likely that a standard camping light will be the mode most people use, but it's a nice addition.

This is a well-built and very portable power bank with a solid capacity, great for charging the kinds of devices you might take on a trip. **HOLLIN JONES**

THE BOTTOM LINE

A great portable charger for keeping your smaller devices powered while on the road.

- ✚ Solid, portable design
- ✚ Great for smaller devices
- ✚ Light is a nice addition
- ✖ Drained fast by laptops

GREAT

Image rights: Anker.

Twelve South HiRise Pro

Neat, but expensive adjustable MacBook stand

Though it's not obvious at first glance, the base has a hidden slot for a MagSafe charger for iPhone charging.

$99.99 **From** www.twelvesouth.com

Features 2.5 to 6 inches of height adjustability, MagSafe housing in the base, 1.65 lbs, suitable for MacBook Air 11-inch (2015) up to MacBook Pro 16-inch (2023)

THERE ARE PLENTY of MacBook stands out there to choose from, so what makes Twelve South's latest HiRise Pro worth looking at? For starters it's very high quality, with an overall metal design that matches the MacBook aluminum aesthetic perfectly, with a vegan leather trim on the base of the unit, which feels soft and looks great.

It's also height adjustable — in its default form, with the piston-style arm recessed inside the stand, it measures 2.5 inches, but can be raised to 6 inches to make it suitable for those with a higher seating position. The adjustment is completed via a screw on the rear of the base which when unscrewed allows the arm to retract — when you reach the desired level of adjustment, just tighten the screw. We did find at the highest point of adjustment that the stand felt slightly wobbly, but lowered just ever so slightly seemed to eliminate this issue.

Admittedly, this style of height adjustment is nothing new; we've seen it on older stands before. What is completely new, and very modern, however, is the MagSafe-ready base, which allows you to fast-charge your iPhone using the wireless MagSafe standard by placing it on the base of the unit. There's no MagSafe charger included, so you'll have to bring your own, but the provision to add it can be found underneath the base.

As to the area at the top for mounting your MacBook, the V-shape design neatly matches the Twelve South logo, and offers a secure fit for your machine thanks to the textured rubber material, and the curve at the bottom of each end of the stand, to prevent your MacBook from falling off.

Overall, the HiRise Pro is a great stand, aside from the minor wobble at the top of its extension. The MagSafe charging pad is a neat feature, though you may not benefit from it unless you have a new iPhone. **NICK ODANTZIS**

THE BOTTOM LINE

Easy to adjust height, and it looks great. You're paying extra for the MagSafe charging pad though.

- ✚ Height adjustable
- ✚ Secure
- ✚ Looks great
- ✖ Cheaper alternatives without charging pad

GREAT

Image rights: Twelve South LLC.

Logic Pro for iPad

Pro-level music tools come to iPad

Free for 1 month; $4.99/month; $49/year **From** www.apple.com

Needs iPadOS 16.4 or later and a device with A12 Bionic chip or later

Mac|Life EDITOR'S CHOICE

APPLE HAS BEEN trying to convince us for a number of years that an iPad can replace a Mac for professional creative work, and in a handful of cases like art and graphics that's arguably been true. For music production however, serious Digital Audio Workstations (DAWs) haven't made the leap to iPad, with the notable exception of Steinberg's Cubasis. Perhaps in an effort to remedy this, Apple has created Logic Pro for iPad. Light years more powerful than GarageBand, it's also not a direct port of Logic Pro for Mac. Instead, Apple has created a supremely powerful app that will be familiar to existing users but is completely reworked for the touch interface.

AT YOUR FINGERTIPS

Unlike Final Cut Pro for iPad with its exacting graphics requirements, Logic Pro works on any iPad with an A12 Bionic processor or better, which includes all recent models. This combined with its one-month free trial means a great many people will be able to try it out for themselves. While the app is around 700MB a full install of all its loops and content weighs more like 15GB, which combined with space for recordings could be an issue for iPads with lower capacities. It was tested on an M1-powered model and an A12 model and while performance on the M1 was buttery smooth, it was slower but still acceptable on the older model.

Use your iPad's mic and speakers or connect an audio interface.

This is a remarkably accomplished music production suite and one that perhaps only Apple with its vast resources could have pulled off. As

APP TIPS

Professional production on a touch screen

Automate volume

Rarely found in iPad apps, Logic lets you use your finger or an Apple Pencil to enter automation curves to change volume, panning, filters and many other parameters over time for a more interesting and dynamic mix.

Play your way

There are multiple touch-based ways to play including a keyboard, drum pads and chord pads. These can be further configured to behave in the way you want, adding real-time controls like sustain. Or, connect a hardware controller.

Export for mixing

While you can mix on the iPad it's also possible to move to Logic on Mac, or export each track separately to mix on a different system entirely. This gives you plenty of options for finishing a project.

Image rights: Apple Inc.

such it's possibly a little daunting for newcomers, but a number of excellent tutorials and walkthroughs are provided to get you up and running. There are several track types available: MIDI and pattern-based software instruments, audio and drummer tracks. The content library lets you preview patches, loops and samples and drag and drop these into your project. For each track type, advanced, desktop-class editing tools are available and these extend to beat stretching audio, generating MIDI patterns, and much more. Plus, extensive Apple Pencil support makes tasks like drawing automation curves a breeze.

BUILT FOR PROS

Many of Logic's classic software instruments and effects plug-ins have been carried over and are available to load into projects. Audio Unit plug-ins for iOS are supported but these are not nearly as commonplace as they are on the desktop. So while you can transfer projects between iPad and Mac via iCloud or the share sheet, any Mac plug-ins will need to be bounced down to audio before they can go over to the iPad. Hopefully the release of this app will encourage developers to up their game when it comes to iOS audio plug-ins.

Logic's design is superb, doing away with windows in favor of a highly customizable interface that encompasses plug-in chains, a powerful mixer, arranger section, audio and MIDI editors, and much more. You really can record, program, edit and mix whole projects in it, to a highly professional standard. You'll want to add an iOS-compatible audio interface for proper recording and monitoring and maybe a MIDI keyboard too, but the same is true of a laptop.

The app's interface lets you show and hide multiple elements easily.

TABLET-BASED MUSIC MAKING

This is by some distance the most powerful and well-designed music app for iPad ever made. There's the odd complaint — iPadOS still limits you in a way macOS doesn't — and beginners will take a little time to come up to speed. The subscription model will have its detractors too, and it doesn't feel like something a company as rich as Apple really needed to do. But Logic Pro for iPad really does justify the "pro" label, a slick and powerful app that will complement or even for some users replace the desktop version. **HOLLIN JONES**

Below left: A good selection of instruments and effects is included.

Below right: The touch interface is especially good for working with loops and MIDI.

THE BOTTOM LINE

A hugely accomplished music production app for iPad that deserves the Pro label.

- ✚ Very powerful tools
- ✚ Superb touch-centric design
- ✚ Excellent content included
- ✖ Subscription model

AWESOME

Image rights: Apple Inc.

The microphone comes with a clip-on pop shield to help capture glitch-free recordings.

AT2020USB-XP

High-quality voice recording for content creators

$169 **From** www.audio-technica.com

Features USB-C power, up to 192kHz operation, pop shield, latency-free monitoring, capacitive mute button, USB-C cable and a USB-A adapter included

AUDIO-TECHNICA HAS updated its AT2020 USB microphone family with a new model that adds very high-quality recording options with up to 24-bit, 192kHz sample rate possible via its new analog to digital converters. When plugged in to your Mac or USB-C iPad it appears as both an audio input and output device, with a 3.5mm headphone jack on the body letting you monitor both your own voice and audio streamed back from your Mac. This has a high-output amplifier that is able to provide plenty of volume so you won't struggle to hear yourself back.

Direct, latency-free monitoring is supported and as well as a headphone level control, you get a mix control to adjust the amount of computer audio fed back into the headphones. There's a desk stand in the box and also a thread adapter, and a clip-on pop filter helps to prevent plosives affecting your recordings. While some microphones feature internal pop shields, an external one is generally held to be more effective since it puts a bit more distance between the shield and the capsule, making it more resilient in stopping blasts of air.

Aimed at podcasters, streamers and other content creators, the mic uses a cardioid condenser pickup to detect sound from the front so it's ideal for use by a single presenter. While maintaining a consistent volume level can sometimes be tricky as you naturally move back and forth a little while speaking, this model has an optional automatic gain switch that does an excellent job of dynamically altering levels to keep the signal consistent.

The recording results are excellent, capturing a strong and clear signal with negligible noise even at high gain levels. We did find the automatic gain feature particularly useful as it meant one less thing to worry about, keeping the level consistent even as we moved around a little.

If you are making podcasts, streaming or recording voiceover, the AT2020USB-XP is a high quality, affordable and hassle-free way to get great results. **HOLLIN JONES**

THE BOTTOM LINE

A high-quality and sensibly priced microphone for voice recording that just works, with a minimum of setup.

- Excellent audio results
- Great build quality
- Auto gain control
- Stand and pop shield

AWESOME ■■■■■

Image rights: Audio-Technica.

Mimestream

Elevate your Gmail inbox

$49.99/year **From** https://mimestream.com

Needs macOS 12 or later

CHOOSING AN EMAIL client can be tough, but Mimestream may be just what you're looking for. There's the large caveat that it only supports Gmail accounts, but if you don't use iCloud, Hotmail or anything else, it's one of the best email clients around.

Mimestream feels like something Apple could have cooked up, and integrates with a host of core macOS features, including Dark Mode, swipe gestures and keyboard shortcuts. Its layout is simple, familiar, and easy to digest, being neither overcrowded nor overly sparse. But if it doesn't suit you, there are four different layout styles to choose from.

You can add multiple Gmail accounts and house them in a unified inbox or separate them into their own tabs. We set one as a personal account and one as a work account, but you can set them up however you like (and add more than two). Each can have its own color and icon, making the distinction clear. This tabbed approach is a great way to filter out distractions.

Email accounts can be separated into tabs for quick profile switching.

CLEVER FEATURES

There are neat touches everywhere. Email threads can be expanded or contracted at the click of a button. Highlighting text and clicking reply lets you quote that text directly. There's also a button to filter your inbox by your chosen combination of unread, starred and important mail.

A menu bar icon displays your unread message count. Click it and you'll see the five most recent unread emails.

Dive into the settings and there's more to find. There are email signatures (which can be different for new messages and replies), templates, default font options and granular undo send timers. It's highly customizable, although not infinitely so.

We particularly liked the notification schedule. This lets you block alerts for each account at times you define, so you can disable notifications from your personal inbox during work hours.

Mimestream plays things pretty safe, and there are no radical new concepts here, just a highly competent email app that serves Gmail users very well indeed. And really, that's probably one of its strongest aspects. There's no learning curve at all and everything is exactly where you expect it to be, all augmented by some handy extras that elevate the experience further.

Mimestream has a 14-day free trial, and it's absolutely worth testing. It's one of the most considered, comprehensive email clients we've tried. **ALEX BLAKE**

THE BOTTOM LINE

A brilliant Gmail client that's easy to use and stacked with a plethora of excellent ideas.

- Familiar interface
- Full of clever touches
- Extensively customizable
- Gmail only

EXCELLENT

Image rights: Mimestream.

Best of the best

Can't find the hardware or app you're looking for in our reviews section? Then check in here — we've highlighted the best in every major category, as voted for by us

> HARDWARE

CATEGORY	PRODUCT	WEB	PRICE	ISSUE
MESH ROUTER	ASUS ZenWiFi XT9	asus.com	$449.99	#201
4K USB-C MONITOR	BenQ EW3280U	benq.com	$799.99	#169
THUNDERBOLT DOCK	CalDigit Thunderbolt Station 4	caldigit.com	$379.99	#199
KEYBOARD	Cherry KW 9100 Slim for Mac	cherry-world.com	$59.99	#208
PORTABLE PRINTER	Epson WorkForce WF-110W	epson.com	$299.99	#185
PORTABLE HDD	Toshiba Canvio Flex 2TB	storage.toshiba.com	$79.99	#197
NAS DEVICE	Asustor Flashstor 6 FS6706T NAS	asustor.com	$449	#210
WIRELESS CHARGER	Belkin BoostCharge Pro Portable	belkin.com	$59.99	#197
DESKTOP SPEAKERS	Creative Pebble Pro	us.creative.com	$59.99	#204
IN-EAR HEADPHONES	Nothing Ear 2	us.nothing.tech	$149	#209
SECURITY CAMERA	EufyCam 2C (two-pack kit)	eufylife.com	$239.99	#171
SMART SPEAKER	HomePod mini	apple.com	$99	#176
OVER-EAR HEADPHONES	Sony WH-1000XM5	sony.com	$399.99	#197
AIRPLAY SOUNDBAR	Sonos Beam	sonos.com	$449	#187
WEBCAM	AnkerWork B600 Video Bar	ankerwork.com	$219.99	#191
PHOTO PRINTER	Liene 4x6 photo printer	amazon.com	$136.99	#190
PORTABLE BATTERY PACK	Anker 533	us.anker.com	$49.99	#198
MOBILE DOCK	Kensington 8-in-1 USB-C Mobile Hub	kensington.com	$77.55	#190
OFFICE CHAIR	Branch Verve	branchfurniture.com	$549	#201
MOUSE	Logitech MX Master 3S	logitech.com	$99.99	#198
ACTION CAMERA	GoPro Hero 11 Black	gopro.com	$500	#202
DESKTOP MICROPHONE	Cherry UM 9.0 Pro RGB	cherry-world.com	$139.99	#209
PORTABLE DAC	iFi Go Blu	ifi-audio.com	$199	#189
PORTABLE SSD	Crucial X8	crucial.com	$219.99	#203
THUNDERBOLT 4 HUB	Satechi Thunderbolt 4 Slim Hub	satechi.net	$199.99	#205
CD/DVD DRIVE	NOLYTH External DVD Drive	amazon.com	$39.99	#204
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> iOS/iPadOS APPS

CATEGORY	PRODUCT	WEB	PRICE	ISSUE
TO DO (PRODUCTIVITY)	Things 3	culturedcode.com	$9.99	#194
WRITING	Scrivener	literatureandlatte.com	$19.99	#138
EMAIL	Spark	sparkmailapp.com	Free	#190
PHOTO EDITOR	Pixelmator Photo 2	pixelmator.com	$4.99	#193
VIDEO EDITOR	LumaFusion 3.0	luma-touch.com	$29.99 (IAPs)	#186
CAMERA	Obscura 3	obscura.camera	$9.99	#196
RSS READER	Reeder 5	reeder.app	$4.99	#176
DESKTOP PUBLISHING	Affinity Publisher 2	affinity.serif.com	$19.99	#206
NOTE-TAKING	Notability 10	gingerlabs.com	$8.99	#174
MIND-MAPPING	MindNode 7	mindnode.com	$14.99	#184
DOCUMENT SCANNER	Genius Scan 6.0	thegrizzlylabs.com	Free (IAPs)	#182
CALENDAR	Fantastical 3	flexibits.com	$4.99/month	#198
FITNESS	Gentler Streak	gentler.app	Free (IAPs)	#199
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GRAPHICS	Procreate for iPad	procreate.art	$9.99	#196

> macOS APPS

CATEGORY	PRODUCT	WEB	PRICE	ISSUE
TO DO (PRODUCTIVITY)	Things 3	culturedcode.com	$49.99	#194
WRITING	Scrivener	literatureandlatte.com	$49	#200
EMAIL	Spark	sparkmailapp.com	Free	#190
IMAGE EDITOR	Pixelmator Pro 3	pixelmator.com	$49.99	#208
VIDEO EDITOR	Wondershare Filmora	wondershare.com	$109.99	#202
SCREEN CAPTURE	ScreenFlow 9	telestream.net	$129.00	#164
MUSIC CREATION	Logic Pro	apple.com	$199.99	#141
PASSWORD MANAGER	Secrets	outercorner.com	$19.99	#188
DESKTOP PUBLISHING	Adobe InDesign	adobe.com	$20.99/month	#162
BACKUP	Carbon Copy Cloner	bombich.com	$39.99	#136
VIRTUALIZATION	Parallels Desktop 18	parallels.com	From $99.99	#201
NEW! ANTIVIRUS	Intego Internet Security X9	intego.com	$49.99/year	#192
NOTE-TAKING	Agenda	agenda.com	Free	#204
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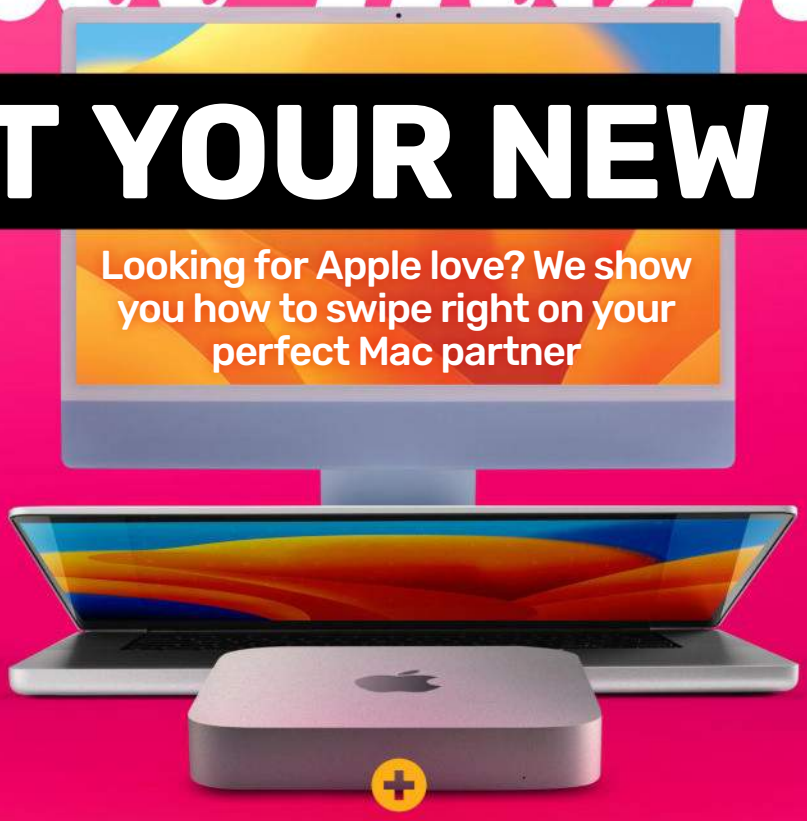

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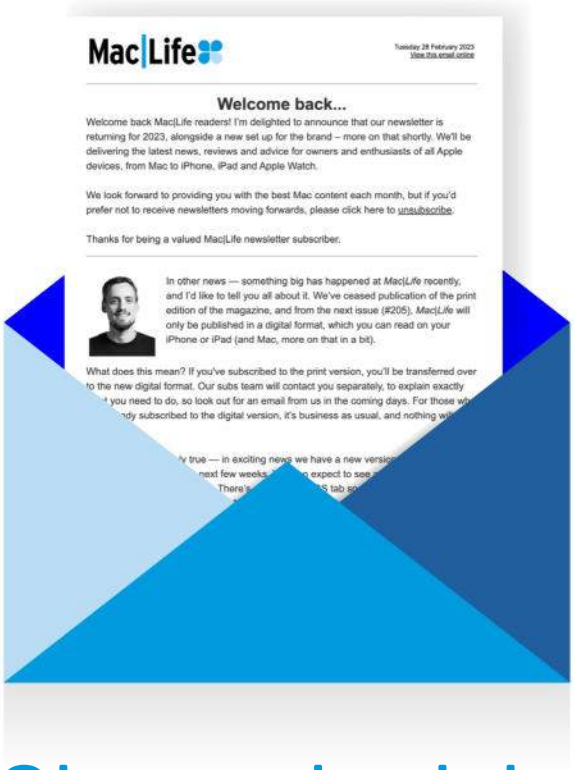

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