

The UK's best-selling Apple magazine

Mac FORMAT

> Issue 389 > April 2023
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108 iCloud tips

> Sync and share across your devices

ON TEST

New M2 Macs

> **Best-ever** Mac mini & MacBook Pro

**NEW
REVIEWS**



HomePod
(2nd gen)



Lenco USB
turntable



Note-taking
apps



MacBook Pro



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Your in-depth
guide to Apple's
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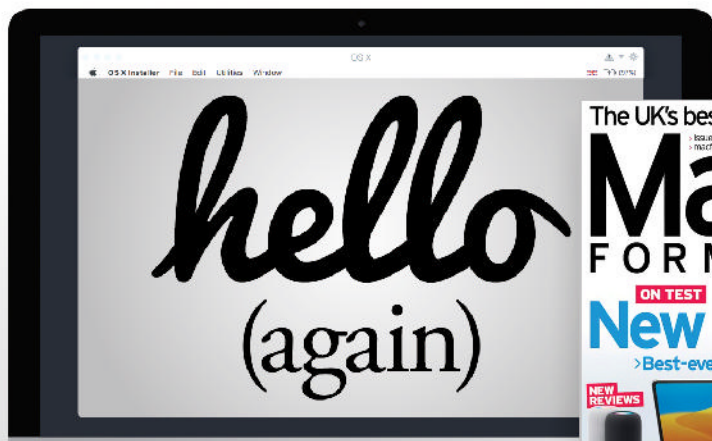
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There are so many things that iCloud can do, and does, that it can be easy to take it for granted. Yet it's a cornerstone of the whole Apple experience; from making it easy to access your data across your devices to sharing and collaborating with others on all kinds of projects.

To help you make the most of Apple's cloud service, turn to p16 where you'll discover 108 iCloud tips.

Among them we'll reveal some of iCloud's best-kept secrets, how and why you'll want to use iCloud+ to boost your privacy and security, and how iCloud can help you share everything from photos to movie and music purchases with your family.

Sticking close to home, our second feature this month (p58) takes an in-depth look at HomeKit and Apple's plans for the smart home of your dreams, both now and in the future.

Finally, we come to this month's cover stars: the new Mac mini and MacBook Pro, plus the second-gen HomePod. You can read our definitive verdicts on all three starting in our reviews section on p77. Also on test: six of the best note-taking apps for Mac, iPhone and iPad (p86), the six best apps to kickstart your spring-cleaning regime (p96) and, seeing as you're cleaning, you might as well dust down your old vinyl and give that a spin too, courtesy of the USB turntable (p84).

We hope you enjoy the issue,

ROB MEAD-GREEN
EDITOR
editor@macformat.com

Meet the team



Jo Membery
Operations Editor

► Jo's hoping for a Pick 'n' Mix Reality headset from Apple this year. Using it, she plans to visit an old branch of Woolworths and snaffle all the liquorice whirls.



Paul Blachford
Art Editor

► Paul is hoping for a Sticks Reality headset. That way he can pretend he's taken his virtual dog to the park, instead of having to take his real-life one there.



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108 iCLOUD TIPS

Discover the incredible things that iCloud can do - and how you can make the most of them in our 13-page in-depth guide



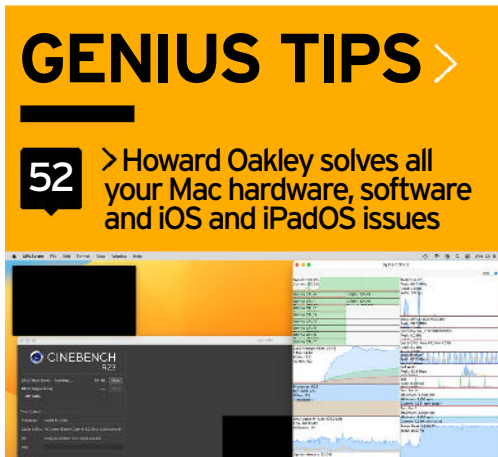
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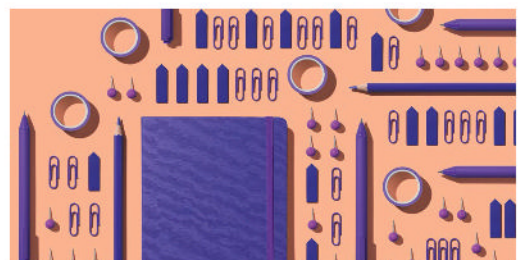


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APPLE CORE



EDITED BY **ROB MEAD-GREEN** ›

HOT TOPIC!

Apple planning mega spring event

VR headset, Mac Pro and more all expected

Apple has some major projects in the works, and a consensus is forming that the company is going to host a blockbuster event in the spring to reveal its latest projects. If the rumours are correct, we could see some of the most important new Apple products in years.

First and foremost is a mixed-reality headset, apparently dubbed Reality Pro. For a while now we've had small, scattered leaks surrounding the device, but that all changed in January when Bloomberg's Mark Gurman released a report containing a huge number of claims of what the headset would offer.

Gurman believes the Reality Pro will offer hand- and eye-tracking, which Apple wants to make a "major selling point". That will let each user select items and apps by looking at them, then open those apps by pinching their thumb and forefinger together. The operating system (called xrOS) will be familiar to users of iOS and iPadOS, with a grid of apps and widgets on the screen.

There will be two high-resolution displays on the inside to show virtual reality (VR) content, with cameras on the outside to help build augmented reality (AR) experiences that merge the outside world with digital content. The outside will also feature an Apple Watch-like Digital Crown - turn this knob and the headset will switch between VR and AR modes. And if you wear glasses,

Apple will offer special prescription lenses that slot into the device's enclosure.

The headset won't be cheap, though, costing \$3,000. The spring event could act as a first look at the device, and Apple will use its Worldwide Developers Conference (WWDC) in June to further explain how it works and get developers on board.

Many more Macs

We've been waiting for what feels like forever for Apple to bring out an Apple silicon Mac Pro, but the time is finally set to arrive this spring. Multiple sources have been claiming that the supercomputer will make the jump from Intel at Apple's event, but it might be tinged with a little disappointment.

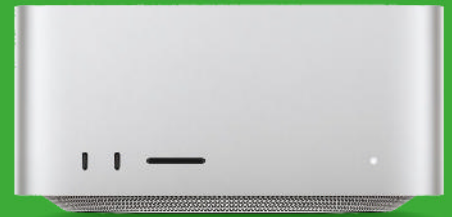
That's because previous rumours had suggested the Mac Pro would come with a new, top-of-the-line chip called the M2 Extreme. However, Gurman has more recently poured



A springtime, pre-WWDC event could be on the cards, and we might finally see Apple's mixed-reality headset.



Apple's rumoured mixed reality headset could cost up to \$3,000.



The Mac Studio hasn't been out for long, but its future is already in question.

Apple could drop the Mac Studio

Apple only announced the Mac Studio in March 2021, but the device could already be set for the rubbish heap. Bloomberg reporter Mark Gurman has claimed a new version might not arrive until the M4 chip is released, which could be several years down the line.

The surprising claim is based on Gurman's assertion that the Mac Studio would be too similar to the upcoming Apple silicon Mac Pro, with both products offering similar performance. That's especially so since the Mac Pro might not come with the M2 Extreme chip it was previously rumoured to get; instead, it could be left with an M2 Ultra, which would be the same tier of chip as the M1 Ultra inside the Mac Studio.

According to Gurman, Apple might either decide to delay any new versions of the Mac Studio for the foreseeable future, or could stop updating it altogether. The latter would be a pretty shocking turn of events for a new device that received much fanfare from Apple upon its release.

cold water on that idea, saying Apple has dropped the chip in the face of engineering challenges. Instead, the Mac Pro will now be outfitted with an M2 Ultra.

Elsewhere, Gurman has also alleged the Mac Pro will not feature user-upgradable memory or graphics as a result of the switch to Apple silicon, which uses a system-on-a-chip (SoC) design where these components are integrated into the chip. The chassis design is also likely to remain the same. Still, even with these caveats, there should be a noticeable jump

Rumours suggest the Reality Pro headset could offer hand- and eye-tracking

in performance above the Intel chips available in the current Mac Pro.

Aside from the Mac Pro, Apple could also launch a 15-inch MacBook Air, which will be the first time Apple has offered its lightweight laptop in two sizes since ditching the 11-inch MacBook Air in 2016. Few other details are known about this device, though.

Numerous other products, including a 27-inch display, new MacBook Pro models, an M2 Mac mini, and a second-generation HomePod, were all rumoured for the show. However, all those products - except the display - were launched in January. As we explain below, that monitor could be delayed. Even without those products, however, the spring event could showcase some seriously significant devices.

New Apple monitor delayed

Apple is rumoured to be planning a new monitor with a miniLED panel.

Yet according to analyst Ross Young, the project has been put on the backburner, resulting in the monitor potentially being delayed indefinitely.

Young indicated that he has not seen any recent signs of life from the display, suggesting it is far from launch.

The reasons for the delay are not known and follow previous reports of delays dating back to June 2022.

Young has previously stated that the screen will measure 27 inches across and come with ProMotion baked in. It's unclear if it will be a Studio Display, Pro Display XDR, or something else entirely.



Apple's next monitor has been delayed again, according to a new report.

APPLE NEWS ROUNDUP

APPLE WATCH TO GET MICROLEDS

NEW TECH FOR BETTER DISPLAYS

> The Apple Watch was Apple's first OLED device, and it could become the company's first microLED product as well. In a new report, display industry expert Ross Young stated Apple will add the tech to its wearable in 2025. Compared to OLEDs, microLED displays offer improved contrast, viewing angles, response times and more. Given it's a high-end, emerging tech, it could debut in the Apple Watch Ultra.

REVERSE WIRELESS CHARGING

FEATURE IS STILL IN DEVELOPMENT

> We've heard rumours in the past that Apple is working on 'reverse wireless charging' tech that would let an iPhone charge accessories placed on its surface. Now, 9to5Mac's sources say Apple is still working on the feature, including firmware that would manage charging speeds and heat dissipation. Apple intended it to launch in the iPhone 14 Pro series but ran out of time, suggesting it could be nearly ready.



The Pro Max might not be Apple's top-end phone for long, with an Ultra model potentially coming out soon.

A costly iPhone Ultra could be coming soon

New flagship phone may sit above the Pro Max

Right now, the largest and most expensive phone in the iPhone line-up is the Pro Max. That could change this year, as a new report claims Apple could soon bring out an iPhone Ultra.

The idea is that Apple will try to further differentiate its top-end model in order to encourage people to spend an extra fistful of cash and buy it. According to Bloomberg's Mark Gurman, that might mean a periscope camera lens, a faster chip, and perhaps a larger display compared to other phones in the roster. It could even drop the charging port to rely entirely on wireless charging.

All that tech would come in a new iPhone Ultra that would sit above the Pro Max. Apple has been discussing the idea internally, Gurman claims, and could debut it in 2024. But it won't come cheap, and Tim Cook recently explained on an earnings call that customers are "willing to really stretch" and pay more for top devices. That suggests Apple certainly isn't worried that a super-high-end iPhone Ultra will put off consumers with its price.

So it seems the prices for flagship models could be set to rise again in a year or two, if Gurman is correct. Better start saving the pennies to prepare for the outlay.

Apple's clever VR headset plans

You might be able to paint in virtual reality, according to patents

Apple's mixed-reality headset is one of the worst-kept secrets in Silicon Valley right now, and more details have recently leaked out about the upcoming device.

According to a pair of freshly granted patents, Apple could have some interesting ideas on how you'll interact with its Reality Pro headset (see p6).

The first patent describes how an Apple Pencil could be used as a controller for use in virtual reality (VR). For example, the patent suggests you could see your hand holding the Pencil in VR, and that swiping or drawing gestures could result in marks being made in the virtual world. In other words, you

could be come a veritable VR Bob Ross with the help of the digital pen.

In the second, Apple explains that its headset could learn where you are looking and adjust the quality and resolution of content shown in that area. When your head moves to a new position, the content at that

location would improve in quality, while the content that you are not looking at would drop in resolution to save processing power.

These are just the latest in a spate of Apple headset patents and, as we've reported, rumours suggest, the groundbreaking device could be almost upon us.

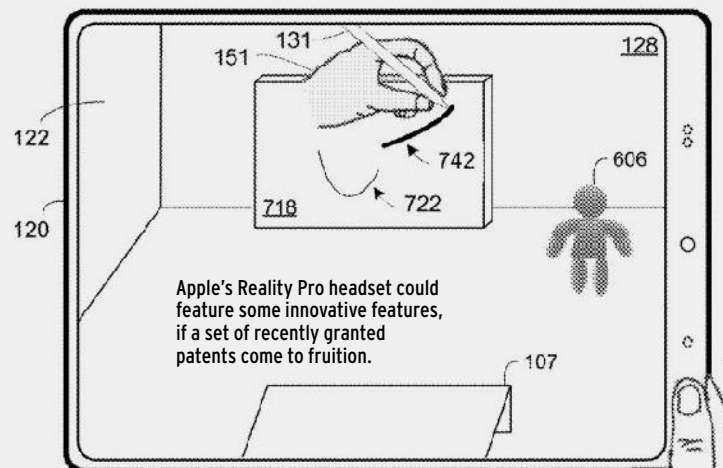
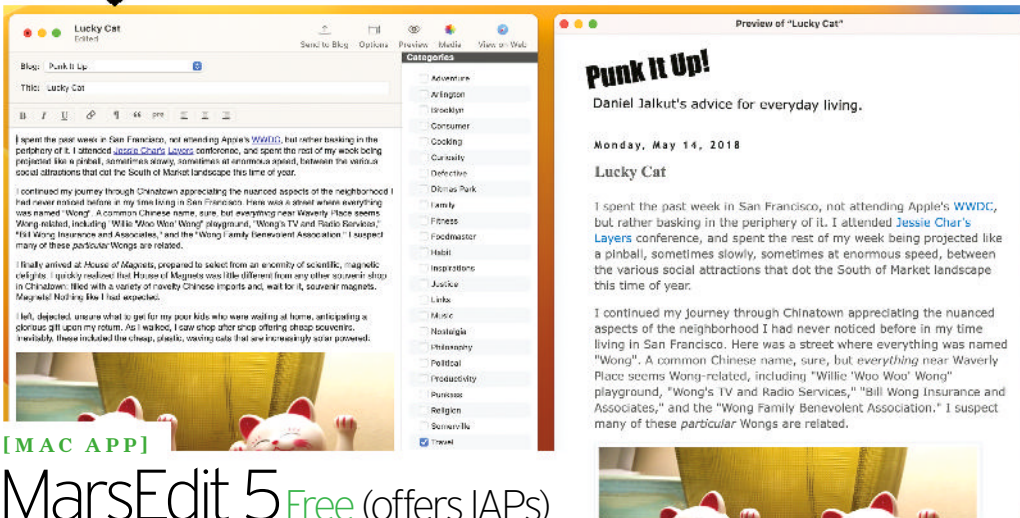


Image credit: Apple Inc

APP OF THE MONTH



[MAC APP]

MarsEdit 5 **Free** (offers IAPs)

Prepare and publish blogs in the blink of an eye



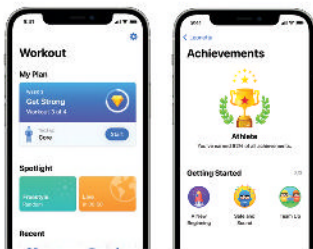
MarsEdit is undoubtedly one of the most popular blogging apps available on the Mac.

Now updated to version 5, it comes with a slate of new features that help get your thoughts online more quickly and easily than ever.

Inspired by sites like Twitter and Mastodon, there's a new microblogging feature that lets you compose short, simple messages and instantly upload them to your website with

a click. And if you like using Markdown syntax, MarsEdit now automatically styles your copy appropriately so you know exactly how everything will look before publication.

There are plenty of other changes, including a rebuilt rich text editor, improved HTML highlighting, a more modern search and replace function, alongside much more. These enhancements should help make your blogging even more streamlined than before, whatever it is that you enjoy writing about.



[iOS APP]

Seven: 7 Minute Workout

FREE (offers IAPs)



Getting fit and healthy can feel daunting, but not when you have this app in your arsenal. It breaks down workouts into manageable seven-minute chunks, giving you short bursts of activity that can help you on the road to fitness. It's a great way to build strong habits that stick with you for the long haul.

Why you need it It makes fitness fast and fun.



[iOS GAME]

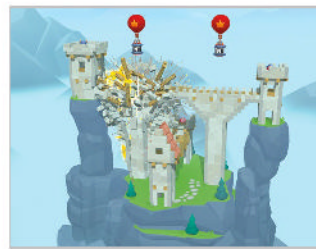
Frozen City

FREE (offers IAPs)



The world has collapsed into a snowy apocalypse, and now you must rebuild the last town on Earth and give humanity a fighting chance at survival. To do so, you'll need to collect resources, assign citizens work, and explore what's left of the world. Can you help your people not only survive, but thrive?

Why you need it A challenging sim for survival buffs.



[MAC GAME]

Castle Crumble

£4.99/month (Apple Arcade)



On the surface, Castle Crumble seems straightforward: destroy any castle that stands in your path. But the fun comes in the various weapons you have at your disposal, from laser beams to TNT. There are castle themes spanning the globe, including Aztec fortifications, Medieval strongholds, and more.

Why you need it Physics-based fun with a dose of destruction.

Media Picks

>What you should be playing and reading this month



[ALBUM]

Broken By Desire To Be Heavenly Sent

Lewis Capaldi

£11.99

>Lewis Capaldi says his second album is not about reinventing himself, but about sticking to what he does best: crafting "emotional songs about love or loss."



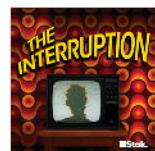
[AUDIOBOOK]

The Creative Act: A Way of Being

Rick Rubin

£18.99

>World-famous music producer Rick Rubin distills lessons he has learned on fostering creativity and helping it flourish in your life.



[PODCAST]

The Interruption

>In 1977, TV news was interrupted by a self-described alien envoy warning earthlings to change their warlike ways. This is the story of that mysterious incident.

Image credits: Red Sweater Software LLC, Vertigo Berlin/Universal Music GmbH, Canongate Books, Perigee AB, Century Games Pte Ltd, Orbital Knight, Stakhanov Industries Ltd



MATT BOLTON...

IS WONDERING WHETHER CHATGPT IS A DANGER TO APPLE, SIRI'S SAVIOUR, OR JUST JUST ANOTHER API TO SUPPORT

Over the last few weeks, the single most dominant tech story has been ChatGPT, and its eerily good ability to create written documents from an 'AI' database. Well, I say 'single', but what's been written about it has gone through so many transformations – from “Wow, this thing is amazing!” to “Oh, this thing is terrifying” to “This will make my life much easier” to “This will put me out of a job” to “I can get any information digestible” to “Ah, it just makes up facts sometimes” and “Oh no it also might throw in slurs”, and so on.

A lot of talk about it has been focused on where people will access it in practice. Microsoft sees it as a way to do the impossible and leapfrog Google in search, adding it into Bing in a trial that's live now. Ask Bing a question and you'll get an answer that ideally makes sense and is accurate, but the latter

of those in particular is not guaranteed (though the next version of ChatGPT features an increased amount of data).

Microsoft is already pushing it as a way to compose copy too – it can be used in the Edge browser to write posts on LinkedIn,

which is a terrifying thought. I really don't know that the platform needs an easier way to post complete drivels on it.

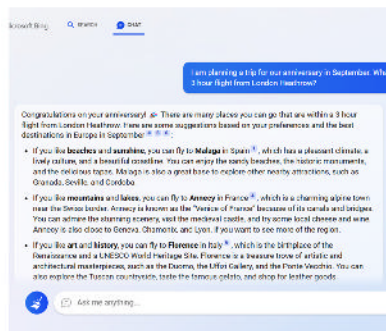
One company silent on ChatGPT so far is Apple. I think this is no bad thing – the technology is not ready for prime time, and how 'acceptable' we'll find it is far from settled. But it's in Apple's wheelhouse – think about how the company uses other types of machine learning in photos and battery

management and predicting what apps you'll use, all to make life easier – so I wonder what it's thinking about it.

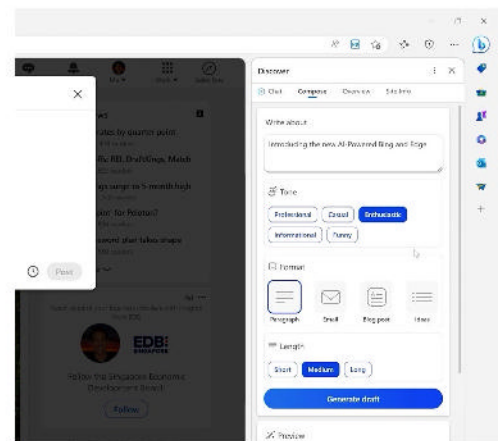
Maybe it gives Apple the chance to create its own search engine, as it has supposedly wanted for a while. But I can't see the company liking the idea of the possibility that an Apple-branded product might tell you that it's safe to boil a baby (as Bing's version did for a moment, reportedly).

Siri has been stagnating compared to other voice assistants, and ChatGPT could be an incredible opportunity

There's been a lot of talk, but ChatGPT tech is not yet ready for prime time...



The conflation of information here is impressive; flights from Heathrow, time to get there, and what the places are like.



Few ideas are odder than the idea of choosing a topic, choosing a chipper tone, and then posting it as your own. there. Use Siri's voice recognition to identify knowledge questions, feed them to ChatGPT, and have Siri read out the answers. It has the same risks as above, but maybe Apple would be more willing to take them since Siri is an existing product that needs a boost.

Or maybe Apple will take no stance at all. Maybe it'll promote that if developers want to use ChatGPT in their apps, the A-series and M-series chips do it faster than anything else on the planet, but it'll keep clear of the tech itself. Maybe it'll include Bing's ChatGPT search in Spotlight, again keeping it clear that it's another company's results, and with the option to turn it off – an arm's length away from any worrying results.

We're on the precipice of something, make no mistake. But what happens next is as much about politics as it is technology, and don't underestimate the power of the former to steer the latter.

ABOUT MATT BOLTON

➤ Matt is Managing Editor at *TechRadar.com*, and previously worked on *T3*, *MacLife* and *MacFormat*. He's been charting Apple's ups and downs since his student days, but still hopes to hear "one more thing".

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GADGET WISHLIST
Don't miss these droolworthy portable turntables and ebikes

TESTED
SONY A95K
Simply the brightest QD-OLED set yet

GET BACK OUTSIDE
Godlike gear to help you run, hike and bike

Must-have WATCHES
The hottest wristwear, hands down

NEW M2 PRO MACBOOK PRO RATED!

T3
SMARTER LIVING

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GET BACK OUTSIDE
Godlike gear to help you run, hike and bike

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BOSE'S MINI ATMOS BAR
This small soundbar rocks truly 3D audio

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The most game-changing gadgets revealed at CES

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Have we reached “peak iPhone”?

Charlotte Henry explores whether Apple's key product is starting to lose its magic

WRITTEN BY CHARLOTTE HENRY >



n iPod, a phone, an internet communicator...

An iPod, a phone – are you getting it? These are not three separate devices. This is one device. And we are calling it iPhone.”

Ever since 2007, when Steve Jobs got on stage, uttered those words, and changed the history of his company yet again, the iPhone has sat right at the heart of Apple's now multi-trillion-dollar empire. Year after year, the company rolls out the latest model offering various feature improvements. Year after year consumers flock to buy it. Or do they?

Sixteen years after the iPhone launched, there are certainly a lot of Apple smartphones in the world. In the statement accompanying Apple's first earnings report of 2023, which covers the last three months of 2022, chief executive officer (CEO) Tim Cook said:

“During the December quarter, we achieved a major milestone and are

excited to report that we now have more than 2 billion active devices as part of our growing installed base.”

It is safe to assume a significant proportion of these active devices are iPhones. Interestingly though, Apple's chief financial officer (CFO) Luca Maestri used the same statement to emphasise that “we set an all-time revenue record of \$20.8 billion in our Services business.” Apple is certainly keen to show investors that the revenue from its services offering is growing, but if iPhone sales were booming then that is surely what he would have focused on.

Telling numbers

Apple revealed iPhone sales had dropped by eight percent from the same time the year before to \$65.8 billion. That was the first-time sales had fallen since 2020. This is particularly concerning given the numbers are from the quarter that includes both the roll-out of the iPhone 14

and the main holiday period. One of the key problems is disruption to device production in China, largely caused by Covid lockdowns in the country. The country is crucial to Apple's manufacturing process. However, Cook was optimistic about things going forward, telling the Reuters news agency that “production is now back where we want it to be”.

The issues go beyond manufacturing slowdowns though. It seems that, while the iPhone remains sensationally popular, people are holding on to their devices for longer than before. In places like the UK and US we may have got used to carrier networks offering 24-month contracts, but that does not mean we are rushing to upgrade our

For our latest
subscription offer
see page 30!





While each iPhone incarnation brings improvements, are they enough to have us reaching for our bank card?

phones as soon as our term has ended. A host of things are contributing to this, not least because of economic and personal financial circumstances. Once a two-year phone contract period is over, it is often cheaper to go for a 'SIM only' deal – then you are only paying to be on a mobile network, not paying for the cost of a new phone.

Another key factor seems to be a growing sense that each generation of iPhone is no longer significantly better than the last. Sure, there are always a number of upgrades and new features, but for many these mostly incremental improvements are not worth the expense.

Take the iPhone 12 Pro, for example. While we have undoubtedly seen some nice additions in successor models, the battery on the device is known to stay in good health, the camera is more than sufficient for an amateur, and the phone supports both 5G and the latest version of iOS. So, if you have a handset you're happy with, where's the incentive to upgrade?

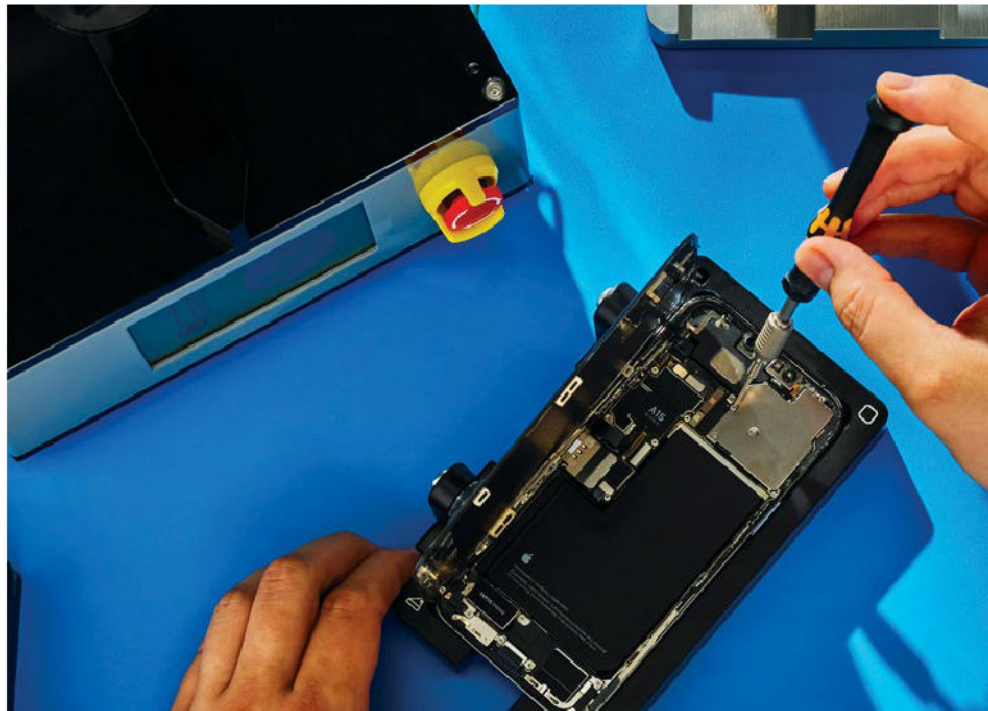
Not all bad news

In many ways, this is actually something positive for Apple to brag about. It is an endorsement of the quality of its devices, and it also means fewer old iPhones are being disposed of, which is better for the environment.

Indeed, this is the approach the company took when launching Self Service Repairs in Europe at the end of 2022. The programme enables customers in some European countries, including the UK, to purchase Apple parts and fix their own iPhone. "We believe the best technology for our customers and for the planet is technology that lasts, which is why we design our products to be durable and rarely require maintenance or repair," Jeff Williams, Apple's chief operating officer (COO), said at the time.



The iPhone 11 introduced Apple's all-new dual-camera system with Ultra Wide and Wide cameras.



The most popular iPhone

> The iPhone 6 and iPhone 6 Plus are understood to be the most popular iPhone models of all time, with a total of 222.4 million sold. That includes a staggering 4 million units sold in Apple Stores on the launch day.

The iPhone 6 was considered a significant upgrade on previous models. The 6 Plus, with its 5.5-inch screen, was the first Apple handset with a larger display.

The iPhone 6 was not without its own controversy though – Apple admitted that it was the key device on which it intentionally slowed the processor.



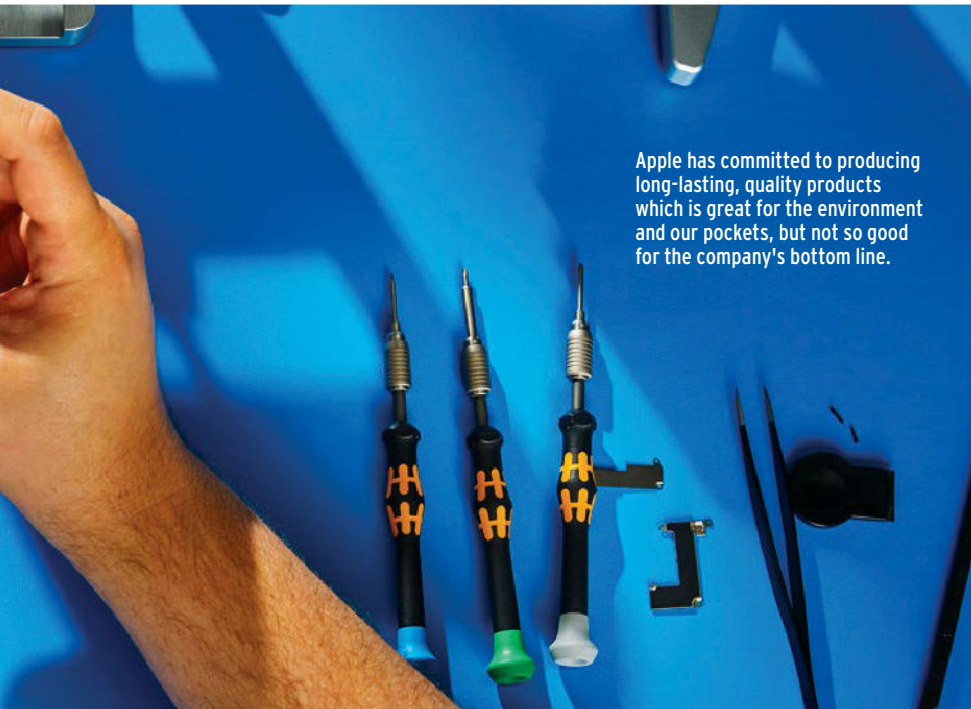
While the number of people taking advantage of such a programme is likely to be relatively small, it all contributes to a slowdown in people wanting to buy the newest device.

Tech website ZDNet crunched some numbers back in September 2020 and found that iPhone unit sales – the numbers of iPhones actually sold not the amount of money Apple makes from the sales – has been dropping for a five-year period. As time has gone on, we've heard stories of Apple asking its manufacturers to decrease production of, or even stop making, certain models and focus on others, presumably the ones that are selling better. For example, in October 2022, production of the iPhone 14 Plus was slashed following poor demand for the oversized device that had all the same features of a standard iPhone 14. A similar fate befell the iPhone 12 mini back in 2021. Furthermore, it looks like we won't get to see a next generation of iPhone SE at all; in January, well-known analyst Ming-Chi Kuo wrote that the model had been cancelled altogether.

This all puts Apple in something of a bind – while some feel that there's too much similarity between models, it would appear that handsets with some level of (design) differentiation do not do well. And it seems there is not much appetite for playing with the size of the iPhone, after all.

Crisis? What crisis?

Obviously, the iPhone remains wildly popular around the world. It is worth reiterating the stat



Apple has committed to producing long-lasting, quality products which is great for the environment and our pockets, but not so good for the company's bottom line.

from earlier – there are 2 billion active Apple devices out in the wild. Sales in crucial markets like India continue to increase; according to the *Hindustan Times*, it was thought as many as 7 million iPhones could have been sold in India in 2022, and the iPhone has gained 10 million users in the country over six years.

As Tim Cook indicated, iPhone production is now expected to be back at its usual level, which should help improve shipments. There is also some hope for a positive turn in economic conditions, which may give people more money to spend on items like new iPhones.

While we are still some time away from the iPhone 15, that has not stopped the speculation. MacRumors report that there is likely to be something of a redesign, not least because of a shift from Lightning port to USB-C. While some may be put off by the prospect of having to buy adaptors or new accessories, significant improvements could encourage some to finally consider a new upgrade.

The cameras always improve with each new iPhone and this year will be no different. Indeed, Ming-Chi Kuo thinks the top-end iPhone 15 model could offer an updated 'periscope' telephoto lens. Other potential new features include solid-state surfaces on the side of the phone instead of physical buttons, using additional Taptic Engines to provide haptic feedback. Bloomberg News's Mark Gurman reported that there may be an iPhone 15 Ultra. This could simply be about aligning the name of the top-end iPhone with the Apple Watch Ultra, but it could also signal a more rugged device designed for heavy use outdoors.

If the mooted features come to fruition, they will contribute to making the next Apple iPhone a very tempting option, particularly to anyone who has held on to an older model.

In reality, the iPhone is not going anywhere anytime soon. The world's biggest technology companies have all had a difficult time in recent months and the recent set of Apple financial results have finally showed even it is not immune to market factors. Depending on those rumoured new features, the next generation of iPhones may well see booming sales for Apple's popular handset once again.

Groundbreaking iPhone models

The release of the first iPhone was hugely significant. Since then, there have been some other key generations



iPhone 3GS

> Fast (for the time) cellular connectivity, allowing users to better browse the web.



iPhone 6/6 Plus

> A redesign helped this become the biggest selling iPhone. (See left.)



iPhone X

> Goodbye Home button, hello Face ID. A huge innovation in both design and technology.



iPhone 12

> The first iPhone with an A14 Bionic chip and 5G connectivity.

108 iCLOUD TIPS

From humble beginnings as MobileMe, Apple's iCloud service has grown into an excellent facility. But what is iCloud, and what can it do for you?

Written by Ian Osborne

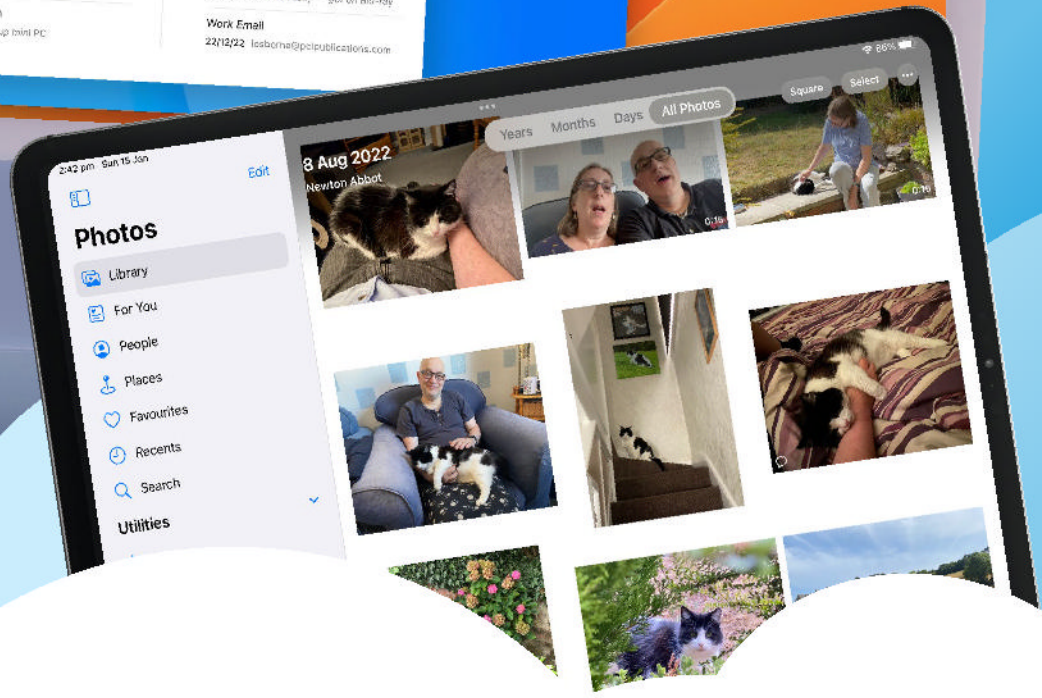
Apple's iCloud was launched in June 2011, replacing the unsuccessful MobileMe service. As well as an iCloud email address and 5GB of free online storage, it brings a range of free services such as syncing your Contacts, Calendar, Reminders, Notes and Messages apps between your Apple devices, storing and syncing documents and data on iCloud Drive, real-time collaboration on Pages, Numbers and Keynote projects and the ability to locate your Apple gear, items such as AirPods and AirTags and even other people.

The service also powers a lot of features offered by macOS, iOS and iPadOS. Your passes and cards stored in Apple Wallet, for example, are kept

in sync across your devices using iCloud, with no user intervention needed. This is also the case for your Apple Home settings and devices, Safari bookmarks, iPhone call history, Siri settings and interactions, Books app highlights, bookmarks, annotations and books, and more. It can even sync your passcodes and passwords using iCloud Keychain.

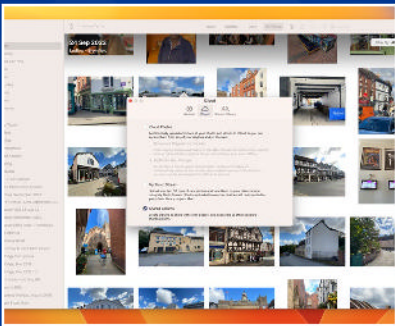
Yet there's so much more to iCloud than syncing and data storage. Apple's famous service can also access key Mac, iPhone and iPad apps through any computer with a web browser, offers online storage and extra services (for a monthly fee), and provide security services such as Private Relay and Hide My Email. Let's take an in-depth look at Apple's iCloud, and what it can do for you.





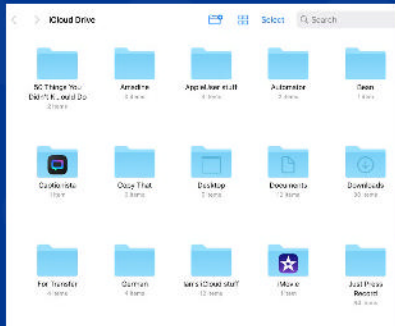
What is iCloud?

In a nutshell, it's a range of services made possible by connecting your computer or mobile device to Apple's servers. Here's a breakdown of these services



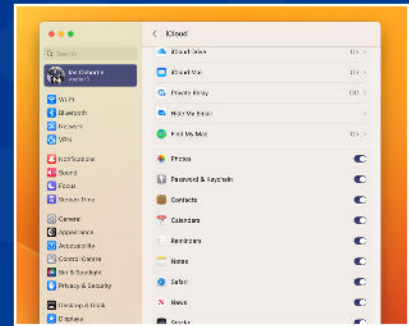
Photos

> Using Photo Stream, iCloud can store your most recent 1,000 photos for up to 30 days. They then sync with all your Photo Stream-enabled Apple gear. iCloud Photos goes further and stores every photo and video you take on the cloud, syncing data and edits as well as the pics themselves. You can use the Optimise Storage option to keep low-res versions on your devices and high-res copies on iCloud.



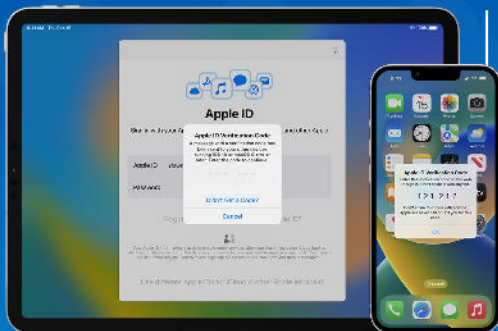
iCloud Drive/Files

> On a Mac, you can access iCloud Drive storage space by using the link in a Finder window's sidebar, or by selecting iCloud Drive from the Finder's Go menu. On an iPad or iPhone, you open the Files app and select iCloud Drive in the Locations section of the sidebar. Either way, you see the files and folders you have stored on iCloud. It's obviously great for syncing documents.



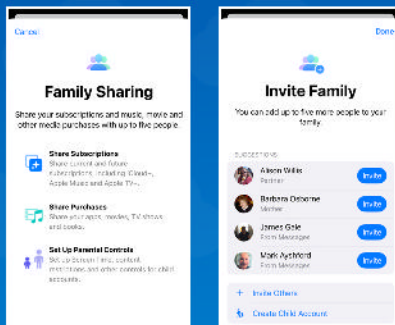
Application data

> On a Mac, open System Settings from the Apple menu, and click on Apple ID at the top of the left-hand sidebar. On an iPhone or iPad, open the Settings app and tap your name at the top of the screen or sidebar. You can then choose which of your applications sync their data through iCloud. Use the switch to the right of each app's name to turn iCloud syncing on and off for that particular app.



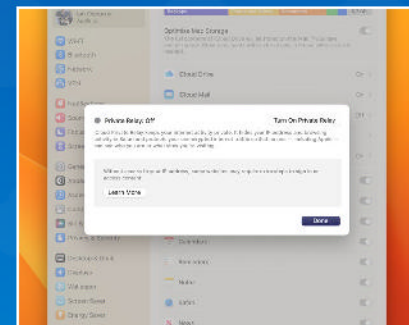
Two-Factor Authentication

> Your Apple ID and iCloud facilitates two-factor authentication (2FA), a security feature that makes it harder for someone to impersonate you online. When you sign into your Apple ID for the first time on a new device or online, you're asked for an authentication code. This is delivered on one of your other Apple devices signed into the same Apple ID. Type it in and you're logged into your Apple ID.



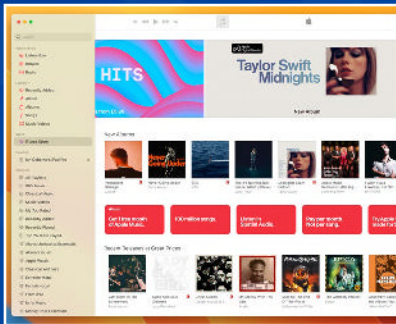
Family Sharing

> Using Family Sharing, you can share your purchases such as apps, media, books and streaming services with up to five family members. When, for example, you buy an album on iTunes, it becomes available to everyone else in your family group without their buying it separately. You can have a family photo album shared between all members too, and even find each other's devices.



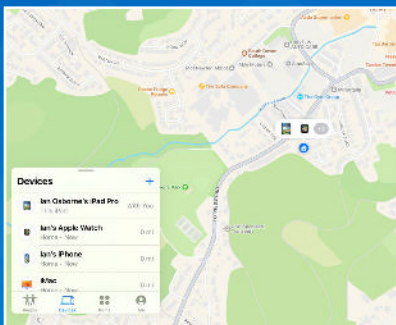
Private Relay

> If you pay for extra iCloud storage, including through subscriptions to services such as Apple One, you get extra features collectively called iCloud+. One of these features, Private Relay, hides network info such as your IP address and DNS records when browsing online. Go to the Apple menu > System Settings on Mac, or Settings on iPhone/iPad, tap/click your name, tap/click iCloud to switch it on.



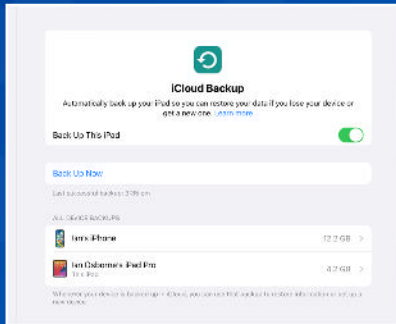
iTunes

> Using the iTunes Store app, you can purchase music and media to use on your Apple gear. This is then made available on every Apple device signed into your iCloud account, and even PCs, Microsoft Surface tablets and more using iCloud for Windows. If you subscribe to iTunes Match, you can sync music ripped from your CDs too. You also can download music and videos for offline entertainment.



Find My

> What do you do if you lose your iPhone, leave your MacBook on the bus or mislay your iPad or AirPods? With Find My, you can see where they are. Open the Find My app, on a Mac, Apple mobile device or on the web at icloud.com, and you can find the location of Apple devices signed into your Apple ID, mark them as lost, make them play a sound and even wipe them remotely.



iOS/iPadOS backups

> In Settings, tap your name at the top of the screen (or the sidebar for iPads and large iPhones in landscape mode), then tap iCloud on the right-hand side. Here you see an option called 'iCloud Backup', which lets you back up your device to the server. You can turn automatic backups on and off, choose whether to allow backups over mobile data (if available) and opt to back up immediately.



Access anywhere

> You can access your key iCloud apps online, from any computer or mobile device that has a web browser. Just point it at icloud.com, and sign in with your Apple ID and password. You can then access apps synced in iCloud such as Contacts, Notes, Mail, Photos, Reminders, Keynote, Numbers, Pages and more. It's great for getting hold of your important data when you don't have an Apple device nearby.

What iCloud is not >

It won't back up your Mac

> iCloud is an excellent way of backing up your iPhone and/or iPad onto the cloud, but it won't do the same for your Mac. To back up a Mac notebook or desktop, you can use Time Machine and an external drive. Alternatively, you can clone your internal drive using an app like SuperDuper! or Carbon Copy Cloner.

It's not unlimited

> For all its strengths, iCloud is not an unlimited storage service. You're limited by the capacity of your own particular service which, unless you've paid for more, is 5GB. You can't upload files larger than 50GB either, which might be an issue if you work with very large files.

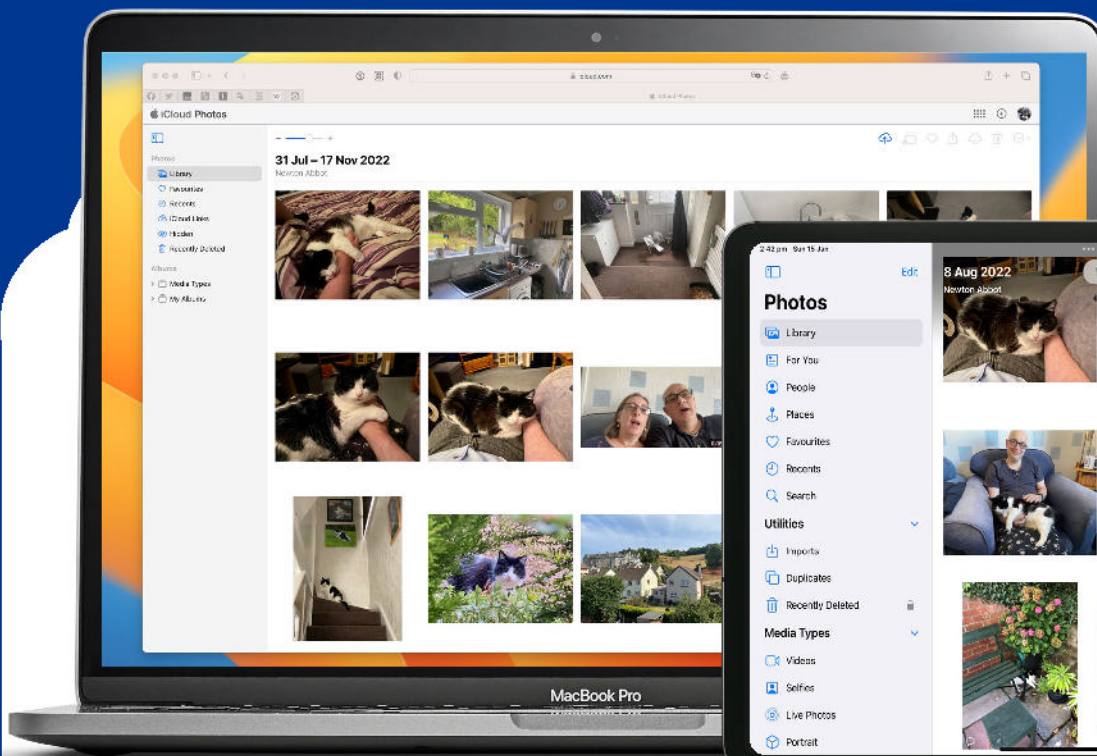
It's not invulnerable

> Files and data uploaded to iCloud Drive are stored on Apple's servers. These are very secure; data is end-to-end encrypted except Mail, Calendar and Contacts, which have to conform to industry standards. iCloud data is not, however, invulnerable. Nothing is.

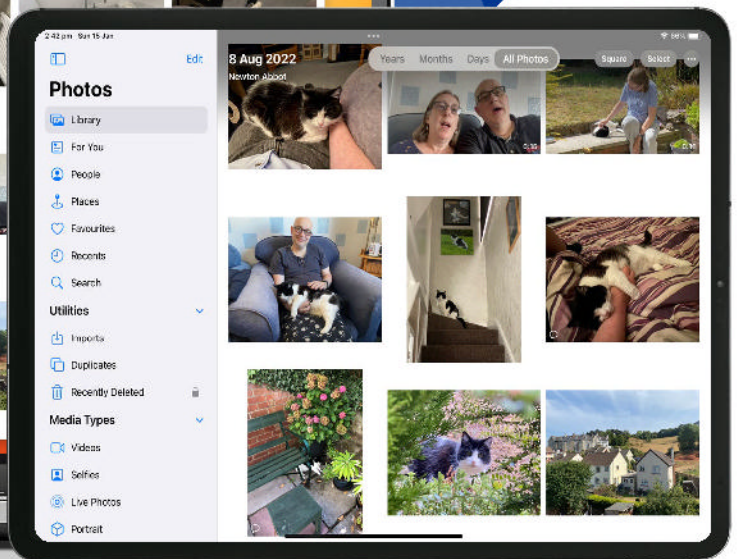
What are iCloud storage tiers, and what's included? >

> When you sign up for an Apple ID you get 5GB of iCloud storage for free. If you need more, you can pay a monthly subscription for more. A paid-for iCloud service also brings you the additional features of iCloud+. A subscription to Apple One also gives you iCloud+.

Capacity	Price Per Month	Shareable
5GB	Free	No
50GB	£0.79	No
200GB	£2.49	Yes
2TB	£6.99	Yes



iCloud Photos is available on Macs, iPads and iPhones, and can be viewed on Apple TV.



iCloud Photos

You can keep all your snaps and clips synced across your Apple devices, and more



iCloud Photos on Apple TV

> To view iCloud Photos on your Apple TV, first open the Settings app. Go to Users and Accounts > [your name] > Photos and turn on iCloud Photos. You can then review your photos and videos by opening the Photos app, navigating to the picture, video or album you wish to view with the remote and then clicking.



he iCloud Photos service is heavily integrated into the Photos app on Macs and Apple mobile gear. With iCloud Photos

active, every photo you take is automatically uploaded to your iCloud account and synced with other Apple devices signed into your Apple ID. You can thus enjoy your photos and videos on all your Apple gear, regardless of which device they were taken on.

Features such as Memories, People and edits you've made are synced between your Apple devices. Edit a photo on your Mac, and the edited version also appears on your iPad and iPhone. When you access your photos on the iCloud website, they're organised according to the date and time taken, and

your albums - self created and automatically generated - from your Photos app are also carried over to the iCloud Photos service.

Make space

If storage is getting low on your mobile gear, you can switch on the Optimise Storage feature. From then on, full-resolution copies of your media are kept on iCloud, and lower-res versions are shown on your Apple devices, from where you can download and open them at will. Just make sure you have lots of storage space on your iCloud account if you take a lot of photos. Of course, there's another option. If you only want to sync recent photos and videos, there's My Photo Stream which can do it for free.

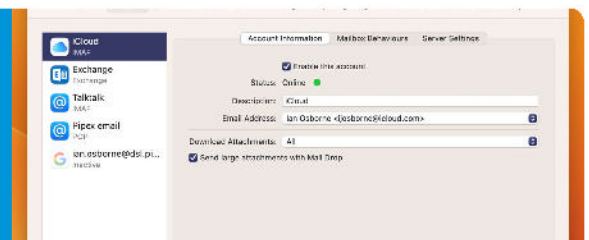
Sharing photos, videos and large files in Mail >

Sending large email attachments can be problematic. Some - maybe most - internet service providers impose a limit on file sizes that can be sent in this way. Thankfully, iCloud comes to the rescue with Mail Drop.

With Mail Drop, you can send attachments of up to 5GB, regardless of what device you're using. Just attach the files to your email in the usual way

and send it. The attachments are stored on iCloud. When the recipient gets the email, the attachment is replaced with a link that allows them to download it, and it the link is accessible for 30 days.

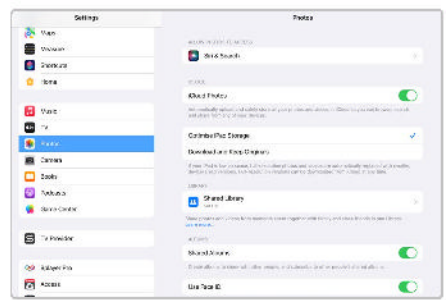
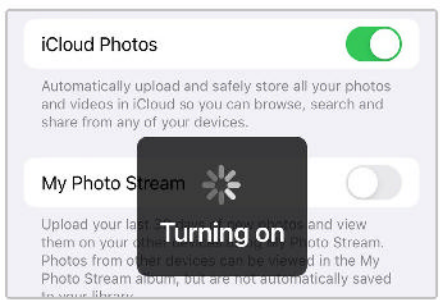
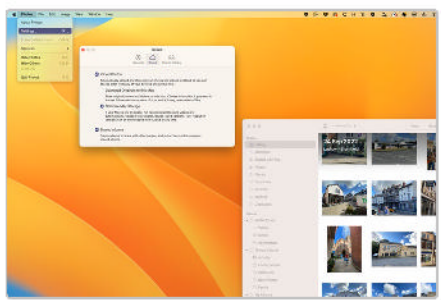
On a Mac, to turn on Mail Drop in Mail, open its Settings (under the Mail menu), click Accounts and for each



Use Mail Drop to send large attachments via email.

account, click the box marked 'Send large attachments with Mail Drop'. On an iPad or iOS device, just tap Use Mail Drop in the menu that pops up when you try to send large attachments.

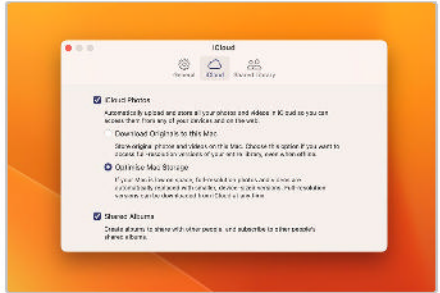
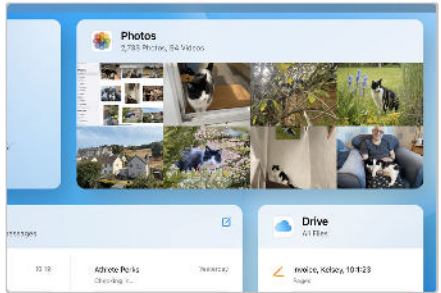
HOW TO Share your photos and videos >



1 iCloud Photos on Mac
To turn on iCloud Photos on a desktop or notebook Mac, first open the Photos app, and under the Photos menu bar option, open Settings. Under the iCloud tab in the Settings window, check the box labelled 'iCloud Photos'.

2 iCloud Photos on iPhone
On an iPhone, first open the Settings app. Scroll up until you see the Photos option, then tap it. On the next screen, shown here, tap the switch marked 'iCloud Photos' to turn on the iCloud Photos service.

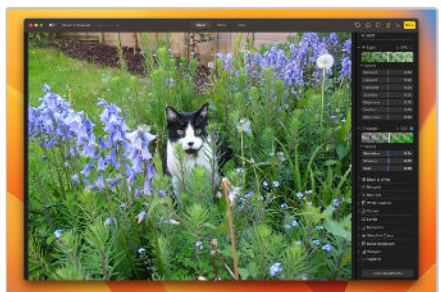
3 iCloud Photos on iPad
It's a similar story on your iPad. Go to Settings, then tap Photos in the sidebar and turn on iCloud Photos. With this switched on, your photographs and videos are uploaded to iCloud, and synced between devices.



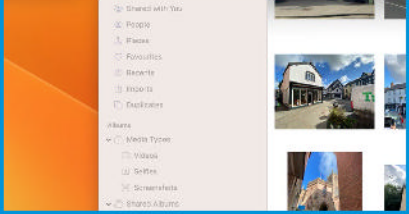
4 Access on iCloud.com
With iCloud Photos turned on, you can access your media online. Open the iCloud website at [iCloud.com](https://www.icloud.com) from any computer with a web browser and internet access, and click the Photos option on the home page.

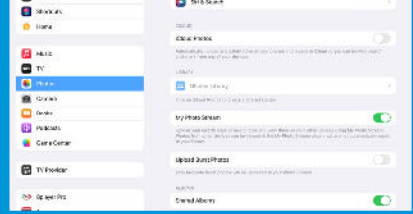
5 Optimise storage
There's an option next to the iCloud Photos setting outlined earlier called Optimise [Device] Storage. If you switch this on, only low-res versions of your media will be stored locally, with full resolution versions on iCloud.

6 Sharing photos
To share a picture, open it in Photos and tap the Sharing icon. In the pop-up, tap Copy iCloud Link. You can then paste that link into Mail, Messages or elsewhere, and share it. The recipient gets a thumbnail which can be opened.



My Photo Stream >





> If you don't want to use up iCloud storage space with your photos but would like to sync them between your devices, My Photo Stream stores and syncs the last 30 days of pics and videos, to a maximum of 1,000 items.

> My Photo Stream is free, and storage taken up by syncing your photos doesn't count against your iCloud storage space. Edits made to pictures synced with My Photo Stream are not synced with other devices.

7 Edits and delete
When you have iCloud Photos active, edits you make to a photo are synced with other devices using iCloud Photos. If you delete a photo on one device, it's deleted from all your other iCloud Photos devices too.

Files, Documents & iCloud Drive

iCloud Drive is great for storing and syncing files and documents, and collaborating

What about Shared with You?

▶ If someone shares something with you in the Messages app, you can access it using its native application. A web link, for example, appears in Safari and a news item in News. Other Shared with You apps are Music, TV, Photos and Podcasts. Open one and in its sidebar, you see an option called Shared with You. Tap it to see shared items.



Whether you have the 5GB you get free when you sign up for an Apple ID or pay a monthly subscription for more space, iCloud Drive is like having an external hard drive that's accessed through the internet.

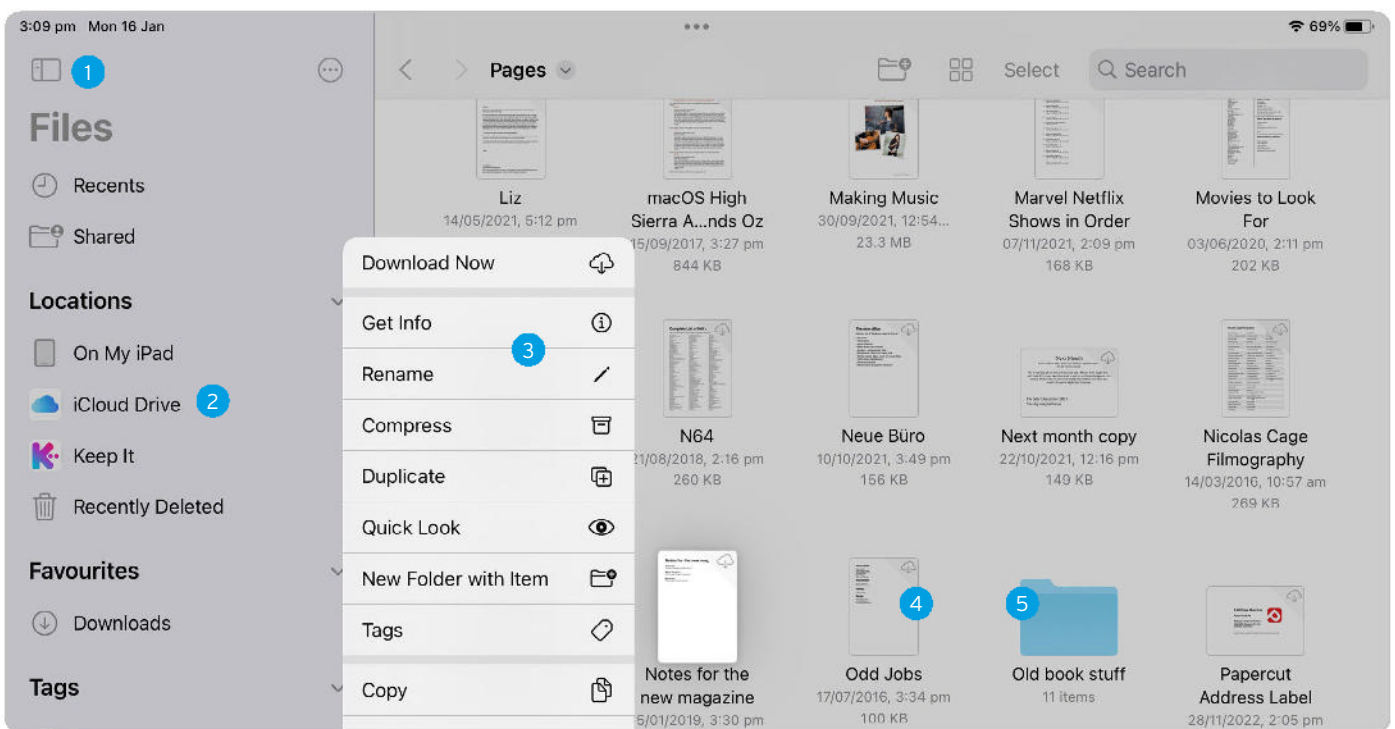
But it's so much more too.

When a document or file is on iCloud Drive, it's synced with all your other Apple devices, so you can (for example) create a document on your Mac, leave the house and edit it on your iPad on the train to work. You can even share it with other people directly from the cloud, or work together on collaborative projects with all edits synced between all users. Because your

contents on iCloud Drive are stored online, they're accessible wherever you are in the world. As long as you have internet service, you can use iCloud Drive. You can even use it from non-Apple devices, by heading to [iCloud.com](https://www.icloud.com). All you need is a computer, tablet or smartphone with an internet connection and a browser. And while nothing on the internet is invulnerable, iCloud Drive is very secure, with end-to-end encryption on for most of your data and in-transit and on-server encryption for Mail, Contacts and Calendar.

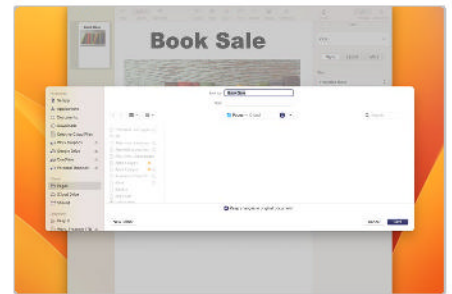
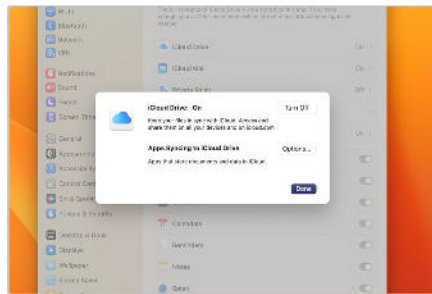
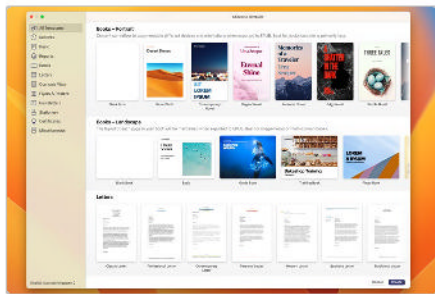
Heavily integrated into Apple's apps and tech, iCloud Drive is an indispensable cloud service for Apple users.

EXPLAINED Find your way around the Files app ▶



- 1 The sidebar**
▶ In the Files app, open and close the sidebar by tapping this icon. The '...' icon gives more options.
- 2 iCloud Drive**
▶ In the sidebar, tap iCloud Drive to be taken to the folders you have stored in your online storage.
- 3 Contextual menu**
▶ Tap and hold a document or folder for a contextual menu of options, including Delete.
- 4 Not downloaded**
▶ If a document has a cloud in its top-right corner, it's not stored locally. Tap it to download and open it.
- 5 Folders**
▶ You can add folders to iCloud Drive, including within other folders, just like on a Mac's storage drive.

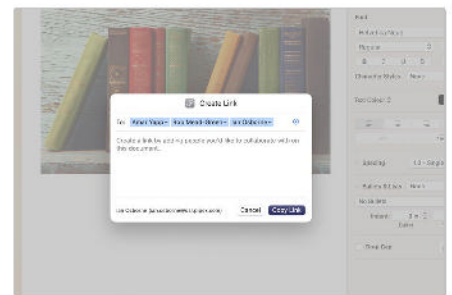
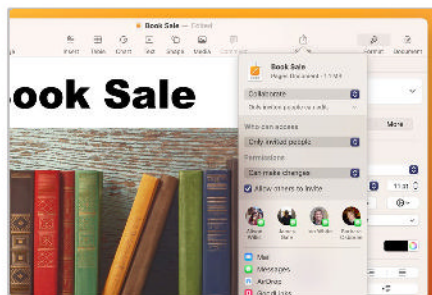
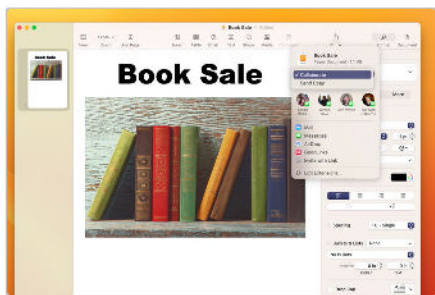
HOW TO Collaborate in iWork apps and Notes >



1 New features
Apple introduced new Collaboration features in macOS Ventura, iOS 16 and iPadOS 16. These let you collaborate on documents in the iWork apps; Pages (word processor), Numbers (spreadsheet) and Keynote (presentations).

2 Turn on iCloud Drive
Here we're using Pages on a Mac, but these tips hold true for all three iWork apps and iOS/iPadOS devices. Make sure iCloud Drive is turned on. So to Settings/System Settings > [Your Name] > iCloud and make sure it's on.

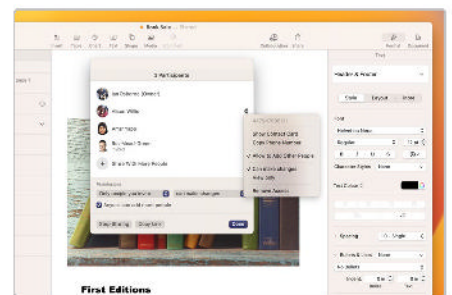
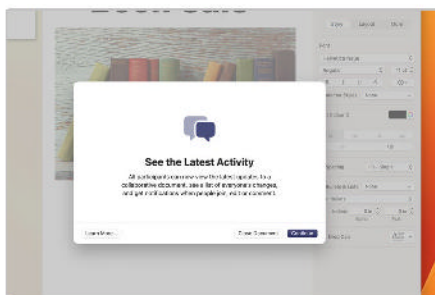
3 Open document
Open the document you wish to collaborate on, or start a new one if necessary. Make sure it's saved in your app's iCloud Drive folder, as it needs to be there if you're going to share and collaborate on it.



4 Collaborate with others
Click/tap the Sharing icon in the top bar for a new menu. From the menu, select the Collaborate option; Send Copy enables you to send a copy of the document without giving the recipient collaboration rights.

5 Establish rules
Click the chevron under the Collaborate option for two further menus; these enable you to set rules about who can edit it. They're self-explanatory. Set it up however you like, then choose how you wish to share it.

6 Create a link
Using the Create Link sharing option, you can create a link which you can send to whomever you choose. Enter the names of the people you want to authorise, then tap/click Copy Link to have the link saved to your clipboard.



7 Latest activity
After sharing the document (you can share with up to 100 people), all people can see the latest updates to a collaborative document, read a list of everyone's changes and get notifications regarding changes and notes.

8 Review collaboration
Click/tap the Collaboration icon in the toolbar. Show All Activity lets you see all edits, according to the person who made them. The chevron next to each activity opens it for more information regarding each change.

9 Manage sharing
Tap/click the Collaboration icon then Activity Settings to set notifications and permissions. The Manage Shared Document option shows who's sharing, and lets you add or remove participants. You can stop sharing here too.

Get started with iCloud.com

The iCloud website recently had an overhaul. How does it work and what can it do?

Remove old and unwanted devices from your Apple ID

> If you have Apple devices you no longer use associated with your Apple ID, you can remove them. Open the System Settings app (Mac) or Settings (iPad and iOS devices), and tap your name at the top of the list. Scroll up to the list of your Apple gear, tap/click on any you no longer use and use the 'Remove from Account' link.



You don't have to have one of your Apple devices handy to access iCloud services. You can do so from any computer,

tablet or smartphone with a web browser and an internet connection, regardless of what operating system it uses. Just go to icloud.com and log in with your Apple ID and password.

The iCloud website gives access to your files and folders stored on iCloud Drive. It also offers online versions of several key Apple applications. If you need to edit or share a Pages, Numbers or Keynote document, you can. You can check your email in Mail, get a phone number from Contacts, review your

Notes, look at and create Calendar events and more. It even has an online version of Find My, so if your Apple device is lost or stolen while you're out and about, you can locate it.

The website has recently had a makeover. Instead of being offered only the app icons on the Home page, it's now laid out in widgets, which you can edit by scrolling up and clicking/tapping the Customise Home Page button. Widgets for Notes, Mail and iCloud Drive give instant access to recent emails and documents, recent pictures are shown in the Photos widget and if you scroll the page, you can review your iCloud plan, check on your storage and recover recently deleted items for up to 30 days.

EXPLAINED The iCloud.com interface >



Find people & things with Find My

Open the Find My app on iCloud.com and you can locate Apple devices signed into your Apple ID. This can include your Mac, iPhone, iPad, AirPods and AirTags, and friends with Apple devices. Their location is shown on a map, and you can remotely wipe devices over the internet - handy in cases of theft.

1 Apps menu
> This icon gives access to online apps, iCloud storage options and if you pay for iCloud, iCloud+ features.

2 Create new
> Open a new email, note, calendar event, reminder, or a document in Pages, Numbers or Keynote.

3 Account settings
> Click/tap this widget for details about your iCloud package and storage plan, and links to manage them.

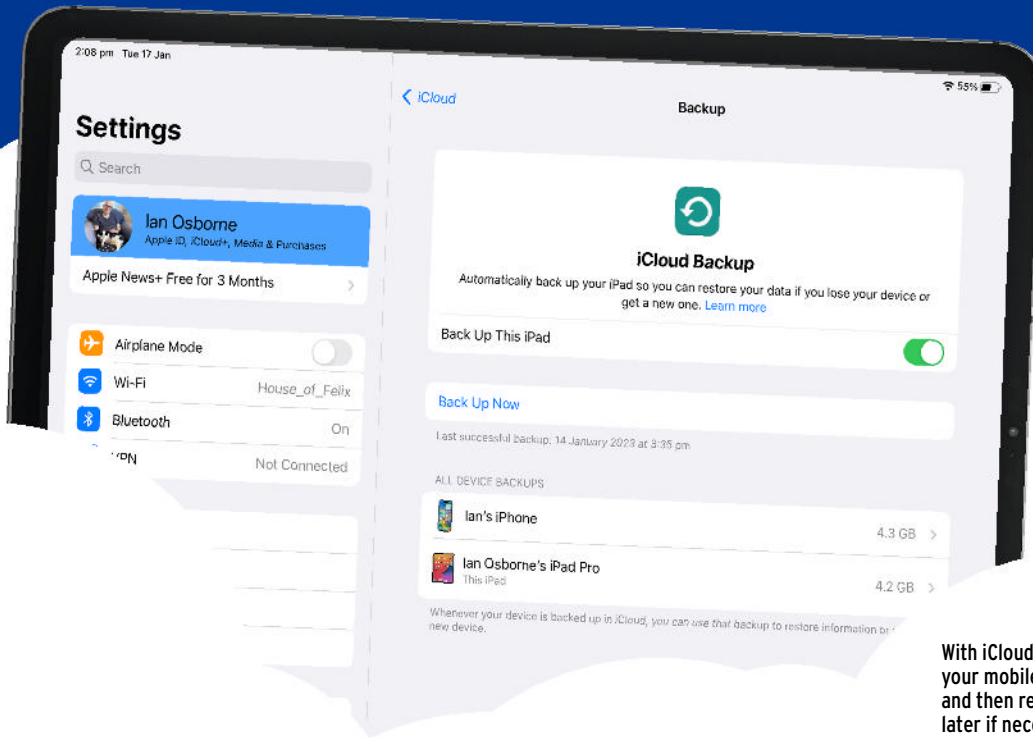
4 App Widgets
> These give instant access to recently opened docs or media in Photos, Mail, iCloud Drive and Notes.

5 App icons
> Click/tap an icon in this widget to open and use the browser version of the app in question.



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With iCloud, you can back up your mobile gear to the cloud and then restore from a backup later if necessary.

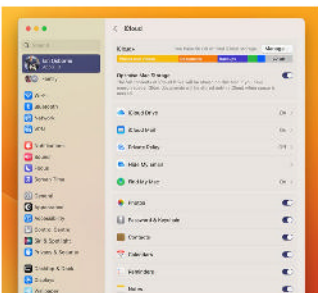
Backups, syncing and security

Find out how to sync your data across your Apple gear, and how to keep it secure

What is Cloud+?

> An Apple ID gives you 5GB of iCloud storage, which includes all the backup and syncing features discussed in this article. But if you pay for more storage through a monthly subscription (including an Apple One subscription), you get extra features, collectively known as iCloud+.

Obviously, one of the benefits of an iCloud subscription is more storage. You can get up to 2TB, depending on your plan. Other benefits are iCloud Private Relay, the Hide My Email service, a Custom Email Domain, HomeKit Secure Video support and Family Sharing.



A paid subscription gets you more storage space, and extra features.



Using the iCloud service to back up your iPad and iPhone is easy.

First of all, open the Settings app. At the top of the list (iPhone,

iPod touch) or in the sidebar (iPad, plus-sized iPhones) tap your name to get to the Apple ID screen. Tap iCloud, then iCloud Backup. On this screen, you can turn on iCloud backups using the switch. If your device has cellular connectivity, you can choose whether to use it for backups, or restrict yourself to backing up over Wi-Fi to save mobile data. You can also tap an option to back up there and then instead of waiting for a regular backup time. Tap one of the backups to see a list of apps that are taking up space. You can switch off individual apps, so they won't be backed up.

To restore from a backup, go to Settings > General > Transfer or Reset [Device], then tap Erase all Content and Settings. You can then

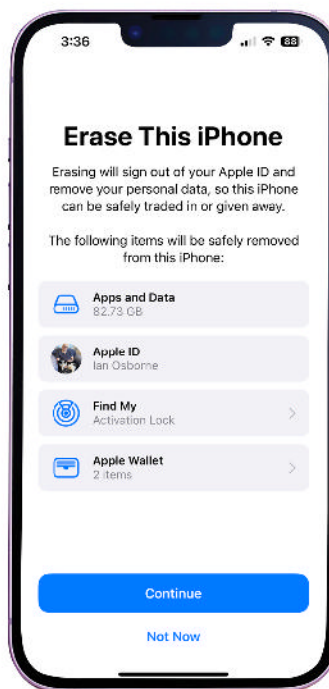
set up your device again, reinstalling a backup during the setup process. Note though: Macs are not backed up over iCloud.

Sync and security

iCloud is great for syncing data and documents across your Apple devices. See the step-by-step guide opposite for details. With your

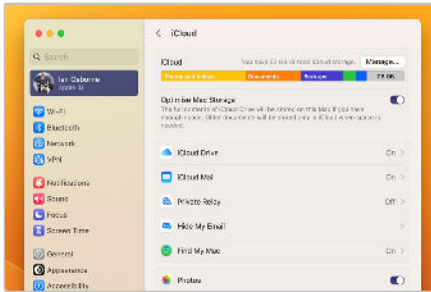
devices synced, edits made on one device are carried over to the others. Make a new note on your Mac, for example, and you can review it on your iPhone or iPad. If you then edit it on your mobile gear, the edit is also shown on your Mac's Notes app. Names, addresses and details entered into your Contacts app and events made in the Calendar app show up on every device, and online passwords and usernames are synced through the iCloud Keychain.

iCloud is as secure as it can be. It facilitates two-factor authentication (2FA), by which when you sign on to a device with your Apple ID you're asked to input a code sent to one of your other devices. The majority of iCloud data is encrypted end to end, with the exception of the Mail, Contacts and Calendar apps, which use industry standards that preclude such encryption. They're encrypted in transit and on server instead.



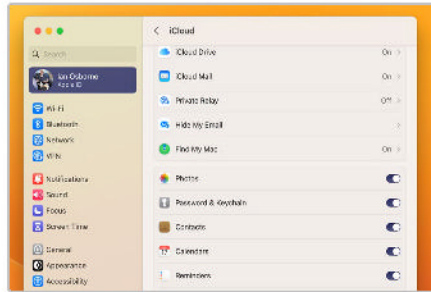
To restore from an iCloud backup, you must erase your device and go through the set-up procedure.

HOW TO Sync your data across your devices >



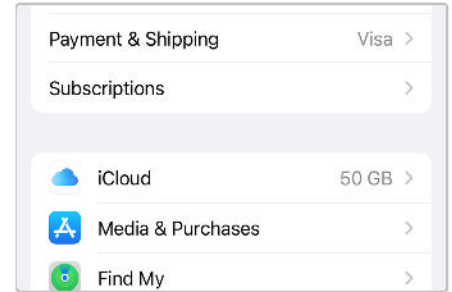
1 Click on name (Mac)

To sync your apps on a Mac, first open System Settings from the Apple menu in the top-left corner. In the System Settings window, click on your name at the top of the left-hand sidebar.



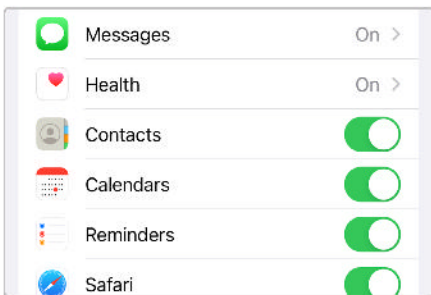
2 Sync applications (Mac)

If you have iCloud+, you can access its features here. To sync applications, scroll the window up and check whether syncing is on. If it's off for an app you want to sync, click its switch to turn it on.



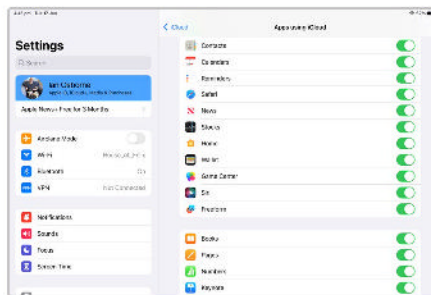
3 Tap on name (iPhone)

On an iPhone, first of all, open the Settings app (the one with a grey cog on the icon). Again, tap your name at the top, and then tap the iCloud option on the next screen. It's near the top of the options.



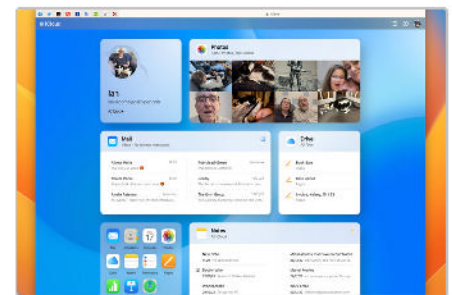
4 Sync apps (iPhone)

iCloud+ options are listed in this window. To get to your apps, tap Show All in the Apps Using iCloud section. On the next screen, turn on every app you wish to sync between devices in iCloud.



5 And on iPad...

Things are similar on an iPad. Open Settings, tap your name at the top of the sidebar. On the next screen, tap iCloud, then Show All. You can turn on iCloud syncing for your apps here.



6 And online...

When your apps are syncing through iCloud, you can access many of them online at [iCloud.com](https://www.icloud.com). Any changes or edits you make through the web portal are then synced to your devices.

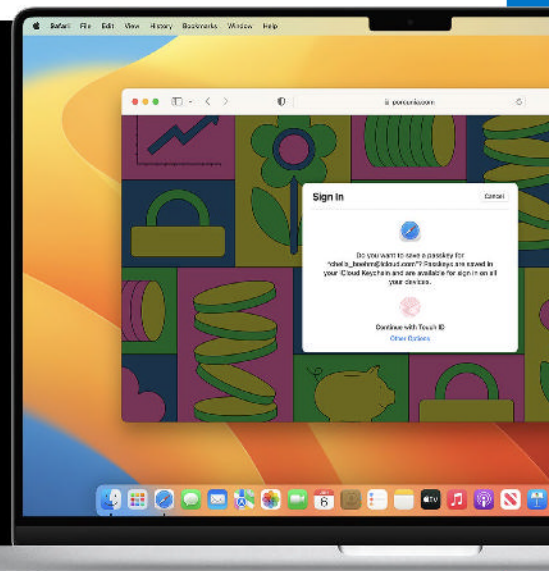
Passwords, Passkeys and 2FA >

> **One of the apps you can sync in iCloud is Password & Keychain.** If you sync this, online passwords are synced between your devices. This is useful if, for example, you use an internet forum on your Mac, your iPhone and your iPad. You no longer have to log in on every device separately; your passwords are saved, and accessed with Face ID or Touch ID.

Passkeys are the next generation of passcodes. They're powerful cryptographic techniques and the biometrics built into your device to

enable you to log into a website, make an online purchase and anything else that requires a login ID and a password without typing anything. They're synced through iCloud so a passkey created on one device functions on them all, and they're super-secure, being invulnerable to key loggers, hacks and phishing sites.

2FA, or two-factor authentication keeps your Apple ID secure by asking for a passcode when you sign in, which is delivered to another of your Apple devices by message or phone call.



Set up Family Sharing and you can share purchases and subscriptions, and use parental controls.



Family Sharing

Share your apps and media with your family, and enjoy theirs too

What is Apple One?

> Apple offers a bundle of its subscription services available at a single monthly price.

It's called Apple One, and it's available in three tiers. Individual offers Apple Music, Apple TV+, Apple Arcade and iCloud+ with 50GB of storage. Subscribers can share all except Apple Music with a family group. Family offers 200GB of iCloud+ storage and all services can be shared. Premier throws in News+ and Fitness+ and 2TB of storage. Again, it can all be shared with your family.

With Family Sharing, you can set up a family unit of up to six people. Your family then get to share media, apps and more. If, for example, the kids all want the same game, you only have to buy it once. Everyone in your family group can download and enjoy it. If you purchase an app, the rest of your family can install it on their own devices without buying it again. If you all want to read the same book or listen to the same album, no problem. You only have to buy it once.

You can also set up a shared family photo album so all your family members can view, add to and edit family photos. If you pay for extra iCloud storage space, you can share it with your family group and if you subscribe

to the Apple Music subscription service, for a little extra you can upgrade it to a family subscription which everyone can enjoy. Subscriptions to Apple News+, Apple TV+ or Apple Arcade can always be shared, with no subscription upgrade necessary.

Parental checks

When you have a Family Sharing group, you can set up an Apple device for a child. You can turn on Ask to Buy, so the child must get parental approval before making a purchase, make sure they're not accessing age-restricted material and more. You can also set up Screen Time for the children's devices, setting downtime and making sure they're not spending too much time on social media.

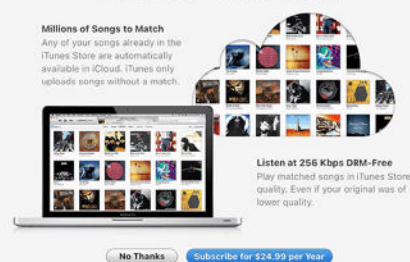
What about iTunes Match? >

> Another subscription service available for music lovers is iTunes Match. For £21.99/year, iTunes Match uploads the contents of your Music app to the cloud and makes them available on all your devices. This is the case whether your songs were bought digitally or ripped from your CD collection.

On a Mac, subscribe to iTunes Match by opening the Music app and clicking on iTunes Store in the sidebar. Scroll all the way to the bottom of the iTunes Store window, and in the small links at the bottom, you'll see 'iTunes Match'. Click that link and follow the steps to subscribe.

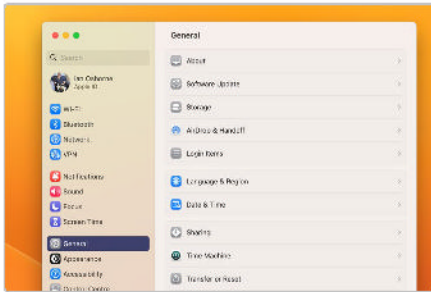
iTunes Match

iTunes Match stores your entire music library in iCloud, including music from CDs, and lets you enjoy it anywhere, anytime, on your iOS devices, computers, or Apple TV. That's in addition to the free features you already get with iTunes in the Cloud. And, you can listen to iTunes Radio ad-free when you subscribe to iTunes Match.



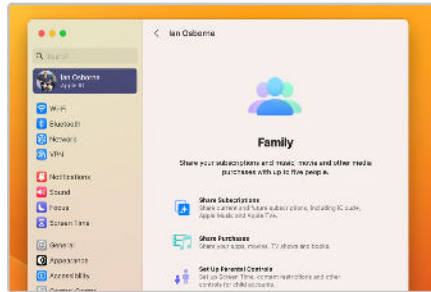
iTunes Match makes your music accessible on all of your devices.

HOW TO Set up and manage Family Sharing >



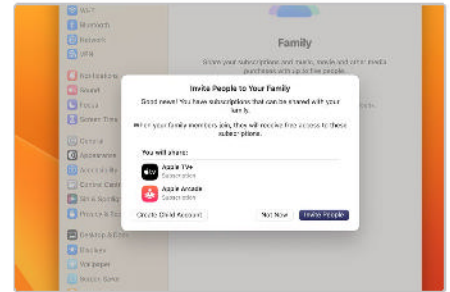
1 Open System Settings

We're setting up Family Sharing on a Mac here, but if you need to use an iPhone or iPad instead, the procedures are basically the same. From the Apple menu, open System Settings. (For iOS, click on Settings then your name.)



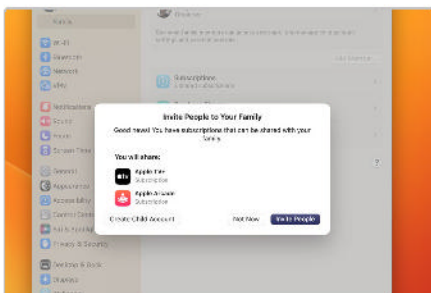
2 Set things up

Click on your name at the top of the window's left-hand sidebar and then, on the right, click Family Sharing. You'll see a screen outlining the advantages of having a family account. Click the Set Up Family button (bottom right).



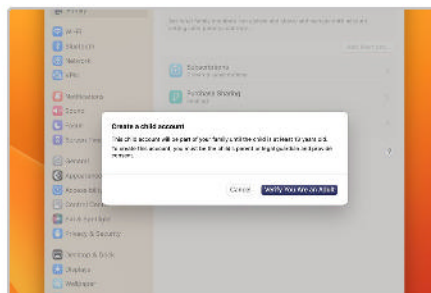
3 Invite family members

You're then shown if you have subscriptions you can share. Click the Invite People button and follow the on-screen instructions to invite family members to join the family group you're setting up and managing.



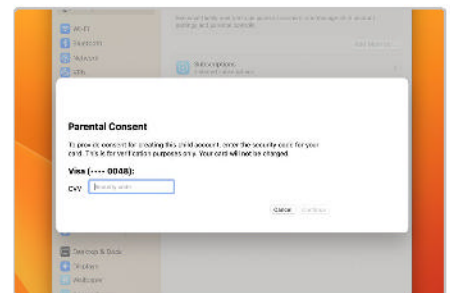
4 Create a child account

If you want to create an account for a child and oversee it with parental controls, open System Settings and click Family under your name. Click the Add Member option, then click the Create Child Account button.



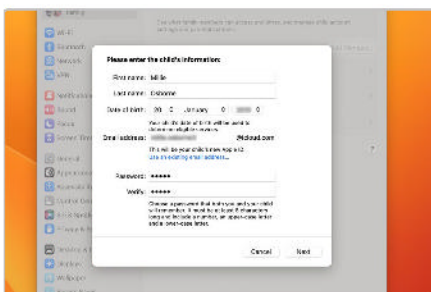
5 Confirm adult status

A child account will remain part of your family unit until he or she is at least 13 years old. To progress setting up a child account, you must prove you're an adult, so click the 'Verify You Are an Adult' button in this window.



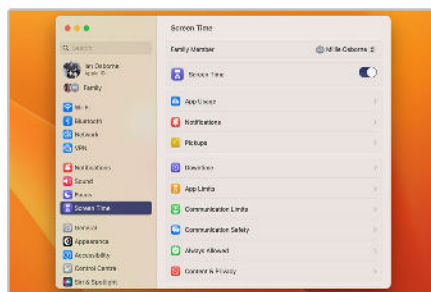
6 Verify with card

Verify you're an adult using the security code for the credit card you use for your Apple purchases. This is purely for verification; you're not charged for anything. After typing it in, click the Continue button.



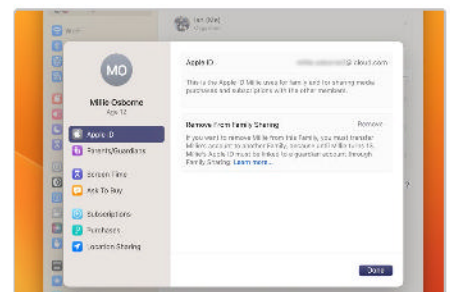
7 Complete child account

Follow the on-screen instructions to complete your child's account. Set their password and iCloud email address used for Apple ID. You also set whether your child's location is shared with family members using Find My.



8 Set screen time

To set up the child's Screen Time, on your Mac, go to the Apple menu and open System Settings. Click on Screen Time in the sidebar, and use the menu to access your child's account. Turn on Screen Time, and set it up as you see fit.



9 Remove a child's details

To remove a child from a family account, go to System Settings > Family > [Their Name]. You'll see a 'Remove from Family Sharing' option. If the child is under 13, this option is greyed out; they can be transferred, but not removed.

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> Master Apple shortcuts

macOS

- > **⌘** is the Command key, which is also labelled *cmd*.
- > **⌥** means the Option key, labelled *alt* or *opt*.
- > **⌃** means the Control key, labelled *ctrl*, and shown as **^** in shortcuts in the menu bar.
- > **⇧** is the Shift key.
- > **⌫** is the Delete key, which deletes to the left. **⌘+⌫** deletes to the right.
- > **⇧+⌫** is the Tab key, which shifts the focus between *some* controls.

iOS

- > A *tap* is a brief contact of (usually) one finger on your device's screen.
- > To *drag* is to move a finger across the screen to scroll or pan around content.
- > *Swipe* means move one or more fingers across an item or the screen, then let go.
- > A *flick* is like swiping, but it's quicker, and is often used to scroll content more quickly.
- > *Pinch* means move two fingers together or apart, usually to zoom in or out.
- > *Touch and hold* means lightly rest your finger on an item and wait for a reaction.



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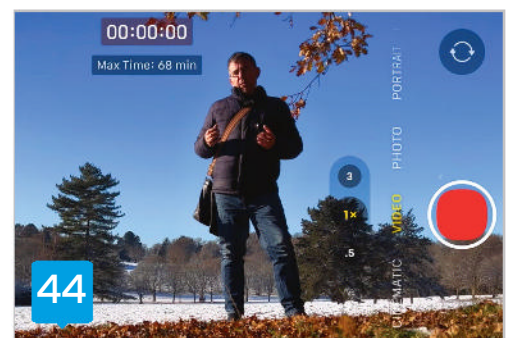
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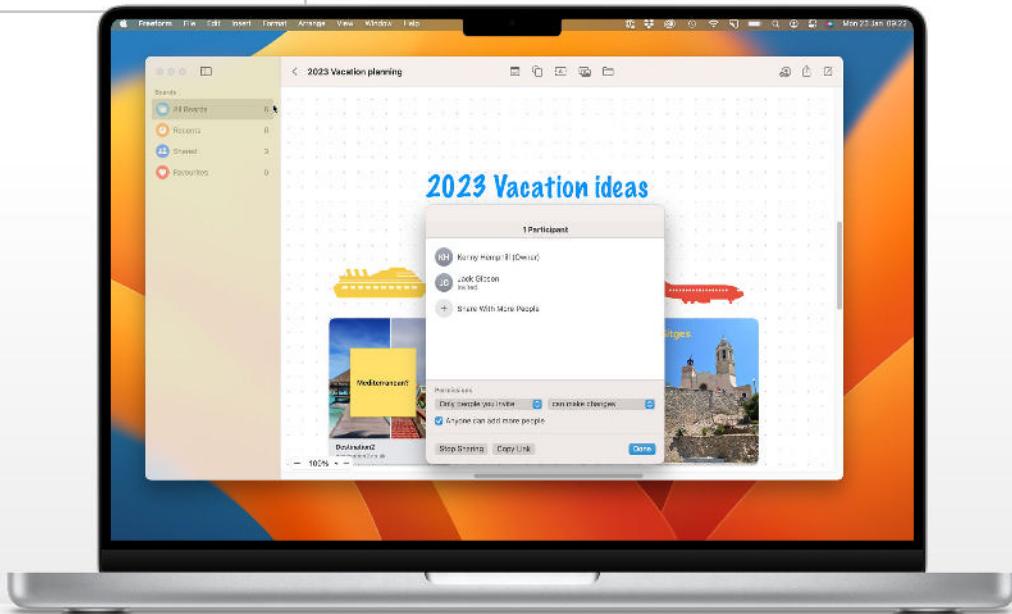
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Collaborate with Freeform

Freeform is the ideal tool for brainstorming with colleagues remotely

IT WILL TAKE

> 30 minutes

YOU WILL LEARN

> To use collaboration features in Freeform and beyond

YOU'LL NEED

> macOS 13 or later, iOS 16 or later



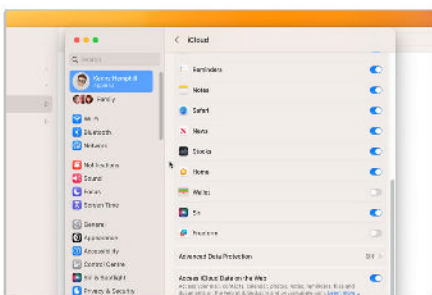
Apple has been adding collaboration and sharing features to macOS, iOS and iPadOS for several years now, including allowing you to work with others in applications like Pages, Numbers, and even Notes. But it's a new Apple application, Freeform, where some of the most interesting opportunities to work with others lie.

In some ways, it's a surprise that Apple, a company whose roots are in making products for creative professionals, took as long as it

has to release software that provides tools to help kick-start the creative process - essentially creating the digital equivalent of a meeting room and a whiteboard.

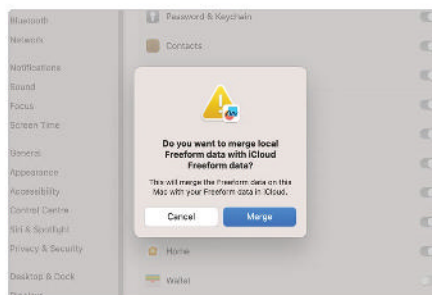
And Freeform has had a difficult start. It was delayed several months, having originally been slated to launch with the release of iOS 16, iPadOS 16, and macOS Ventura. However, now that it's here, it's easy to see how it could quickly become very popular, particularly among creative teams who work remotely. **Kenny Hemphill**

HOW TO Get started in Freeform >



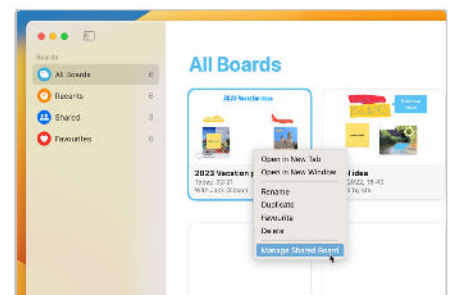
1 Set up collaboration

To start collaborating, you need to turn on iCloud in Freeform. Launch Freeform on your Mac, click Shared in the sidebar, then click 'Go to Settings'. In Settings, click iCloud, scroll to Freeform and switch it on.



2 Finish setting up iCloud

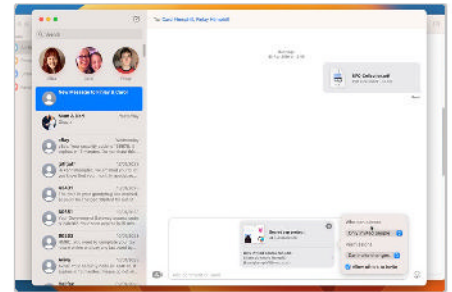
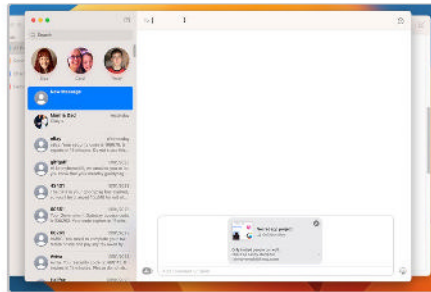
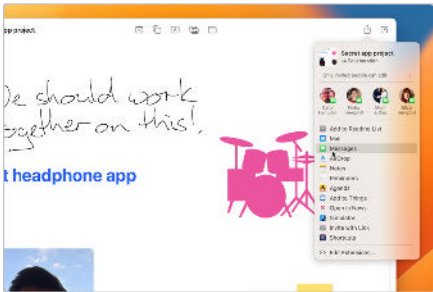
If you have already used Freeform on an iPad or iPhone and have created boards, it will now ask you if you want to merge your Mac-based Freeform data with your iCloud Freeform data. To do that, click Merge.



3 Manage shared board

To edit sharing settings, Ctrl-click on the board and choose Manage Shared Board. In the window that opens, click the '+' button to share with more people and use the options to control how the board can be edited.

HOW TO Collaborate using Messages >



1 Share in Messages

If you use Messages to collaborate on a Freeform document, you can see updates in Messages when someone makes changes. Open the Freeform board you want to share, click the Share icon in the toolbar and choose Messages.

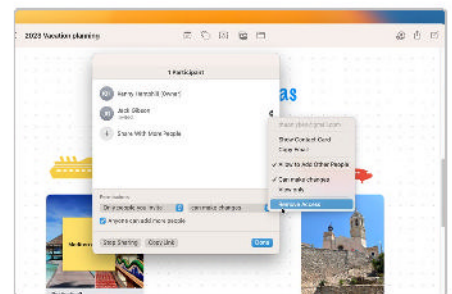
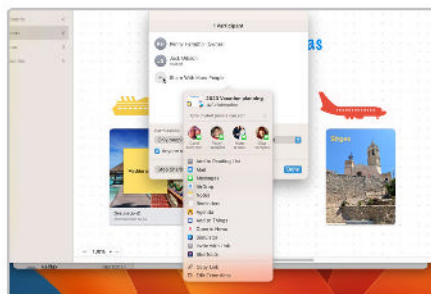
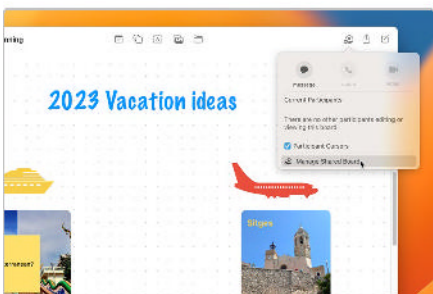
2 Choose collaborators

When Messages opens, you'll see a new message with a link to the Freeform board. Start typing the name of the person you want to collaborate with in the Send field. Choose a contact from the list that appears.

3 Set the parameters

You can add more collaborators by adding more names in the Send field. Next, click the text below the thumbnail of the board and choose how you want to share the board and the permissions for collaborators.

HOW TO Go deeper with collaboration >



1 See others' work

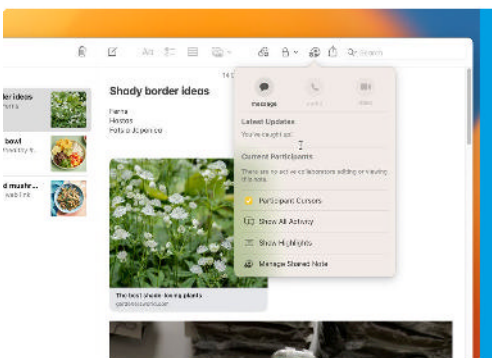
In a board you're collaborating on, click the head-and-shoulders icon to see collaborators. Check Participant Cursors. You'll see the additions they make. Participants can only undo and redo their own changes.

2 Add more people

Click the head-and-shoulders icon on the board to add people and choose Manage Shared Board. Click Share With More People. Choose a suggested person or click on an application to share the board.

3 Remove collaborators

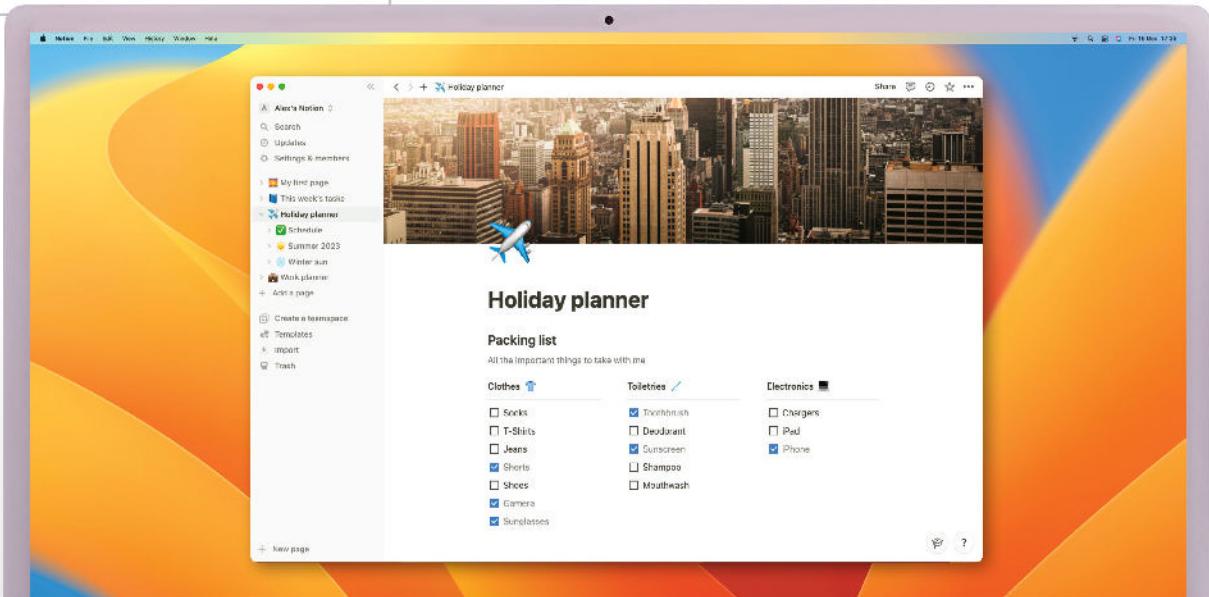
To remove a collaborator, in the Manage Shared Board dialog, hover the pointer over their name, click '...' and choose Remove Access. To stop sharing a board altogether, click Stop Sharing at the bottom of the box.



Collaborate in other apps

Working with others made simple >

Pages, Numbers, and Keynote all allow you to share documents with others and collaborate with them. Those you allow to do so can make changes to documents or add comments, and you can see those changes summarised the next time you open a document. Notes also now allows you to collaborate the same way. All these apps use a Share menu to start the collaboration; you just choose how to want to collaborate and who with and they will be sent a link. Photos goes even further, enabling you to create a shared library with friends and family.



Boost your productivity

Use Notion to help you organise both work and play activities

IT WILL TAKE

> 15 minutes

YOU WILL LEARN

> How to create and manage pages and databases in Notion

YOU'LL NEED

> Notion (Free, with IAPs), macOS 10.12 or later



Tired of trying to manage your work and personal projects in a multitude of different apps?

Instead of juggling the likes of Dropbox, Airtable and Trello, try Notion. It can handle anything you throw at it, from simple text documents to sprawling databases with countless contributors, and is super-simple to use no matter what you want to do.

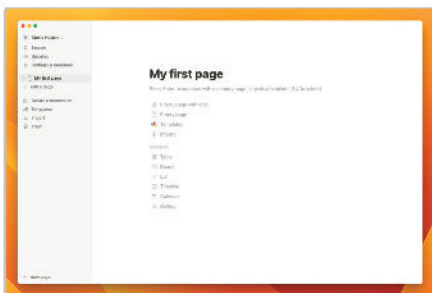
Notion's key strength is its ease of use. It comes with a friendly interface that lets you drag and drop items, create databases and

tables with just a click, and collaborate using tags and comments. That means you can plan your next holiday or keep track of your work assignments without a steep learning curve or having to switch apps.

Despite its extensive feature set, Notion is totally free to use. You can pay for some extra tools like more space for uploads and extra guest slots, but for most people that's not necessary. Getting all its best features for free is the cherry on top.

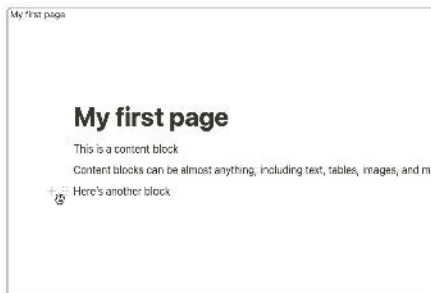
Alex Blake

HOW TO Manage your tasks with Notion >



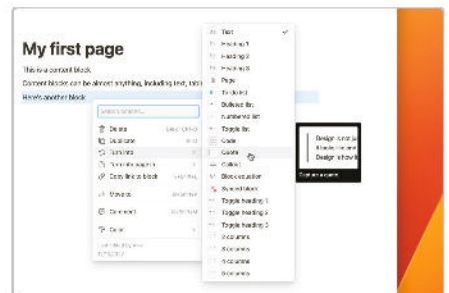
1 New Page

Click New Page and add a title. If you just want to get started, press Return. Otherwise, pick a template and click 'Get template' to add it. You can also import CSV and HTML files or content from third-party apps.



2 Click and drag

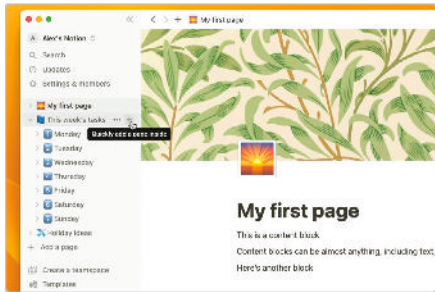
Start a new blank doc and start typing. Click and drag the dotted lines to move a content block around. Press '+' to the left of the dotted lines to choose what type of content to add, including lists, headers, sub pages, and more.



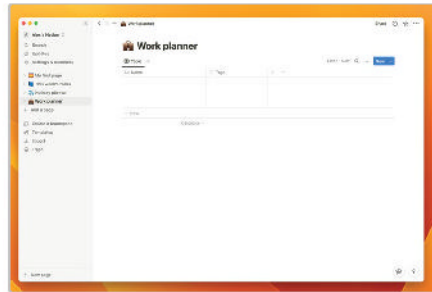
3 Convert a block

Ctrl-click a block and hover the pointer over 'Turn into'. You will see a huge list of options. This lets you quickly transform plain text into a checklist, for example, or switch from a one-column layout to a five-column one.

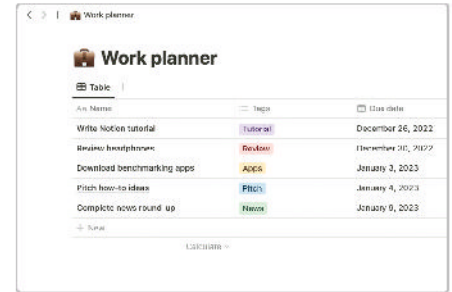
CONTINUED... Manage your tasks with Notion >



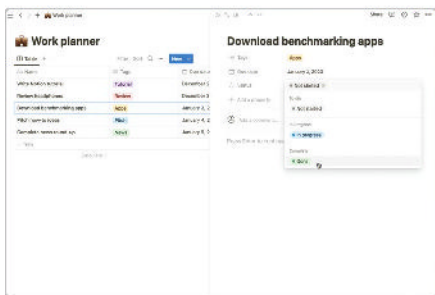
4 Page organisation
You can add page icons and header images, and rearrange your pages in the sidebar. To add a sub page, click '+' next to the page name in the sidebar. You can embed or link to other pages and databases within each page.



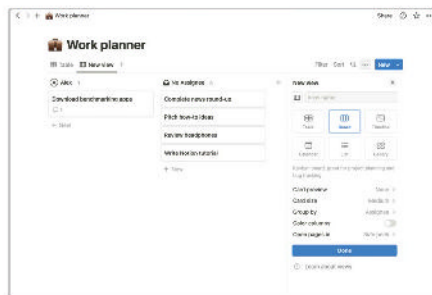
5 New database
Databases are collections of pages, and can be organised in various ways. Click 'New page', then click Table (under Database). Under 'Select data source', click 'New database'. We'll convert this into a project management board.



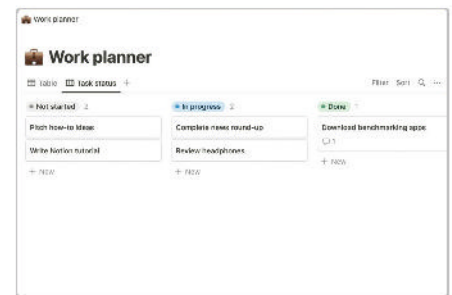
6 Add some entries
Start by adding some data. We'll use this to manage our work, so under Name, add some tasks you need to do. Add some tags, then click '+' in the third column and pick Date from the list, before adding some due dates.



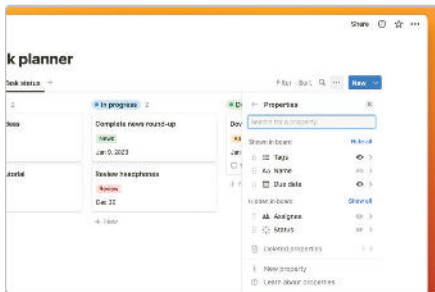
7 Card details
Hover over an entry and click Open. This shows each entry's details, where you can add comments, attach files, assign colleagues, and more. Try adding a comment, or click 'Add a property' and choose from the list.



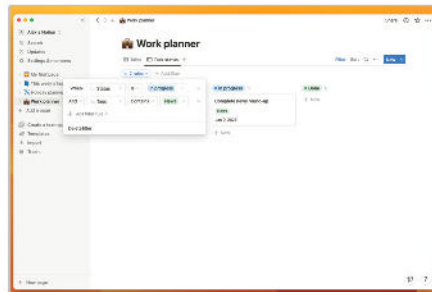
8 View options
Under your table's title, click '+' next to the word Table. Now choose a new view for the content. Board lets you drag and drop items between categories, while Calendar might be helpful if you've assigned due dates.



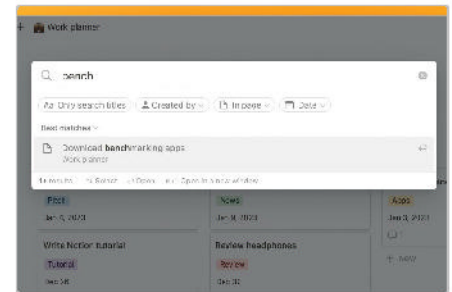
9 Board view
Click Board from the view list. Under 'View name', type 'Task status'. Click and drag the columns to reorder them, if you like. Now you can quickly switch between views when required, or add another view if it suits.



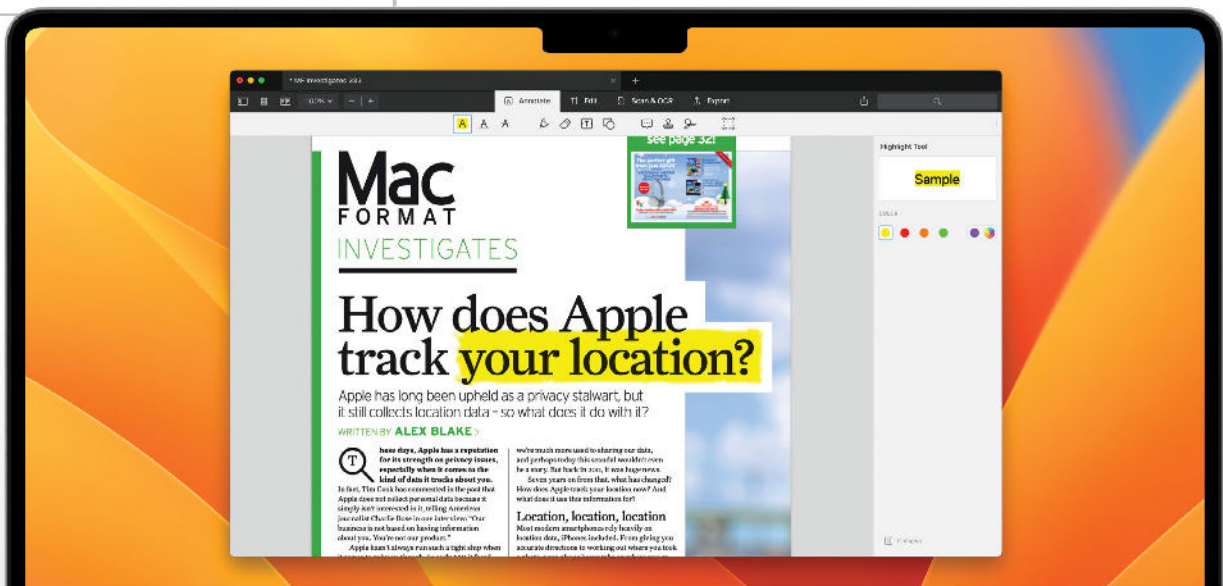
10 Show more info
By default, all properties except the item name are hidden. Next to the blue New button, click '...', followed by Properties. Now drag anything you want shown to 'Shown in board' and you'll see it without clicking the task.



11 Add a filter
Click Filter and choose from basic or advanced filters. A simple date filter can highlight any items that fall between two dates. An advanced filter can use multiple criteria to find items, which helps in larger datasets.



12 The search tool
Lost something? Notion has a powerful search feature that can help. Simply press Cmd+P and start typing. You can adjust search filters on the fly and results start populating every time a letter is added.



Edit your PDFs

Easily adjust, sign and annotate PDFs with PDF Expert

IT WILL TAKE

> 10 minutes

YOU WILL LEARN

> How to adjust your PDFs with a host of tools in PDF Expert

YOU'LL NEED

> PDF Expert (£72.99/year), macOS 10.13 or later



Whether we like it or not, most of us regularly work with PDFs.

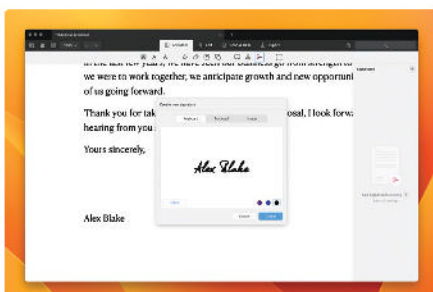
Editing these files can be fiddly and unwieldy, provoking more frustration than anything - unless you have an app called PDF Expert at your disposal.

This app has an array of tools designed to help make managing your PDFs much easier. You can edit text, fill out forms and sign documents, banish blotches and unwanted imperfections, and rearrange pages with a quick click and a swipe.

There are various reading modes (including Split View) designed to ease the burden on your eyes, while you can export to different formats to share with others. And if you have an iPad, you can annotate your files with handwritten notes and signatures with the help of an Apple Pencil.

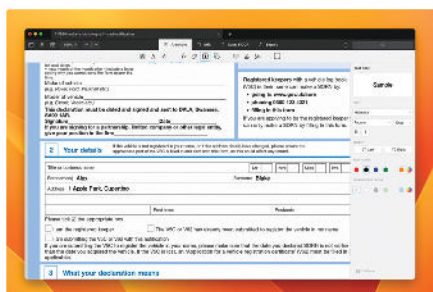
So instead of struggling along with the limited PDF tools in other apps, you may find that PDF Expert makes things a whole lot more bearable. It's an incredibly handy app to have by your side. **Alex Blake**

HOW TO Work with PDFs in PDF Expert >



1 Sign documents

Click the Annotate tab > My Signatures, then click the '+' button to sign a file. Add a signature by typing, using a trackpad, or adding an image, then click Create. Drag it onto a document and resize if necessary.



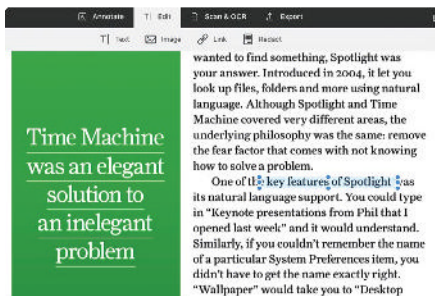
2 Fill out forms

PDF Expert recognises forms, including tick boxes and drop-down menus. In a form, click inside a box (highlighted in purple) and start typing. If there are no interactive purple boxes, click Annotate > Text to add text.



3 Annotate your files

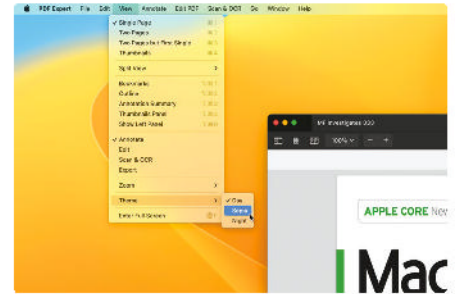
In the Annotate tab, the top row of buttons has various annotation tools. Some, like the highlighter and underliner, automatically snap to lines of text. You can add stamps, sticky notes, shapes, and more to your file.

CONTINUED... Work with PDFs in PDF Expert >**4** Edit text

Click the Edit tab, then click Link. After highlighting some text, you can add a URL. Or click the Redact button and highlight text to black it out or erase it. Finally, you can click Text to change the words on the page.

**5** Change the type

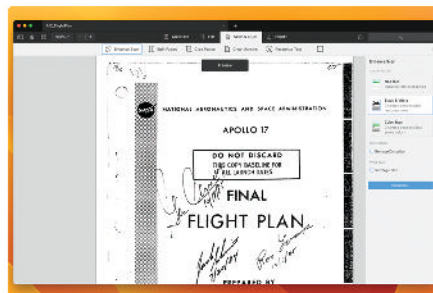
If text is too small, click Edit > Text, highlight the text in question, then increase the font size in the right-hand sidebar. You can also change the font, weight, colour, and alignment to make it easier to read.

**6** Choose a theme

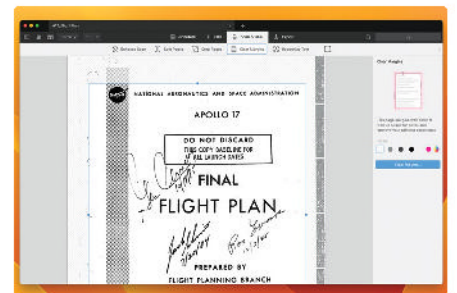
PDF Expert has a few themes to make viewing easier. Click View > Themes and choose either Day, Sepia, or Night. Each theme's colours also affect the content you're viewing, so a white page turns black in Night mode.

**7** Work with images

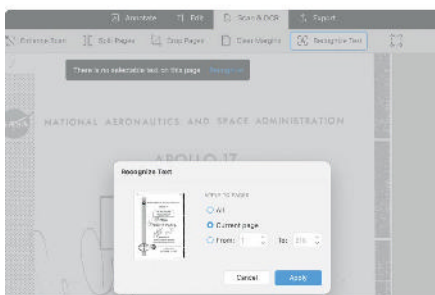
Click the Image button, then select an image on the page. In the right-hand sidebar, you can rotate the picture, crop it, replace it, or export it. To add a new picture, click Edit > Image, then click anywhere on the page.

**8** Enhance your scans

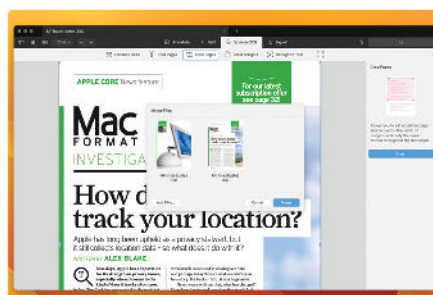
Sometimes, scanned documents don't look their best. To fix things up, click Scan & OCR > Enhance Scan. Here, you can convert the scan to colour or black and white, remove distortion effects and blemishes, and more.

**9** Clear margins

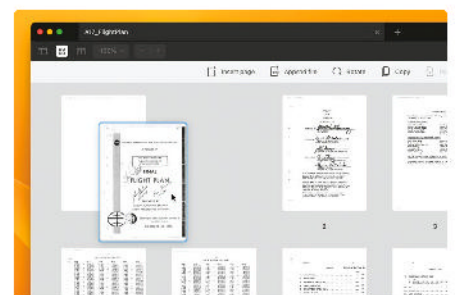
If you have a scanned page and want to clear the sides for notes, click Scan & OCR > Clear Margins. You can drag the margins to set how much space is cleared and choose the margin colour. Then click Clear Margins > Apply.

**10** Recognise text

If you need to make text in an image selectable, click Scan & OCR > Recognize Text. Choose your language and click Recognize, decide how many pages to scan, then click Apply. You can now select the text in the PDF.

**11** Split, merge, crop

Got two pages side by side? Click Scan & OCR > Split Pages to separate them. Or click File > Merge Files to combine two or more PDFs. You can also cut out distractions like page gutters with Scan & OCR > Crop Pages.

**12** Reorder pages

You can rearrange pages by clicking the Page Thumbnails button in the top-left, then clicking and dragging a page to reorder it. This menu also lets you rotate, copy or extract pages and append fresh pages to the file.



How to use Continuity Camera

Why buy a separate webcam when you can use your iPhone?

IT WILL TAKE

> 30 minutes

YOU WILL LEARN

> How to use Continuity Camera

YOU'LL NEED

> macOS 13 or later, iOS 16 or later (some features require a recent iPhone)



Genius tip!

> If you tap Disconnect on the iPhone screen, you will have to connect it to your Mac with a cable to use it as a webcam again.



Apple's Continuity suite of features has been around for years.

It's this feature that enables you to use your iPhone as a scanner for your Mac, for example. The latest addition to the feature set, Continuity Camera (confusingly, it has the same name as the scanning and photo features), enables you to use your iPhone as a webcam for your Mac when making FaceTime, Zoom or Teams



Belkin's £29.99 iPhone Mount with MagSafe is one of several gadgets that enables you to use the MagSafe magnet to mount your iPhone on your Mac.

calls. In fact, you can use it with any application that would normally use the FaceTime camera on your Mac.

Using your iPhone in this way not only gives you more flexibility in where to position the camera, but allows you to make use of some of the features of recent iPhone cameras. For example, more recent iPhone lens systems work much better in lower light than the FaceTime camera on a Mac.

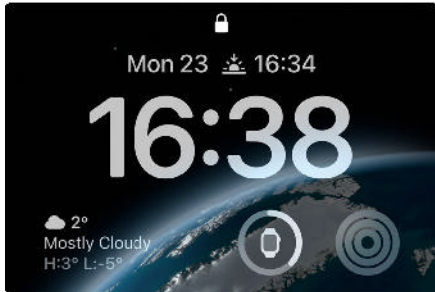
Ready for your close-up

More impressively, Desk View makes use of the Ultra Wide setting on the iPhone 11 and later to allow you to show a top-down view of your desk and your face at the same time. You can use Portrait mode to blur the background or Studio mode to dim it while lighting your face. And Centre Stage keeps you in the middle of the frame when you move around.

You can choose whether or not to use your iPhone's microphone for calls, and if you do, you can isolate your voice from ambient noise or do the opposite and capture all the noise around you as well as your voice.

Kenny Hemphill

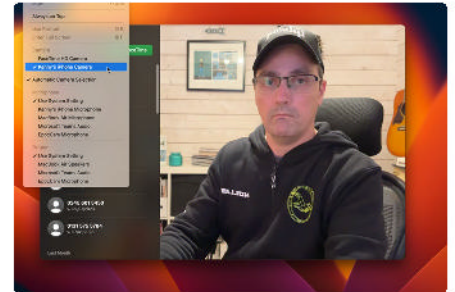
HOW TO Use your iPhone as a webcam >



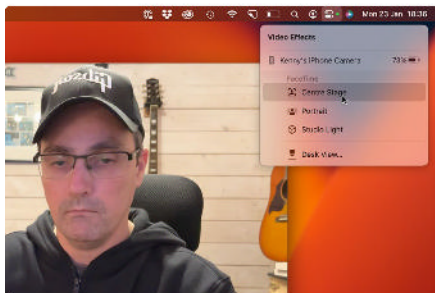
1 Get your iPhone ready
Your iPhone needs to be close to your Mac in order to use Continuity Camera. It also needs to be locked. You can charge it from a plug or from your Mac while using it, so, if the battery is running low, plug it in.



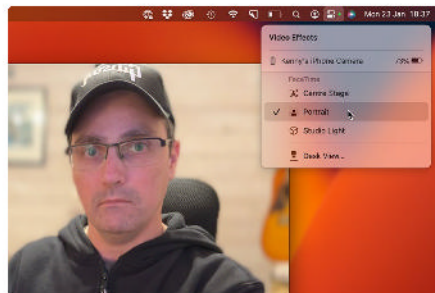
2 Mount your iPhone
If you're using a mount, connect it and attach it to your Mac. If not, position your iPhone where it is stable and facing you. If you put the iPhone in landscape mode, most apps will be able to choose your iPhone automatically.



3 Choose the camera
Launch FaceTime. It should choose your iPhone's camera automatically. If not, click the Video menu and choose it. Most third-party apps should also choose it automatically. If not, use the device settings in the app to select it.



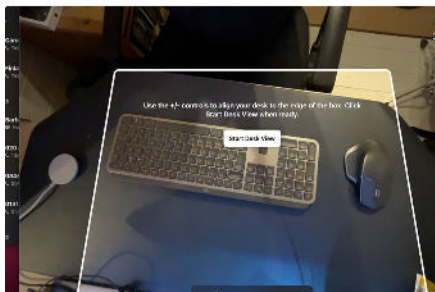
4 Use Centre Stage
To have your iPhone place you at the centre of the screen, click on Control Centre, choose Video Effects then Centre Stage. Note though, that to use Centre Stage you must have an iPhone 11 or later, excluding the iPhone SE.



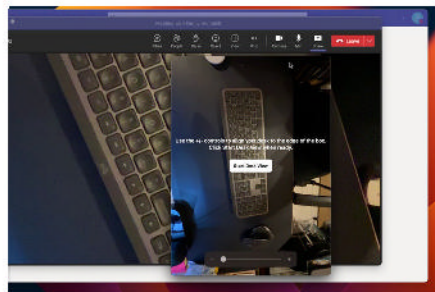
5 Use Portrait mode
Portrait mode, which blurs the background, needs an iPhone XR or later. Click on Control Centre, choose Video Effects then select Portrait. You should see an effect similar to using Portrait mode to take photos.



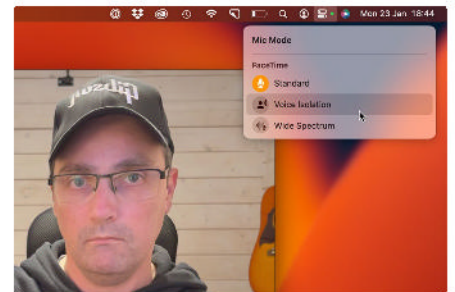
6 Turn on Studio Light
Studio Light does the same as it does in the Camera app. It illuminates your face and dims the background, useful for when you're sitting in front of a window. Go to Control Centre and choose Video Effects > Studio Light.



7 Try FaceTime Desk View
In FaceTime, start the call then click Desk View in the top right of the window. Use the Zoom control to zoom in or out. Click Start Desk View. If your desktop can't be seen, click Desk View then Share Desk View.



8 Desk View across apps
If you're using another video calling app such as Zoom or Teams, start the call and click Control Centre, then click Desk View. Go to the screen sharing controls in the app and choose Desk View to allow others to see your desk.



9 Change mic modes
There are two microphone modes. The first, Voice Isolation, prioritises your voices and minimises background noises such as traffic. The other, Wide Spectrum, captures everything. Click Control Centre then Mic Mode to choose one.



Get started with Mastodon

Fed up with Twitter? Mastodon offers a billionaire-free alternative

IT WILL TAKE

> 20 minutes

YOU WILL LEARN

> You will learn what Mastodon is and how to use it

YOU'LL NEED

> A browser, and a bit of patience



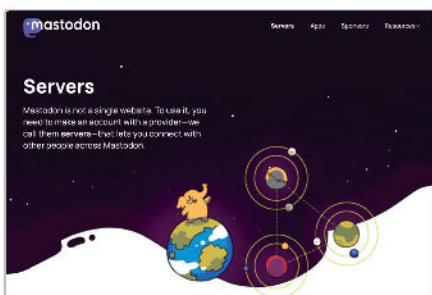
Mastodon has been a big beneficiary of Elon Musk's Twitter takeover; with Twitter in apparent chaos and lots of previously banned users being allowed back on, many people have been looking for a more pleasant alternative. For many, Mastodon is that alternative. It has very strong anti-abuse rules, and with a bit of effort you can make it just as easy to use as Twitter.

Mastodon works a bit like email; in much the same way you can have yourname@iCloud.com

or yourname@gmail.com, there are different Mastodon servers for different people. Mastodon calls them 'instances', and there are instances for journalists, drummers, environmentalists... and so on. You can see posts from and communicate with people from other instances, just like you can email Gmail users from your iCloud mail.

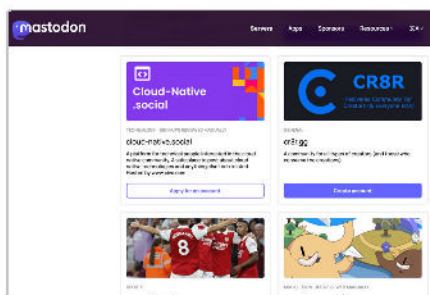
In this tutorial, we'll discover how to get started, and how to find out and follow other people. We'll focus on the desktop here, but there are great iOS apps too. **Carrie Marshall**

HOW TO Set yourself up on Mastodon >



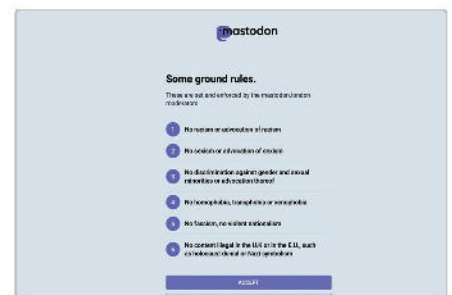
1 Find your place

Point your browser to joinmastodon.org and click on Servers. This enables you to see a list of available servers and to sort them. For example, you can find instances dedicated to football or tech, or to specific cities or countries.



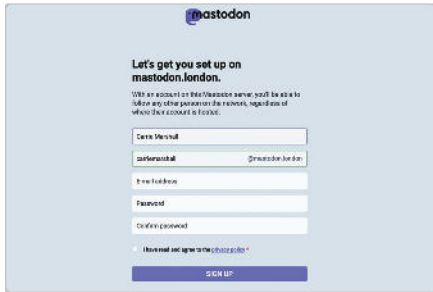
2 Open an account

The Servers tab will show one of two buttons below a server name: Create Account or Apply For An Account. The former means anybody can join; the latter means the server vets new users to ensure they're not a potential problem.

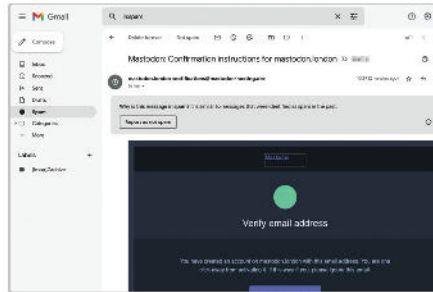


3 Read the rules

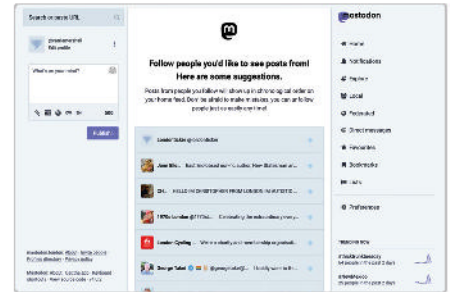
Every instance has its own set of rules, and breaking them can get you banned from that instance. These rules, for the mastodon.london instance, are fairly typical and hardly controversial: nothing illegal, no hate speech, etc.

CONTINUED... Set yourself up on Mastodon >

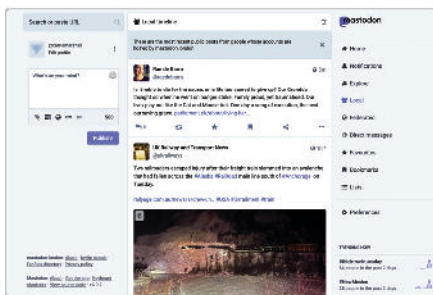
4 Enter your details
All you need to do now is sign up with the instance by providing your name, preferred user name and email address. You're signing up with a specific instance, not an app; you can use any app you like to access your account.



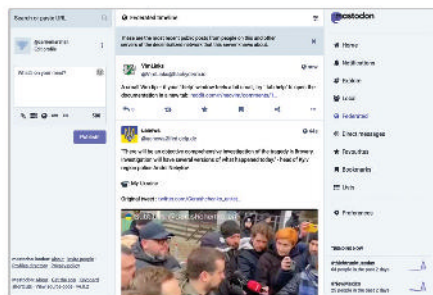
5 Check your spam
Strangely, Mastodon confirmation emails often go straight to spam or junk. If you don't see an email verification link, it's probably been marked wrongly as spam. Find the message and click the link to activate your account.



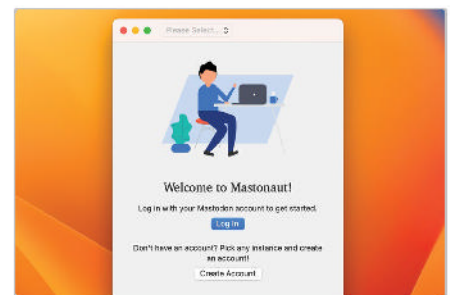
6 Look around
This is the web interface for Mastodon, and it has three columns. On the left is where you write your posts and replies. In the middle is where you see other posts, and at the right there are the various options to filter what you see.



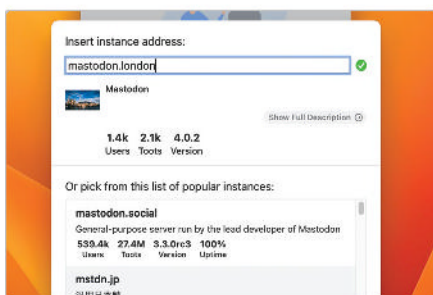
7 Look at Local
There are three views of Mastodon. The standard view is your own feed, which will contain posts from the people you follow. The Local view shows posts published the instance you're on, in this case mastodon.london.



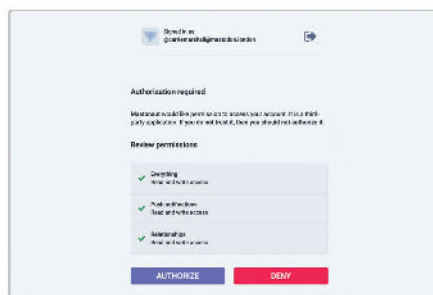
8 Join the federation
The other view is the Federated view. This enables you to see posts from other Mastodon instances that your particular instance is federated with - essentially, instances that your one says are okay to view.



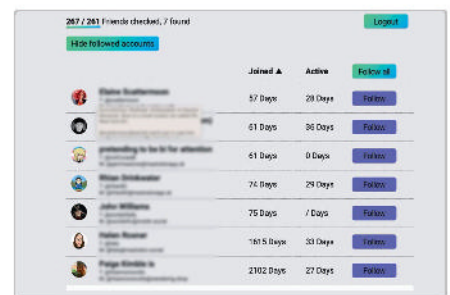
9 Install an app
There are some good third-party apps for Mastodon for both desktop and iOS, and many of them are free. Although they may look different they all work in much the same way. Let's try the free Mastonaut app (mastonaut.app) for Mac.



10 Pick your account
You have two choices here; you can log in with an existing Mastodon account, or you can create a new one. We'll use the Mastodon account we just set up, so we'll enter the name of our chosen instance in the field provided.



11 Authorise your app
Whether you're on Mac, iPad or iPhone, the app needs to be authorised before it can connect to your account. You should automatically see the screen shown here, and clicking Authorise takes you back to the app.



12 Find your people
A great way to find people is to see which of your Twitter follows have Mastodon accounts. [Movetodon.org](https://movetodon.org) can scan your Twitter account, enabling you to follow some or all of the people who've got Mastodon links in their profiles.

Master iPhone video controls

How to use different shooting modes and file formats in the Camera app

IT WILL TAKE

> 15 minutes

YOU WILL LEARN

> How to master different video shooting modes and formats

YOU'LL NEED

> An iPhone (some features model specific)



With the introduction of the iPhone 14 you can now shoot videos in Action mode, but that's not the only type of video your iPhone can capture.

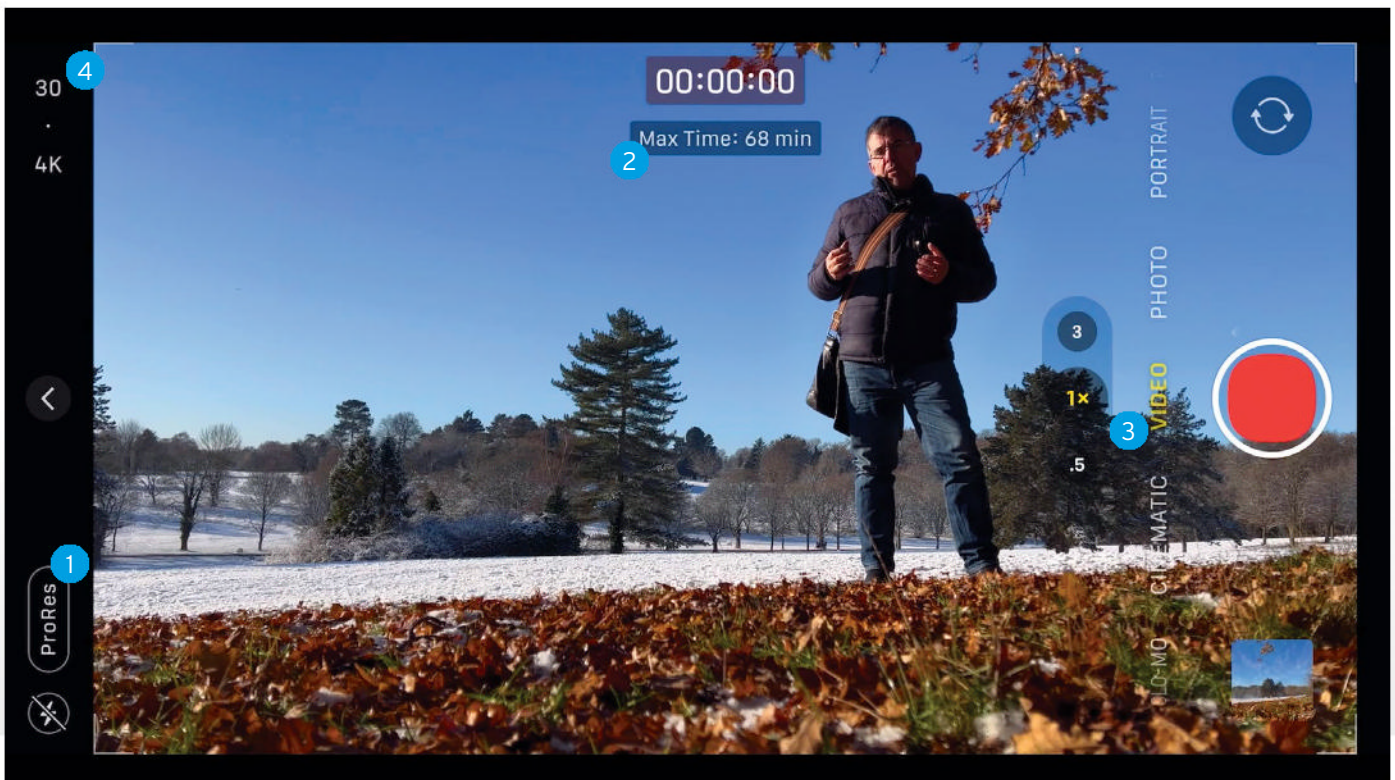
In this tutorial, we're going to explore all of the video recording modes available to your iPhone's camera (no matter which iPhone model you own), explaining what they are, how they work and how you can make the most of them.

We'll be covering Action mode, shooting in HD, 4K and the amazing Cinematic mode. Plus, we'll take a look at quasi-video modes such as

Slo-Mo, Time-Lapse and Live Photo to expand your video shooting repertoire.

We'll also show you how to turn on the Apple ProRes format on Pro model iPhones. ProRes enables you to capture HDR (High Dynamic Range) clips that have a wider range of colours and tones than standard HD or 4K clips. HDR clips take up a huge amount of storage space, so we'd only recommend shooting in Apple ProRes if you need to edit and share clips to be viewed on HDR-compatible devices such as an iPhone 14 Pro. **George Cairns**

EXPLAINED... How to use different video modes >



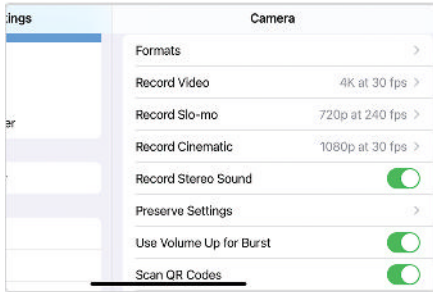
1 Apple ProRes
 > On a Pro model iPhone tap here to toggle on the ProRes shooting mode (once you've activated it in Settings).

2 Shooting time
 > A minute of 10-bit ProRes HD footage takes up 1.7GB of storage space. Maximum shooting time appears here.

3 Shooting modes
 > In the Camera app, swipe here to choose a shooting mode. The active mode will appear in yellow.

4 Frame rate
 > Tap here to change the resolution and frame rate. We're shooting at 4K res with a frame rate of 30fps.

HOW TO Use every video mode >



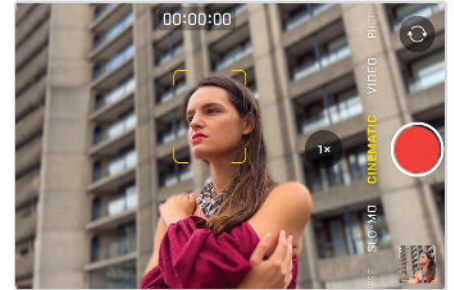
1 File formats

Go to Settings > Camera. Here you can choose default video file sizes and frame rates for the Camera app, such as shooting 4K footage at 30fps. You can also change file sizes and frames rates from within the Camera app.



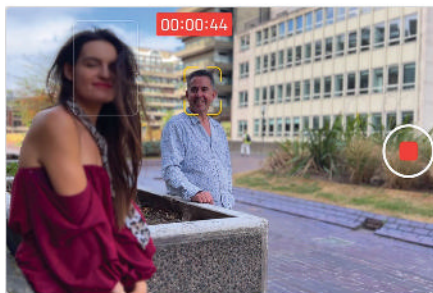
2 HD or 4K

In the Camera app, swipe to Video mode. Tap top-left to toggle the resolution between HD and 4K. Tap to change the frame rate. 30fps is good for sharing HD files online; 24fps gives a more cinematic look on a 4K TV.



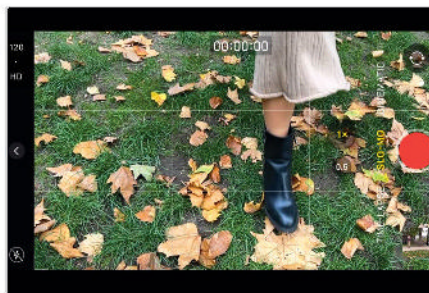
3 Cinematic mode

To give your footage a Hollywood look, swipe to Cinematic mode. This mode is similar to the Portrait mode in that it digitally blurs the video clip's background while keeping the main subject looking nice and sharp.



4 Pull focus

While shooting in Cinematic mode, the camera will usually focus on the person closest to the lens. You can tap on a background person (or object) to make them become sharp. A yellow box indicates the focal point.



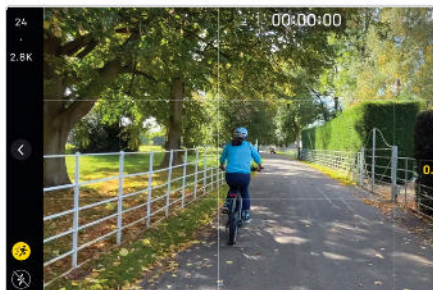
5 Go slow

Swipe to Slo-mo. Tap top-left to shoot at 720P with a slow frame rate of 240fps to create a small (low-resolution) file. For higher-quality choose HD 120. Tap the red button to record a slow-motion clip.



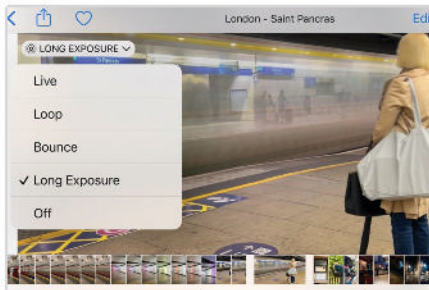
6 Time travel

To view the world in a creative and dynamic way, swipe to Time-Lapse mode. This causes the iPhone to capture approximately two frames per second. When you play the clip, subjects such as clouds move at high speed.



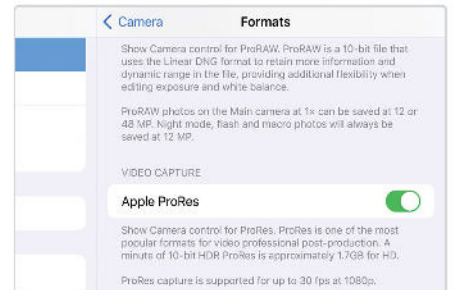
7 Action stations

The iPhone 12 and 13's sensor-shift optical image stabilisation system reduces camera shake. When shooting video on the iPhone 14 range, tap the Action mode icon to capture even smoother handheld clips (up to 2.8K).



8 Live Photo

Live Photo mode captures a short video sequence that you can use in creative ways. In Photos, tap the top-left menu and choose Long Exposure. Moving objects become blurred (as if you'd shot using a slow shutter speed).



9 Go Pro

On Pro iPhones, choose Settings > Camera > Formats. In the Video Capture section choose Apple ProRes. In the Camera app, tap to turn ProRes on or off. You can edit ProRes clips in iMovie on iPhone to preserve their HDR quality.



Use external devices

Connect your iPad (or iPhone) to almost anything via the power of USB-C

IT WILL TAKE

> 10 minutes

YOU WILL LEARN

> How to use external storage and other devices with iPad

YOU'LL NEED

> iPad, USB-C cables or adaptors

Your USB-C iPad can charge your iPhone, AirPods or Apple Watch



One of our favourite things about the latest iPads is their USB-C port, which enables you to connect all kinds of devices.

USB-C is the most recent and fastest version of the standard, and it enables you to connect more demanding devices such as fast external storage. It also enables you to charge your iPhone, AirPods or Apple Watch; just connect the appropriate cable to your iPad and it'll

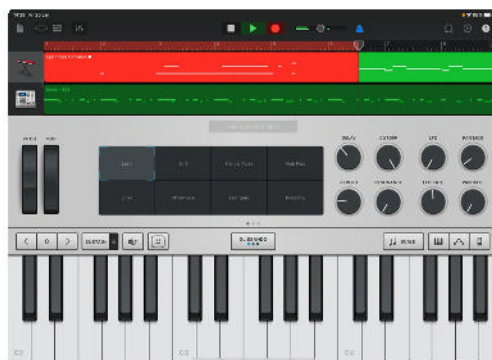
share its battery. That's not all your iPad can do. It can move files to and from external drives and memory cards; connect to DisplayPort external displays; connect to external keyboards and mice; connect to USB interfaces for microphones and musical instruments; and you can use it with adapters as an HDMI output or an Ethernet connector.

Some limits apply

With the third-generation iPad Pro 11-inch and the fifth-generation iPad Pro 12.9-inch, you can daisy-chain devices to connect multiple Thunderbolt devices simultaneously.

There are some limits to what you can do, however. USB webcams won't work in FaceTime, and while you can connect to external storage you can't format or partition it and it has to be formatted as exFAT, HFS, FAT32, or APFS. And some USB devices need more power than your iPad can provide, so for those you'll need to connect your iPad to a mains-powered USB hub.

Carrie Marshall



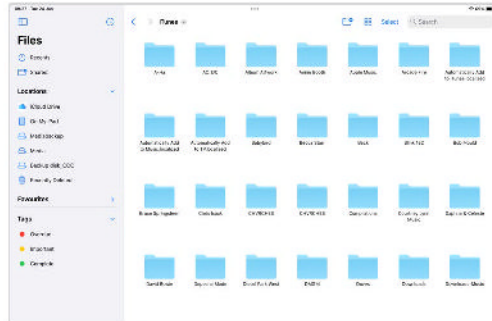
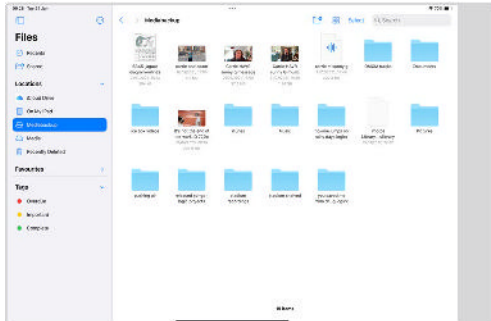
If you're into making music, USB-C enables you to connect external keyboards so you can play around in GarageBand.

HOW TO Using an external drive >



Jargon buster

> **Thunderbolt** was a faster alternative to USB, but the most recent versions of USB have caught up. The iPad Pro's USB-C/USB 4 port is also a Thunderbolt 4 port.

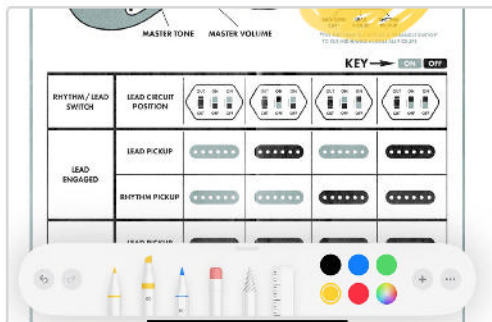
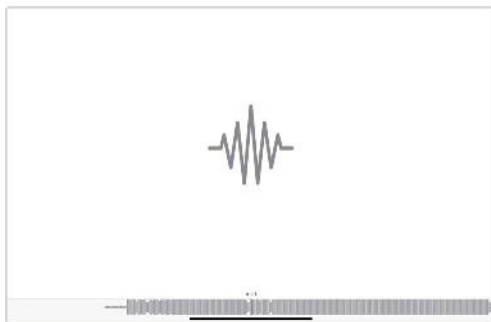


1 Open up Files

When you connect a USB external drive or memory card, it'll show up in the Locations section of the Files app's sidebar. Some devices may need external power - if so, they won't show up until they're connected to power.

2 Explore your files

As you can see, external storage works just like your iPad storage - and you can drag and drop between the two. You can't format external storage from your iPad, though; for that you'll need to connect it to your Mac.

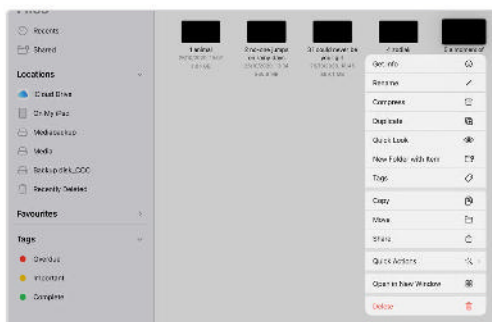
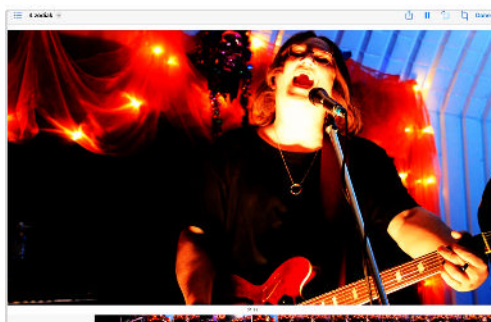


3 Have a listen

One of the great things about USB-C is that it's very fast, and that means you don't need to copy media files from external storage to your iPad in order to play them. Here we're checking out a high-quality Apple Music track.

4 Get marking

Everything on external storage works as it would if the files were stored on your iPad, so for example you can open an image and use Markup to highlight or annotate it, or use the Share menu to send it via Messages or Mail.



5 View your videos

Provided they're in a format your iPad can play, you can even play videos in real time from your external storage - and, as you can see at the top and bottom of the screen here, you can instantly rotate the clip or scrub through it.

6 Apply actions

Press and hold on a file or folder in the Files app to see this menu; this enables you to access the most commonly used file actions - including renaming, compressing, duplicating, tagging or deleting files or folders.



Genius tip!

> You don't need the most recent iPad to connect devices such as



USB keyboards or audio interfaces to your tablet, but you will need a Lightning to USB cable or adaptor to connect them. It'll work with iPhone too.



Make and take calls

Use your Apple Watch to chat with friends - it's so easy and versatile

IT WILL TAKE

> 10 minutes

YOU WILL LEARN

> How to use the Walkie-Talkie Apple Watch app

YOU'LL NEED

> An Apple Watch, and someone else with an Apple Watch



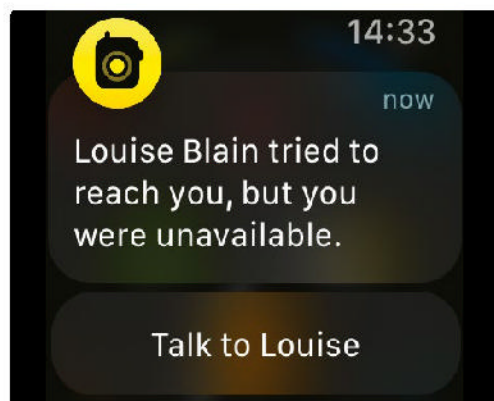
Genius tip!

> If you use Focus modes on your iPhone and Apple Watch to enable Do Not Disturb settings, they include the Walkie-Talkie app too.



Our Apple Watch sometimes makes us feel that we're living in the future; at last, we have the wrist-based communicators our comics promised us as kids.

When someone calls, your Watch shows their name if they're in your contacts. Tap the green button to talk, the red button to send the call to voicemail, or the '...' (More) button to send the call to your phone or reply with a



If someone tries to contact you via the Walkie-Talkie app when you're unavailable, your Watch will display a missed call notification.

text message. You can adjust the volume with the Digital Crown and switch from Watch to Phone by unlocking your iPhone and tapping the green bar at the top of the screen.

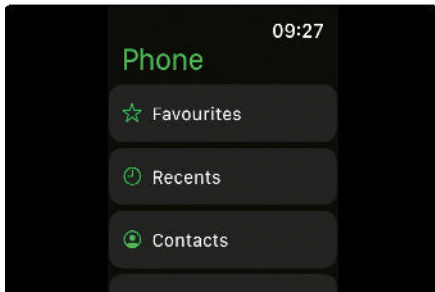
And of course, you can phone people too. Simply tell Siri to call the person, or open the Phone app, scroll to the appropriate contact and choose whether to make a phone call or a FaceTime Audio one.

Roger, over and out

One of our favourite features of taking calls via Apple Watch is Announce Calls. If you go into Settings on your Apple Watch and tap on Siri > Announce Calls, Siri will tell you who's calling and ask if you want to take the call. All you need to do is say Yes or No.

In this tutorial, we're going to focus on one of the lesser-known voice-calling apps, Walkie-Talkie. If you have a friend, family member or colleague with an Apple Watch you can use the app for instant voice communication. All you need is for both Watches to be connected via Wi-Fi, iPhone or mobile data (if your Watch is a GPS+ Cellular model). **Carrie Marshall**

HOW TO Chat to friends using Walkie-Talkie >



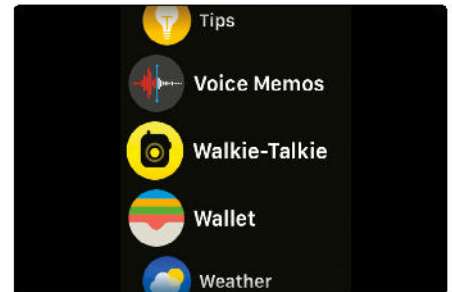
1 Phone home

Open the Phone app and choose from your Favourite contacts, your recent calls list or your full contacts list; you can also select a numeric keypad or access your voicemail here. If you prefer, you can use a Siri command to call a specific person.



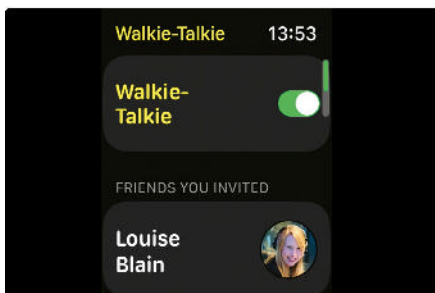
2 Make the call

When you're on a call, you can mute your mic with the left-hand icon, hang up with the middle one or access more options with the '...' button. This enables you to hand the call over to your iPhone. The Digital Crown adjusts the volume.



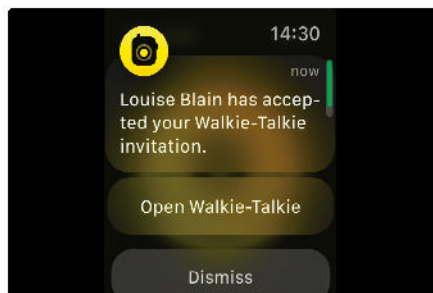
3 Get Walkie-Talkie

The Walkie-Talkie app has been automatically installed on every Apple Watch since watchOS 5.3. If you've deleted yours to free up space, get it back by tapping on the App Store and downloading it again. It's a free app.



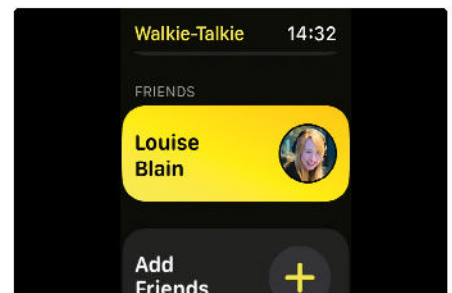
4 Find a friend

You can't just start walkie-talkie-ing to everyone in your contacts list. You need to invite them to use the app. Scroll to the name of the person you want to add and tap Invite; you'll now see this display until they accept the invitation.



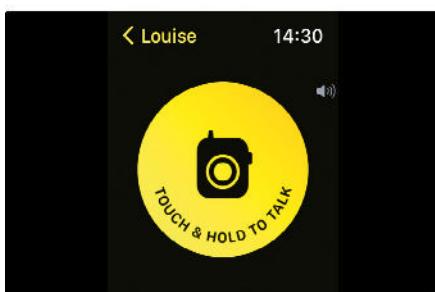
5 Get ready

When your friend accepts, you'll get this notification, which includes an option to open the Walkie-Talkie app if you aren't already in it or to dismiss the notification. Now when you go to the app you'll see your friend(s) at the top of the display.



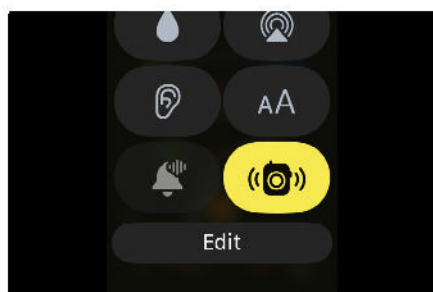
6 Add more

You can add as many other friends as you like. Walkie-Talkie uses FaceTime to communicate so both of you will need to have set up the FaceTime app on your devices. You can remove friends from the list by swiping left on their name.



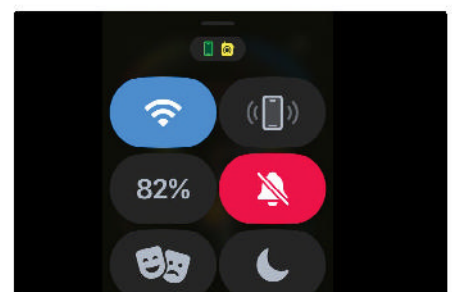
7 Start the chat

Tap the name of your friend and you should now see this button. All you need to do now is hold the button when you want to talk and let go when you're ready to listen. Saying "over" at the end of each sentence is entirely optional.



8 Set your status

If you don't want to be disturbed at any time of day or night, toggle your Walkie-Talkie availability in Control Centre. The toggle is just the app logo: if it's black on a yellow background you're available; tap it to become unavailable.



9 See your status

When you've used the Walkie-Talkie app, you might notice the icon in tiny form at the top of the Control Centre. That's where your Watch shows its different connection statuses, so if Walkie-Talkie is active it appears there.

HOW IT WORKS

Spatial audio and dynamic head tracking

Create immersive effects for music and video



The large, over-ear design of the AirPods Max is ideal for immersive spatial audio.

YOU WILL LEARN

► How spatial audio and dynamic head tracking work on Apple devices

Key fact

► If your AirPods support spatial audio, the Music app will automatically play spatial audio for tracks that support Dolby Atmos. If you want to listen to spatial audio using non-Apple headphones, go into Settings > Music (iPhone and iPad), or Music > Settings > Playback (Mac). Look for the Dolby Atmos option and then select Always On.

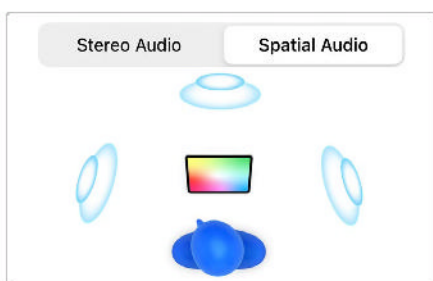
Spatial audio has been available on iPhone and iPad for a few years now, since it was introduced with iOS 14 and the AirPods Pro in 2020. It's taken Apple a while to extend the tech to a wider range of devices, but you'll now find it in the latest AirPods and AirPods Max, as well as Macs and the Apple TV box.

Spatial audio is designed to create an immersive sense of space when listening to music or video, allowing music to swirl around you, and also to precisely place individual instruments or sound effects from a film at specific points in space. Spatial audio is a bit like surround-sound speaker systems used in cinema set-ups, but instead of having to place multiple speakers around you, spatial audio is designed to work through headphones. It uses special algorithms, called HRTF (head-related transfer function) that convert two-dimensional stereo sound into a kind of 'virtual surround sound' using the earpieces of your headphones.

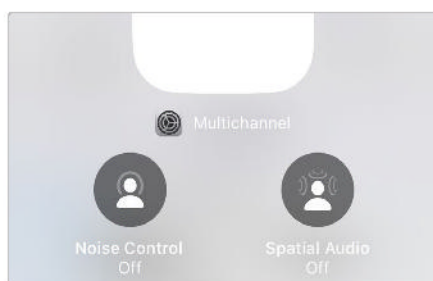
Apple isn't the only company investing in clever audio tech. Sony's 360 Reality Audio format is available on many Sony headphones as well as streaming services, such as Amazon Music and Tidal, while Yamaha's 3D Sound Field tech claims to take any standard stereo audio and 'upscale' it to the equivalent of five-channel surround sound.

However, Apple's version of spatial audio is actually based on the Dolby Atmos format, which has been a standard format for film soundtracks for many years, and is becoming increasingly popular for music recordings too. Spatial audio is supported on the latest third-gen AirPods (but not the second-gen AirPods that are still on sale), as well as the AirPods Pro and AirPods Max. However, Dolby Atmos is also widely supported on other types

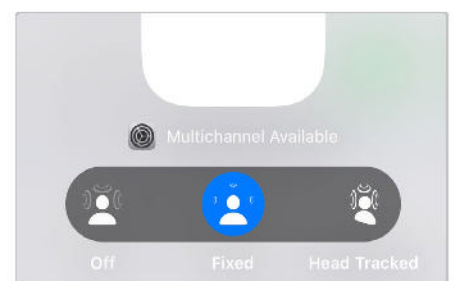
EXPLAINED Spatial audio settings >



1 Sound all around
You can get an idea of how spatial audio works if you go into Settings on iPhone or iPad. The Settings panel for AirPods shows how spatial audio differs from stereo, creating a sense of sound all around you, rather than just the left/right channels of conventional stereo.



2 Control Centre
Open Control Centre while wearing AirPods, and then press-and-hold the Volume control. You'll see the Volume slider with two smaller icons below it for adjusting noise cancellation and spatial audio. Just tap on the Spatial Audio icon to see the options that are available.

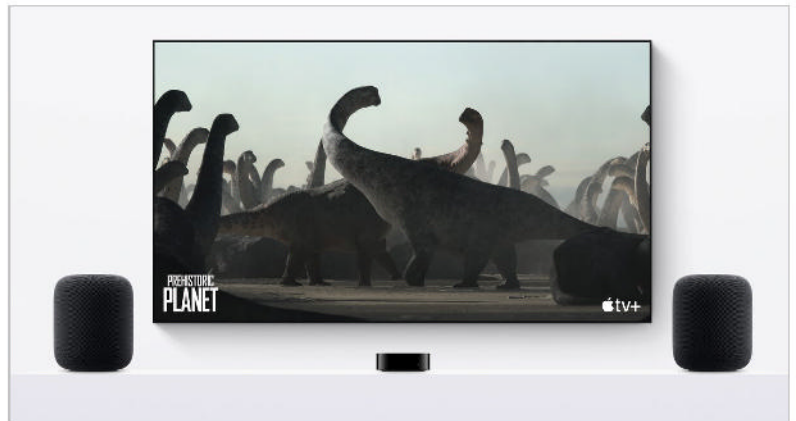


3 Spatial options
By default, spatial audio is turned off, but you have two options available if you decide to turn it on. The standard option is Fixed, which means that the sound doesn't change if you turn your head or get up and move around while watching video or listening to music.

Spatial speakers

Headphones aren't the only option for listening to spatial audio. You can play spatial audio using built-in speakers on the iPhone 7 or later, most recent iPads, and Macs with M1/M2 chips (see bit.ly/3HFyVNm).

These compact speaker systems aren't ideal for creating the rich, immersive sound that you really need for spatial audio. But, if you want to go to town, you can use the Apple TV 4K to connect more powerful speakers and soundbars for the full home-cinema experience - as long as those speakers also support Dolby Atmos. There are no speakers that currently support dynamic head tracking.

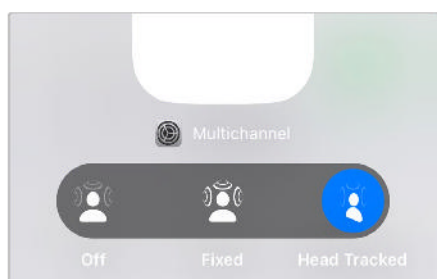


You can team an Apple TV 4K with a pair of HomePods for a true spatial audio experience.

of headphones and speakers too, so you don't have to own a set of AirPods to listen to spatial audio on Apple Music. But, Apple being Apple, it has come up with an extra twist of its own, called dynamic head tracking. This is an additional feature that works in conjunction with spatial audio for music or video, but it requires special sensors that can monitor the movement of your head while you're wearing your headphones. These sensors are only built into the third-gen AirPods, AirPods Pro, AirPods Max and Beats Fit Pro, so these are currently the only headphones that support dynamic head tracking as well as spatial audio.

Space music

You can use dynamic head tracking when listening to spatial audio on Apple Music, but



4 Head tracking

Select Head Tracked to activate the AirPods' dynamic head tracking feature. Head tracking works best when watching video, as it can adjust the soundtrack so that the sound moves when your head moves, and always appears to come from the screen that is playing the video.

it works best for watching films or video that have a Dolby Atmos soundtrack. When you're watching a film with an Atmos soundtrack, the sound is 'fixed' so that it seems to come from the same spot within your headphones. The spectacular opening scene of *Blade Runner* sounds great with spatial audio, as Harrison Ford's hover-car zooms towards you and the sound then pans off to the left as the hover-car moves left across the screen. With head tracking turned off, that panning sound always comes from your left-earpiece, because the soundtrack assumes you're always looking directly at the screen. But, when you turn on head tracking, the sound is automatically adjusted whenever you start to move your head away - in fact, if you face 180° away from the screen, the sound of the hover-car switches to the right-hand earpiece of the AirPods to match the motion on the screen.

Spatial audio also works for music that you stream or download from the Apple Music service, as long as the tracks you're playing are marked as supporting 'Spatial Audio With Dolby Atmos' (and there are several spatial audio playlists already set up on Apple Music to help you get started). Spatial audio can be really effective with a rock extravaganza such as *Bohemian Rhapsody*, with the shrieking Galileos and Figaros flying through the air, or with dance tracks that really get you into the rhythm. However, dynamic head tracking is less effective when you're listening to music - especially if you're also walking around while wearing your AirPods. Many people find that the constantly changing direction of the sound can be quite distracting, so check the screenshots (above) that show you how to adjust both spatial audio and dynamic head tracking to suit your preferences. **Cliff Joseph**

Apple's version of spatial audio is based on the popular Dolby Atmos format

Key fact

➤ As well as simply turning spatial audio on or off, you can use a feature called Personalised Spatial Audio to improve 3D sound effects. This uses the TrueDepth camera on the iPhone X or later - which is also used for Face ID - to scan your head and ears and create a personalised profile that fine-tunes the spatial audio effect to suit the shape of your head.

GENIUS TIPS

EDITED BY **HOWARD OAKLEY** >



**EXPERT
ADVICE**

Our resident genius solves your Mac and iOS problems



Contact us

Email your queries and your questions to genius@macformat.com

Going against the grain

We're often our own worst enemies when using our

Macs. When what was once simple becomes tricky and tenuous, instead of following the line of least resistance, we insist on doing what worked in the past.

Apple silicon Macs are designed and built to run from their internal SSD: it's remarkably quick, convenient, and thoroughly secure. While they can boot from external disks, even a hard drive if you really want, that should rarely be a choice because of everything it loses.

Those who insist it's best face many challenges. Can it work with a USB stick? Is FileVault encryption available? Can a single boot disk work across many Macs? What about booting older macOS? These can be fun projects for those who tinker, but when you want to get on and use your Mac, it's far better to go with the grain.

Is Ventura's protection good enough?

Q Do we still need to run third-party anti-malware software on our Macs in Ventura?

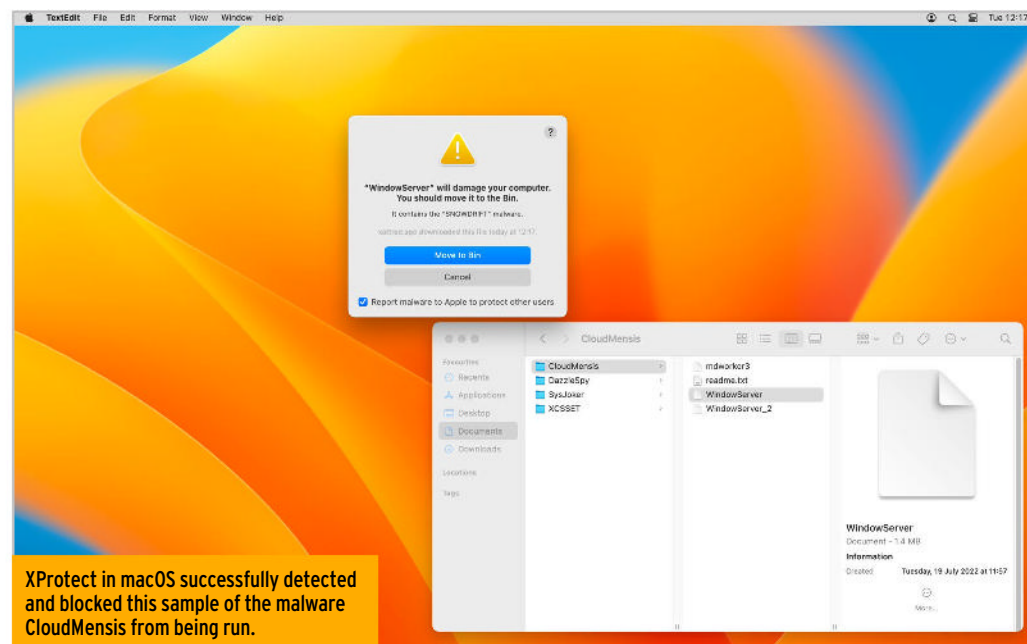
by NATHAN PARKER

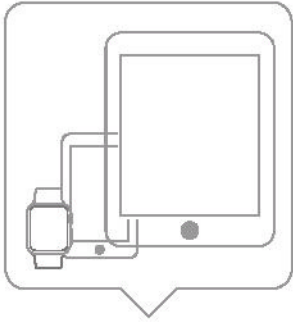
A Apple intends macOS to provide sufficient protection against malware for the majority of Macs, but it's up to you to assess the risk and adopt defences. Recent macOS have brought steady improvement, and last summer saw the introduction of new anti-malware scanning.

We tested how well Ventura 13.1 detected four current malware samples with different security settings. Because macOS is now less reliant on apps being quarantined to trigger

checks, malware was found and blocked effectively even when it had dodged quarantine. The new XProtect Remediator anti-malware scanner, active in Catalina and later, also proved it does both detect and remove known malware.

To get full benefit from built-in protection, your Mac must run the current release of macOS, which is fully patched against known vulnerabilities, in Full Security with all security systems including SIP and XProtect enabled. Effectiveness also depends on Apple's response to new threats by releasing Rapid Security Responses and updating scanning modules. Most of all, it relies on users remaining alert and behaving securely.





iOS software >

Swipe away your touchscreen troubles and rekindle your love of Apple's mobile devices

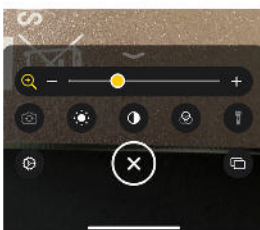
Quick-fire questions >

What's the most versatile compression app?

> Currently that appears to be Keka, which gives you the choice of 14 major compression formats with support for AES-256 and Zip 2.0 encryption, and can decompress more than 30 different formats. It's based on the same code as its popular and mature macOS sibling.

How to access the Magnifier more easily?

> Its app is usually tucked away in the Utilities section of the App Library. Add it to the Control Centre in that section of Settings, then you can swipe from the top-right corner to tap on its icon for use. You can also set it to open when you triple-click the side button, in Settings > Accessibility > Accessibility Shortcut.



Sharing TV+ but not iCloud+

Q My partner has a new iPad. Can she share my Apple TV+ subscription without using my iCloud storage?

by TONY WILLIAMS

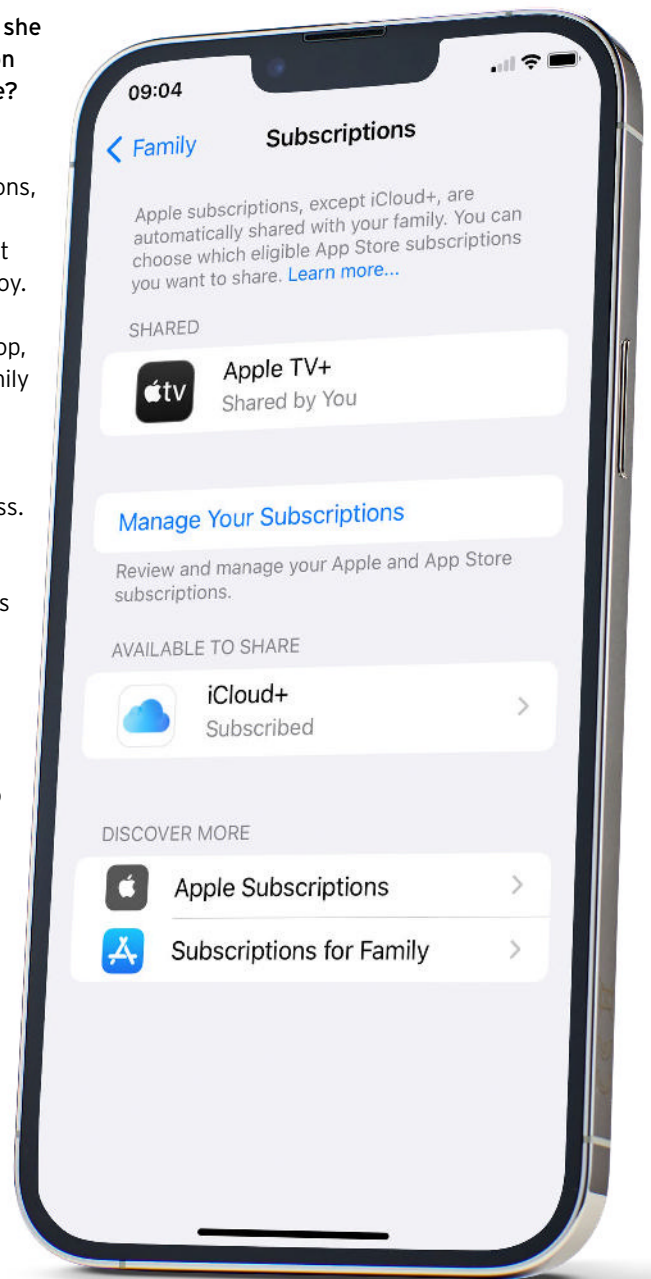
A Family Sharing offers many options, and when set up carefully can provide family members with just the shared services you want them to enjoy.

The first step is to create your family group in Settings. Tap your name at the top, then Family Sharing, and Set Up Your Family following the instructions. In the course of those, you'll be prompted to send your partner an invitation to join your family group, starting the next step in the process.

You can always add others later by tapping the Add Member icon at the top right of Family in Settings. There are limits imposed on family membership; each Apple ID can be a member of only one family group at a time, and can only switch between different family groups once each year at most.

When your partner has been added to your group, the Family section in Settings shows what they can access and share, and gives you, as the Organiser, control over those settings. To share any of your existing subscriptions, in Settings > Family, tap Subscriptions, where those available for sharing are listed.

Tap Apple TV+ to enable your partner to share that subscription, and they'll be sent an invitation. Once they've accepted, it will unlock Apple TV+ access on their iPad. Sharing iCloud storage is controlled separately through the same Subscriptions section, and requires an iCloud+ subscription. As you're the Organiser, only you can offer that, similarly with Purchase and Location sharing.



Sharing subscriptions to services like Apple TV+ and iCloud+ is controlled individually within a family group.



Mac hardware >

We help to solve your hardware hassles, from interrupted upgrades to running diagnostics

Quick-fire questions >

How to use M1 Recovery when the mouse won't work?

> Charge the mouse fully, then enter Recovery mode by holding the Power button until you're informed that it's loading. To pair your mouse again, press the Power button three times in slightly less than three seconds. You should then see the Bluetooth Setup Assistant to help you pair it.

Could I replace the hard drive in my Mac mini 2014?

> Not easily. To access the drive in more recent Mac minis, you have to remove almost everything else from inside its case, including the logic board. This is shown at bit.ly/mac389macminihdd, requires special tools and may need an upgrade kit if you're replacing it with an SSD.



More memory or larger storage?

Q My current Mac mini has 16GB of memory, but sometimes struggles when it's running major tasks.

Should the Mac Studio I'm getting to replace it come with 32GB RAM and a larger internal SSD, or will I need 64GB?

by PAUL MASLIN

A Working out how much memory you need in a new Mac is never easy, but one of the best indicators is how much swap space your current Mac uses when working on larger and more challenging tasks. macOS manages memory very efficiently, and makes the most of all the physical RAM available to it. Activity Monitor's Memory view provides colour-coded Memory Pressure and a figure for the amount of Swap Used,

that's the space on its hidden VM volume used as an overflow for real memory.

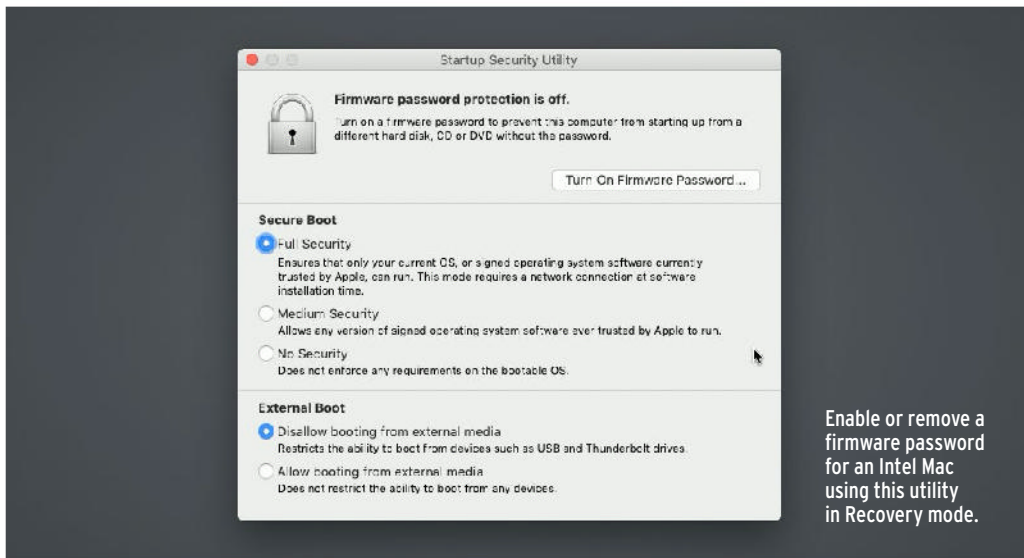
If your Mac mini seldom goes into the red and uses little swap space with only 16GB of physical memory, your new Mac Studio should do very nicely with 32GB, allowing you to get that larger SSD. Although there are substantial differences in the way that Intel and Apple silicon Macs use memory, in practice the total required doesn't seem to differ that greatly.

You should also aim to keep all your Home folder and any active projects on the internal SSD, although moving large media libraries and less active projects to external SSDs is often a wise economy. Ensure that you keep at least 100GB free on your Mac's internal SSD at all times, and more than that is even better, as that will prolong its working life.

Even with two hefty virtual machines running and Safari tabs open, Activity Monitor shows no memory pressure or use of swap space.

Process Name	Mem...	Threads	Ports	PID	User
Virtual Machine Service	12.37 GB	21	239	1651	hookley
Virtual Machine Service	2.65 GB	12	188	1867	hookley
WindowServer	561.6 MB	80	2,650	403	_windowserver
https://www.metoffice.gov.uk	187.8 MB	8	125	1802	hookley
Finder	148.5 MB	4	587	730	hookley
https://eclecticligh.co	148.3 MB	4	100	1885	hookley
https://www.metoffice.gov.uk	145.0 MB	7	94	1694	hookley
Safari	135.4 MB	5	524	1670	hookley
Dock	75.5 MB	3	490	726	hookley
System Settings	63.3 MB	3	299	1080	hookley
Displays (System Settings)	50.2 MB	3	294	1129	hookley
Activity Monitor	49.8 MB	6	611	1838	hookley
Keyboard (System Settings)	47.6 MB	5	425	1120	hookley
Safari Networkin	44.0 MB	4	101	1872	hookley

MEMORY PRESSURE	
Physical Memory:	32.00 GB
Memory Used:	24.7% GB
Cached Files:	7.66 GB
Swap Used:	0 bytes
App Memory:	21.76 GB
Wired Memory:	1.76 GB
Compressed:	0 bytes



How much memory can go into an iMac 27-inch 2017?

> In common with similar iMacs, it supports a maximum of 64GB, installed as four matching 16GB 260-pin PC4-19200 (2400MHz) DDR4 SO-DIMM modules. Installation is straightforward and shown at bit.ly/mac389imacmemory.

Running hardware Diagnostics on Apple silicon?

> Start your Mac up in Recovery. At the first Options screen, hold Cmd+D until told that Diagnostics is loading, then select the language for the Diagnostics Loader to run and offer Diagnostics. If that fails, Restart to Diagnostics using the menu.

Removing the extra password

Q My Intel MacBook Pro used to start up as soon as I opened it, but recently I've had to enter my password before it will show the login window. How can I reset that?

by PETER INGLIS

A This is probably because you've inadvertently set your notebook to use a firmware password, which has to be entered before it invites you to log in. To disable that, start it up in Recovery mode, holding the Cmd and R keys during startup. When the Utilities window appears, click

Utilities in the menu, and choose Startup Security or Firmware Password Utility, whichever is available. In that, click to Turn Off Firmware Password. You'll then be prompted to enter the firmware password one last time before it's removed.

Close that utility, and choose the Restart command in the Apple menu. Your MacBook Pro should then restart into normal user mode without troubling you for that firmware password. If you decide you want to enable it again, use the same procedure in Recovery mode, but turn it on instead and enter your chosen password.

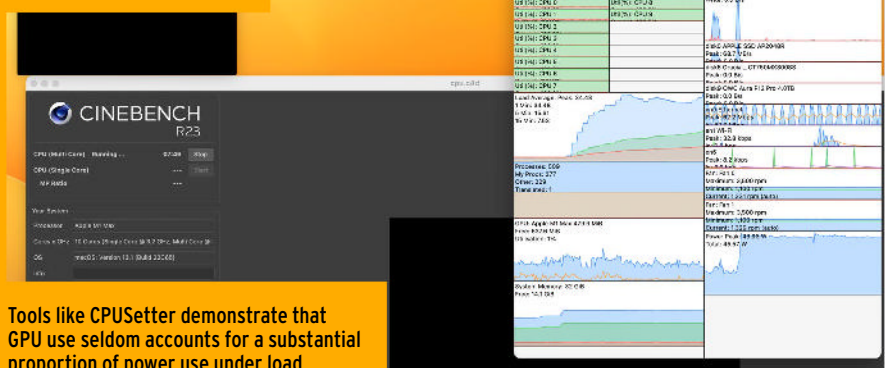
Are more cores bad news?

Q When I ordered a new MacBook Air M2, the dealer mistakenly ordered one with a 10-core rather than an 8-core GPU. Will it get hotter and suffer from a shorter battery life?

by VLADO A

A Your new MacBook Air will come with the standard four Efficiency and four Performance CPU cores, which bear the brunt of its work, use much of the power, and generate much of the heat in its chip. However, they're used very efficiently so that, when they're not required to run code, they draw almost no power at all.

The GPU handles accelerated graphics, and is again used on demand. When pushed, you should notice a

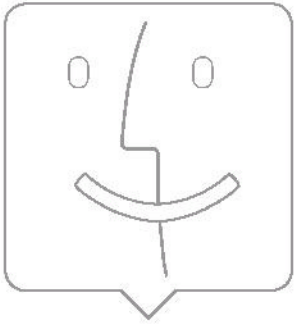


Tools like CPUSetter demonstrate that GPU use seldom accounts for a substantial proportion of power use under load.

difference in performance from the extra two GPU cores in the model you're getting, but even if you do lots of graphics-intensive work on it, the difference in overall energy consumption and heat production should remain small relative to the total. Measurements for the 8-core GPU give a maximum power

consumption of about 10W, and 13.5W for the 10-core, but with more cores it should accomplish the same tasks more quickly. So this isn't likely to make any detectable difference in battery endurance, or in heat output.

If your dealer accepts it was their mistake and only charges you for the 8-core version, then you're in luck.



macOS >

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

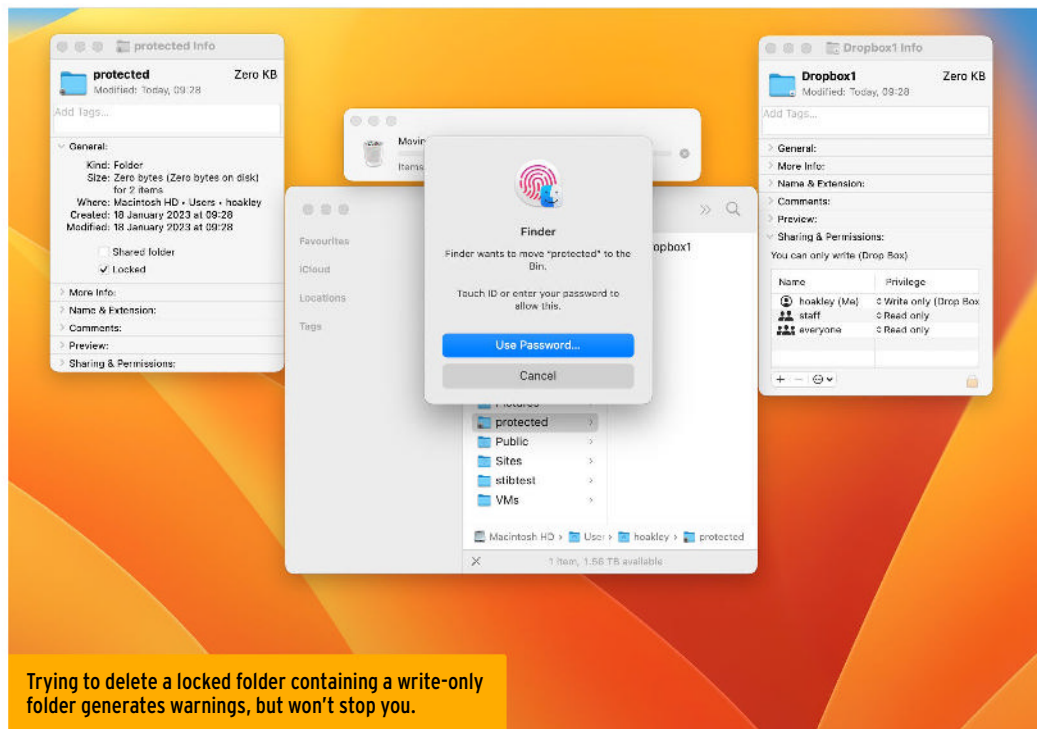
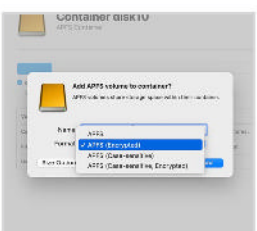
Quick-fire questions >

How to reinstall the macOS 13.2 update?

> Because Apple changed how macOS updates work in Big Sur, they now have a lot more work to do and can't be supplied as Installer packages in the way they used to. If you can't update through Software Update, the only alternative is to use the full installer app, such as that in the Mac App Store.

How to keep sensitive files on an external SSD?

> Using Disk Utility, add an APFS Encrypted volume to the existing container on that drive, giving it a robust password. Although perhaps not quite as secure as FileVault protection on your Mac's internal storage, you can eject the volume in the Finder when you're not using it.



Trying to delete a locked folder containing a write-only folder generates warnings, but won't stop you.

Stop a folder from being deleted in error

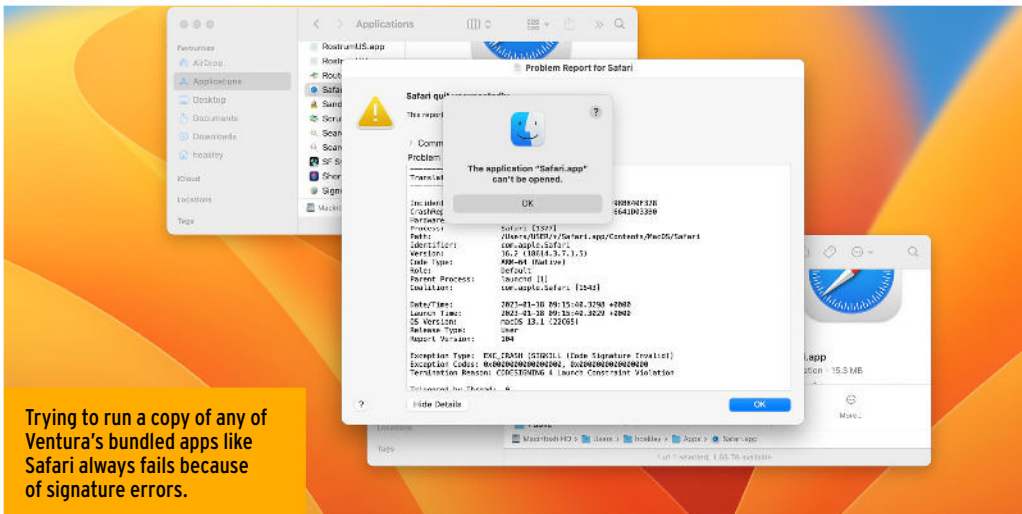
Q I store sensitive documents in a folder with privileges set for write only access, as a drop box. Why then could I almost delete it by mistake? How should I protect it?

by ANDY S

A This is a common misunderstanding that often gives rise to problems and accidents. If you want to prevent a folder from being deleted using permissions, you have to change the permissions on the folder containing that folder, rather than the folder itself. This is because a folder or directory is essentially a list of its contents. If permissions allow you to change the contents of that folder, as here by adding new files to it, then they also allow you to delete the folder.

To protect your folder of documents using permissions alone, put that folder inside another folder, and set the permissions on that outer folder to read only. If you then try to delete either of those folders you'll at least be prompted to authenticate, and that should hopefully set alarm bells ringing and stop you from trashing your documents.

Another useful tool here is locking the outer of the two folders. As with permissions, this wouldn't stop you from putting either in the Bin, but when you try to do so you're asked to confirm. Consider trusted alternative approaches too, including a separate APFS Encrypted volume, or an encrypted sparse bundle disk image, created using Disk Utility. These can be given protective permissions and locked, and both can be unmounted when you're not using them, unlike a normal folder.



How much free space is needed for Ventura updates?

> This depends on the size of the macOS update, but the absolute minimum required to update 13.0 to 13.1 is 14GB. If you can plan to have at least 20 and preferably 25GB available, then the update should complete correctly.

Which disk image format is most space efficient?

> Sparse bundles make best use of storage space, but close behind them now are regular read/write disk images (UDRW format) when kept and used on APFS volumes. This is because from macOS 12 they're normally stored as special sparse files.

Can you add a custom icon to Safari?

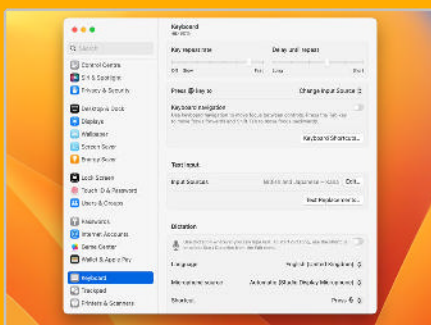
Q How can I put a custom icon on the Safari app in Ventura?
by MIKE SAMS

A You can't change the icon of any bundled app in macOS Ventura, as they're now kept in read-only storage. Most are on the Signed System Volume (SSV), which is a read-only snapshot. Some, including Safari, come in cryptexes, special secure disk images that also can't be changed. Older

versions of macOS let you work around this by copying the app to the Data volume, where you could modify them. Try that with Ventura, though, and the signature is broken, so the customised app won't launch.

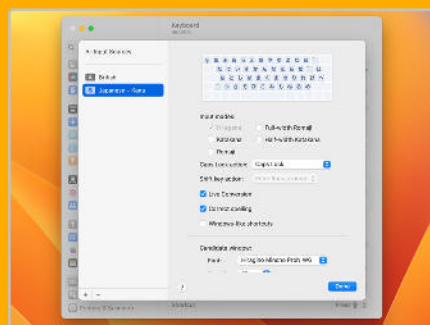
You have one last chance: Safari Technology Preview, free from the Mac App Store, can have a custom app icon. Safari Technology Preview is a test-bed for new features that may be included in future releases of Safari, and often even better.

HOW TO Stop switching to the wrong keyboard >



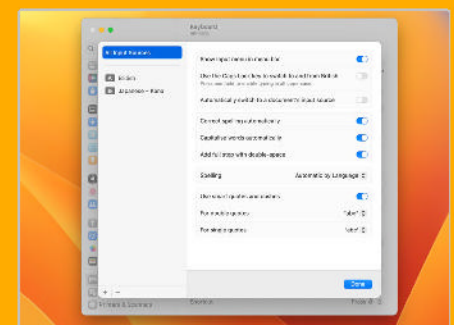
1 Open Input Sources

Although you can't delete an unwanted keyboard layout, you can make it harder to set by accident. Open System Settings and select the Keyboard item in the list at the left. In the Text Input section, where it says Input Sources, click on the Edit button.



2 Remove keyboards

At the left of the Input Sources dialog, there's a list of keyboards set for your Mac. Remove those you don't want by selecting each and clicking on the '-' button at the foot of the list. Add keyboard layouts by clicking on the '+' button and selecting them.



3 Show the Input Menu

You may also find it useful to show the Input Menu in the main menu bar. Select All Input Sources at the upper left, then enable that using the top control on the right. Once you've finished making changes, click on the Done button to finish.





HOMEKIT: THE COMPLETE GUIDE

Written by Cliff Joseph

HomeKit is better than ever - now's the time to get your smart home in order with help from your Mac or iPhone



here have been numerous occasions in Apple's history where it has developed products or technologies that were technically superior to those of its rivals, but which failed to achieve real mainstream success. And, for the last few years, Apple's

HomeKit - the software that it developed to control smart devices, such as lights and security cameras - has sat on the sidelines as Amazon's Alexa and Google Home have made all the running in the smart home market. However, all three companies have been frustrated at the slow adoption of smart home technologies, so in 2019 they got together to develop a new technology called Matter. HomeKit is actually part of

Matter, so any device that supports Matter will also work with HomeKit, and you will still be able to control that device using Siri and the Home app on your Apple devices just like any other HomeKit gear.

That's good news for Apple of course, but Matter casts its net wider and also provides compatibility with Amazon Alexa and Google Home. This means that a smart light or other device that supports Matter will still work with your Apple devices, but will also function with Amazon Alexa and Google Home too.

In this feature, we're going to show you how to set up your smart home using HomeKit, and we'll look at the cool things you can do with it once it's up and running. HomeKit is steadily improving, so now's a good time to get your smart home started.



How HomeKit works

One app to rule them all (with some help from Siri)



here's no shortage of smart devices now available that you can control with your iPhone or iPad - smart

speakers, lights, security cameras, and even thermostats and controls for air conditioning systems. The problem is, all these devices require their own separate apps. If we're ever to reach the promised nirvana of home automation, then we need a simpler way of controlling all our smart devices. Apple developed HomeKit to provide that solution, by designing a central control system that links all our smart devices together. The HomeKit software is built into Macs, the

iPhone and iPad, and also the Apple TV box, and is controlled through either the Home app or by using Siri. Apple also allows other manufacturers to build HomeKit into their own smart devices too, rather than having to rely on separate apps.

MAKING A SCENE

Having that central control point for lots of different devices was absolutely the right idea - and Apple got there before Amazon or Google. Another strength of HomeKit is that it also enables multiple devices to work together, using 'scenes' and 'automations'. Scenes let you control

a group of devices together, perhaps using Siri to say "turn off all the downstairs lights" at bedtime, or "turn off the security cameras" when you come home in the evening. Automations provide even more precise control, enabling devices to respond to specific conditions, such as turning on your security camera at a specific time of day, or turning on your lights if the camera detects movement.

So, from a technical point of view, HomeKit works very well. Unfortunately, Apple also made it quite difficult, and expensive, for other companies to build HomeKit into their products. This meant

HOME HIERARCHY

The smart home market is a mess of competing - and incompatible - technologies

> **There's an old saying in the computer industry: 'the great thing about standards is that there's so many of them'.** That's certainly true when it comes to home automation and smart devices. There are several technologies now available that attempt to provide a control system for all the smart devices in your home, including Samsung's SmartThings, the oddly named Zigbee, and the do-it-yourself programming approach of IFTTT.

But, of course, the big three in the home automation field are Apple's HomeKit, Amazon Alexa, and Google Home. HomeKit does work well on Apple devices, enabling you to control all your HomeKit-compatible devices using either the Home app or Siri voice commands. Unfortunately, Apple's failure to promote HomeKit in its early days allowed Amazon and Google to gain far more support from the manufacturers of smart home devices. There are dozens of different brand



You'll already find a range of speakers that support Amazon Alexa and Google Voice, but the arrival of Matter should mean good news for Siri fans.

smart speakers that support the Amazon and Google voice assistants, while Apple restricts Siri to just the HomePod and HomePod mini. It's a similar situation with lights, security cameras and other smart devices - thousands of devices support Amazon and Google, and leave Apple and HomeKit out in the cold. Hopefully, Matter will change that, but here (see right) is the current state of the big three in the smart home market...

Amazon Alexa

> Amazon raced ahead in the smart home market, thanks to its affordable Echo range of smart speakers (which were far cheaper than Apple's HomePod). It's estimated that there are around 100,000 different smart devices that currently support Alexa.

Google Home

> Google's control of the Android smartphone market has allowed its Google Home app - with the Google Assistant for voice commands - to take second place in the smart home market, with Google claiming there are around 50,000 compatible smart devices.

Apple HomeKit

> HomeKit makes it easy to control your devices through the Home app or Siri. However, HomeKit has never really taken off as Apple had hoped, and it's thought that there are a few hundred smart devices that currently support HomeKit (check out apple.co/3WeNNrX).



Google Nest speakers obviously support Google Assistant, and the Google Home app is currently in second place in the smart home market charts.

that HomeKit has had to sit on the sidelines over the last few years while Amazon Alexa and Google Home got most of the attention.

ANDROID NOT ALLOWED

The other problem with HomeKit is that it's Apple-only; if someone in your home has an Android smartphone or an Amazon Echo speaker, HomeKit is no use at all.

So, in 2019, Apple got together with Amazon, Google and a number of other companies to develop a new technology for smart home devices, called Matter. Using HomeKit as part of Matter means devices that support it will still be compatible with the Home app and Siri on Apple devices. However, the involvement of Amazon and Google means that a smart speaker or light bulb that works with Matter can be controlled using Siri voice commands on your Apple devices, but will also work with Amazon's Alexa or the Google Assistant on non-Apple devices too.

That sounds like a win-win situation, giving Apple a boost in the smart home market, and also providing a wider choice of smart devices that we can buy for our homes, safe in the knowledge that they'll all work together quickly and easily. However, Matter 1.0 was only released in October 2022, so there aren't many devices currently available that support Matter. But, with Apple, Amazon and Google all backing this new standard, it shouldn't be long before Matter emerges as the central technology at the heart of the modern smart home.



MATTER AND THREAD



Matter is a communications protocol enabling a variety of smart home devices to talk to each other. At the moment, Apple uses HomeKit as its communication standard for smart devices, while Amazon's Alexa and Google Home use their own technologies. Having to support three different technologies makes life very difficult for the manufacturers of smart devices - which is one reason why so few manufacturers support HomeKit. So, in the future, Matter will provide one single communications technology that allows all sorts of smart devices to work with Siri and the Home app on Apple devices, but also with millions of other devices that use Amazon Alexa or Google Home.

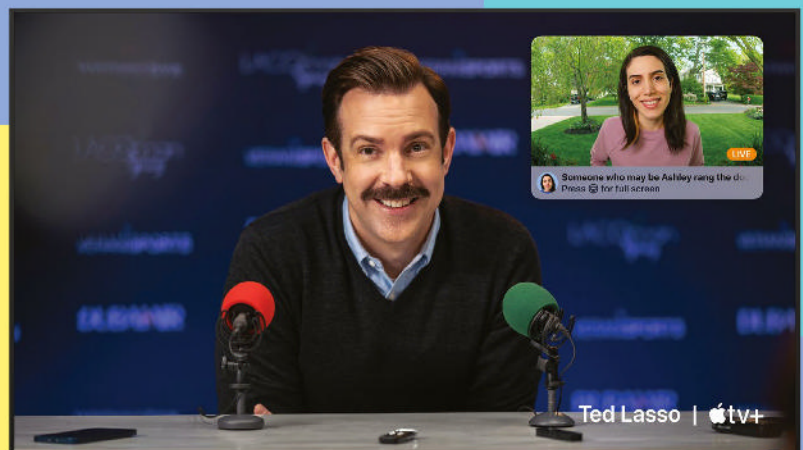
Matter commands can be transmitted from one device to another using conventional Wi-Fi networks, Ethernet, or Bluetooth. There's a problem here, though, as using Ethernet requires fixed, wired connections, which may not be convenient in many homes. Using Wi-Fi is more convenient and ideal for portable devices too, but does require quite a lot of power - and that causes problems for battery-powered devices, such as security cameras or sensors that need to be connected to your Wi-Fi network 24 hours a day for

months at a time. Bluetooth is more power-efficient, but has a more limited range, so it's not ideal for connecting several devices that may be scattered throughout different rooms within your home.

FOLLOW THE THREAD

The solution to that problem is Thread - a new wireless technology that has the low power requirements of Bluetooth, combined with the greater speed and range of Wi-Fi. The first Apple product to support Thread was the HomePod mini, which was launched back in 2020, with Thread quietly being included as preparation for the arrival of Matter - finally launched in October 2022.

A number of other manufacturers have been including Thread in their lights, security cameras and other devices over the last couple of years, although it remains to be seen if these devices can be upgraded to support Matter as well. Apple's website states that the Home app on Apple devices has now been upgraded to support Matter as well as HomeKit. The new Apple TV 4K that was launched in October last year - following the October release of Matter - was the first Apple product that supports both Matter and Thread straight out of the box, ready for the next stage in the evolution of smart home technology.



Launched last October, the latest Apple TV 4K supports both Matter and Thread.

Setting up devices in the Home app

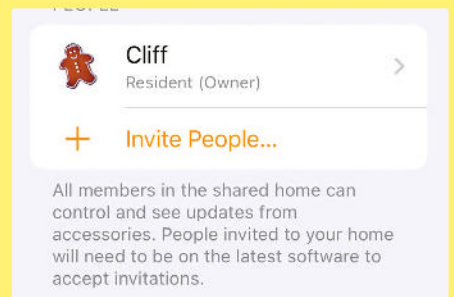
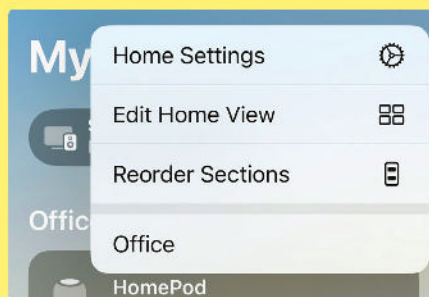
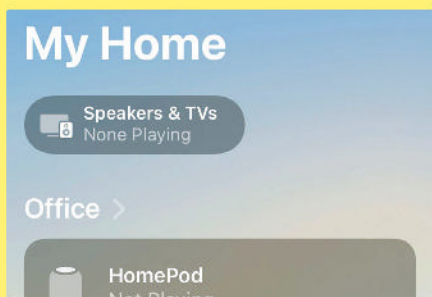


The HomeKit software is built into macOS, iOS, iPadOS and even tvOS on the Apple TV. However, you control your HomeKit-compatible lights

and other devices using the Home app, which is primarily focused on iPhone and iPad. There are versions of the app on Mac and Apple TV as well, but these don't allow you to add new HomeKit devices.

Of course, any device set up in the Home app can also be controlled using Siri voice commands – such as “turn on the kitchen light” or “lower the volume” on some music playing on a speaker.

HOW TO Get started with Home >



1 Welcome Home

The Home app automatically creates My Home as the default location for all the devices. It can detect the HomePod, and it even knows that the HomePod is in the office, so it adds Office as a new room within My Home.

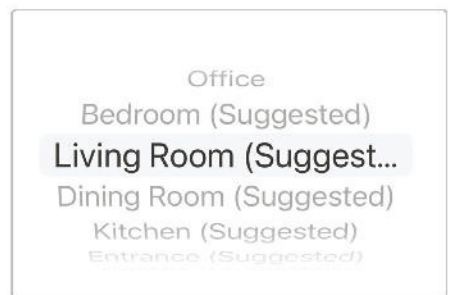
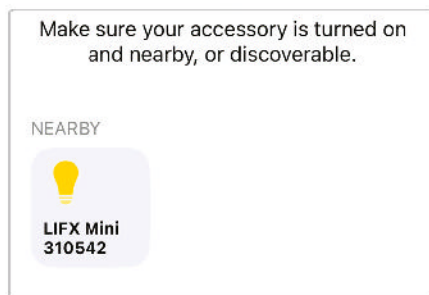
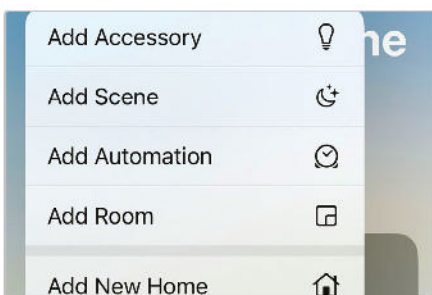
2 Home settings

Let's get everything set up before we add any new HomeKit devices. Click the menu button (three dots in the top-right corner) and select Home Settings. You can also edit the layout of the Home screen if desired.

3 Add people

My Home is a bit dull, so let's use Home Settings to add a more interesting name. The app recognises you as the Owner of this home, but the Invite People command lets you share control of your HomeKit devices.

HOW TO Add devices and rooms >



1 Home and away

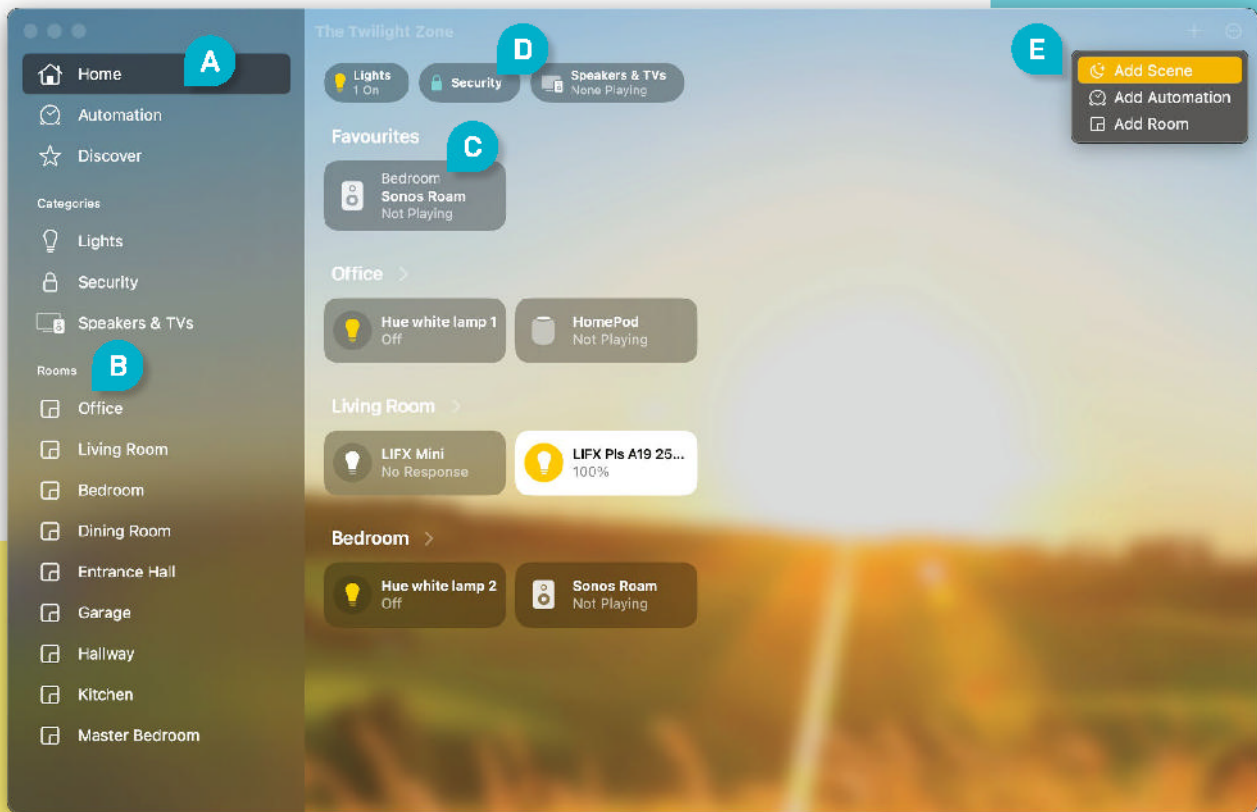
Click '+' to open the Add menu, where you can add new devices, which Apple calls 'accessories'. You can also set up new rooms, and even an entirely new Home for devices in another location, such as your place of work.

2 Instant setup

This is where HomeKit gets really clever. The LIFX Mini bulb supports HomeKit, so rather than having to use the separate LIFX app, the Home app on an iPhone automatically detects it. Just tap the light to add it.

3 Add rooms

There's only one room set up at the moment – the Office for a HomePod – but the Home app asks where you want to use any new accessories. Select Living Room and this is added on the app's main screen.



A
HOME ON MAC
 > The Home app has been redesigned for Ventura. You can only add new devices on an iPhone or iPad, although Macs can control devices once added.

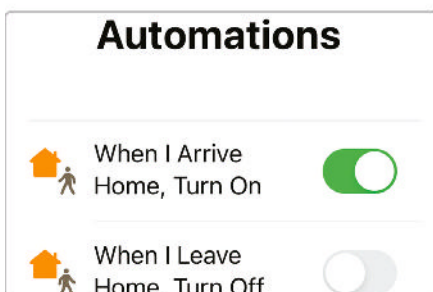
B
ROOM BY ROOM
 > Macs and iPads have a sidebar that lists all the rooms in your home, along with the main categories of devices. You can click or tap to view more details.

C
FAVOURITES
 > Devices within the Home app are normally organised by room, but you can also set some devices to be Favourites, shown at the top for easy access.

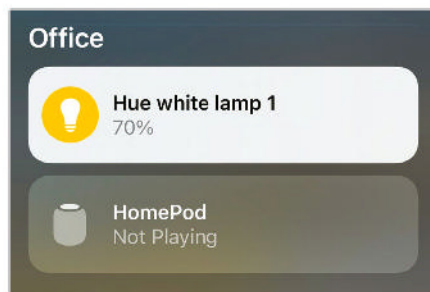
D
KEY CATEGORIES
 > The latest version of the Home app also shows key categories of devices. This makes it easier to control groups of devices at the same time.

E
MAKING A SCENE
 > With the Mac Home app, you can add rooms to a home and also create automations or scenes that enable you to control several devices together.

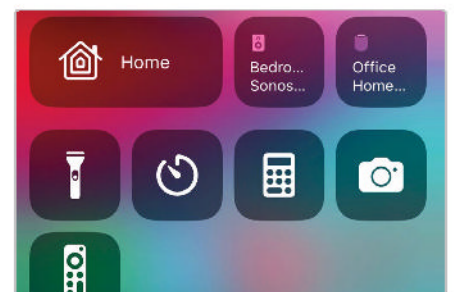
HOW TO Personalise the controls >



1 Add automations
 The Home app will also ask if you want to use 'automations'. These are commands that automatically respond to certain conditions - such as using Location Services on an iPhone to turn the LIFX light on when you arrive home.




2 Device controls
 You can now see all the rooms that are set up within this home. You can turn devices on or off by tapping their icons, but tap-and-hold will display additional controls, such as brightness levels for lights, or volume on a speaker.



3 Control Centre
 The Home app also appears within Control Centre, providing quick controls right from your Lock Screen. There's one button to launch the Home app itself, but Control Centre can also learn which devices you use the most.

Controlling your devices

How to take full control of your smart home

 **o far we've followed the process of adding devices to the Home app, and assigning them to specific rooms within your home.** But, of course, you also need to be able to control how all your devices work. Different types of devices will provide their own specific controls - such as brightness or colour controls for lights, or temperature and timer controls for a thermostat.

The Home app provides controls for all your HomeKit devices and it's a great time-saver, as it means that you don't have to use several separate apps from a range of different manufacturers. You can change the brightness - and even the colour - of your office lights, adjust the volume on your HomePod, and turn off the heating all from within the Home app. And, of course, for even greater convenience you can use Siri voice

commands to control these devices without having to lift a finger.

IN THE ZONE

But controlling individual devices is just the start of what HomeKit can do, and the real strength is that it also allows lots of different devices to work together all at the same time. The Home app actually provides several options for controlling multiple devices together. We've already seen that the Home app lets you assign devices to particular rooms, but it's also possible to create 'zones' that include a number of different rooms. This way you can quickly activate a set of security cameras in the 'outside' zone, or turn off all the lights in the 'downstairs' zone when you go to bed at night.

The latest version of the Home app in Ventura and iOS or iPadOS 16 also groups similar devices together, such as lights,



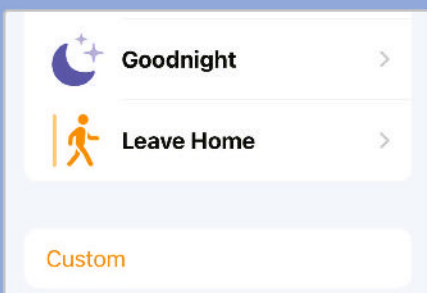
Quick tip

> There are clear menu options within the Home app for adding scenes and automations, but the Zones option is oddly hidden out of sight. To add a room to a zone, select the room and then tap the '...' in the top-right corner. Select Room Settings and you'll see a text box labelled Zone, where you can enter the name of the new zone.

You can add several rooms to each zone, such as 'upstairs' and 'downstairs' zones in your home. These zones aren't clearly visible in the Home app, but Siri knows where they are, so you can quickly use voice commands such as "turn off all the downstairs lights".

speakers or security devices. This is useful for getting a quick overview of a particular set of devices, such as a security system that includes several cameras and motion sensors that may

HOW TO Add devices and rooms >



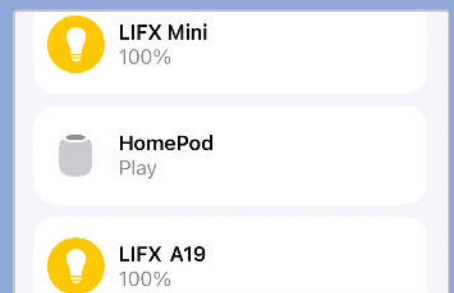
1 Make a scene

Press the '+' button in the top-right corner of the Home app and select Add Scene. There are some simple Scenes already built into the app to help you get started, but you can create your own custom scenes too.



2 Party time

Let's move a few devices into the living room and create a new scene called 'Party'. You can select any device to be part of this scene, but we'll start with a couple of LIFX multicolour lights and the HomePod for some music.



3 Lights, action!

Here's the scene with the LIFX lights set to the brightness and colour settings needed, and a playlist lined up for the HomePod. You can also quickly check that your new scene works properly by selecting Test This Scene.

be spread across different rooms or locations within a home or other building.

SET THE SCENE

The real power of HomeKit lies in the ability to create 'scenes' and 'automations', which provide more precise control over groups of devices in your smart home. Scenes are relatively simple, as they primarily focus on turning devices on or off.

The Home app has a number of scenes already built into it, including Good Night which quickly turns devices off, such as your lights and the heating thermostat. There's also Leave Home, which can use Location Services on your iPhone to recognise when you leave the building, and can then turn lights off or perhaps activate a security camera.

You can also create your own scenes, such as a Party scene that changes the lighting and even lines up a music playlist as well. However, this is still a straightforward matter of simply turning devices on or off at the same time. Automations are a bit more complex, as they allow your devices to react to specific triggers or conditions - perhaps turning a security camera on at midnight, or turning on a light if the

security camera detects motion when everyone is away from home. This extra level of complexity can be a bit daunting - especially as automations were poorly explained in earlier versions of Home - but the app now suggests one of its presets whenever

you add a new device to help you get started. Scenes and automations also work well with Siri, as you can control groups of devices with simple voice commands: just saying "Hey, Siri - Party!" will start your playlist and get the disco lights flashing.

Your home hub

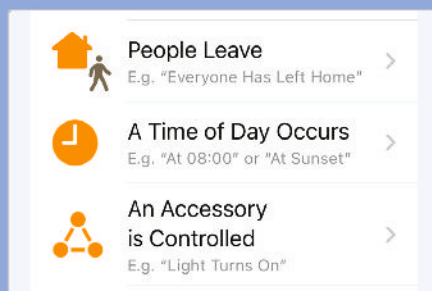
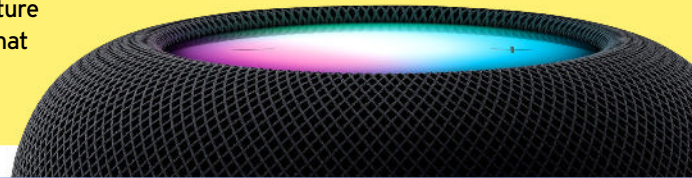
► **There's one other thing to remember about using HomeKit and the Home app.** In order to use all the features of the Home app - including automations, and remote control of your devices when you're away from home - you also need a home hub that acts as a central control point for all your smart devices.

At the moment, you can use an iPad, HomePod or HomePod mini, or Apple TV box as your home hub. You don't have to do anything to set up your hub, as the Home app does everything automatically, as soon as it detects a suitable Apple device. However, Apple has said that it plans to phase out the iPad option with a future upgrade to the Home app. That

To make the most of the Home app, you need a central control point.

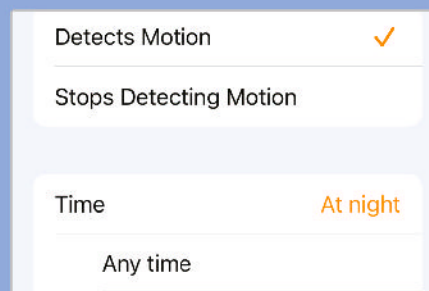
may disappoint some users who are currently using an iPad as their home hub, but it does make sense.

Apart from anything else, your home hub needs to stay at home in order to control all your smart devices and, with Apple increasingly pitching the iPad as an alternative to a conventional laptop, you can't rely on always having your iPad at home anyway. Remember too, that the HomePod (2nd gen) and Apple TV 4K (with Ethernet), as well as the HomePod mini, support Thread wireless technology, which will be needed to control a new generation of smart devices that support Matter and Thread.



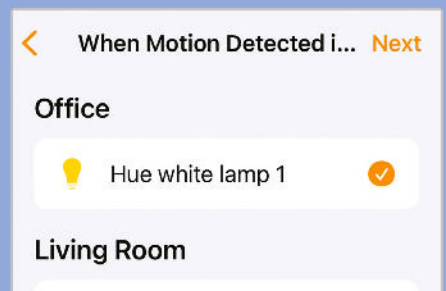
4 Set a trigger

Tapping the '+' menu lets you add automations too. Automations are more complex commands triggered by specific events, such as the time of day, people leaving home, or a security camera that detects motion.



5 On camera

We'll select the Aqara security camera that is set up in a hallway, and set this automation to respond when the camera detects motion. The automation can also be set to work at certain times, or when you're not home.



6 Music and motion

If the camera detects any movement at night, when away, the automation will go crazy and turn on all lights, and even start playing some music on the HomePod. And, of course, the camera sends a notification too.

Hidden HomeKit

HomeKit has some powerful features - here's how to find and make the most of them



The developers of the **Controller For HomeKit app (see right) introduce it by saying: "HomeKit can do**

more than Apple's Home app is showing you". They're right about that, as there are several features of HomeKit that aren't easily found within the app.

For instance, we've looked at how the Home app enables you to use scenes and automations to control your smart devices, but you also have the ability to use automations within the more powerful Shortcuts app. When you're creating a new automation, there's a Convert To Shortcut button - easily missed at the bottom of the screen - that adds the automation to the Shortcuts app on iPhone or iPad (but not the Mac version). This provides more advanced control, such as the ability to use the Wait command so that a device, such

as a security camera, can wait for a specified time before triggering another device - perhaps turning on the lights or heating when you return home.

Security cameras, in particular, can benefit from the hidden features within HomeKit. Most security cameras will automatically stream live video to your Apple devices if they detect any unusual movement, but you generally have to pay for an additional monthly subscription if you need online storage in order to record and store video.

ICLOUD MEETS HOMEKIT

If you have an iCloud+ subscription, then you also get a feature called HomeKit Secure Video, which lets you store video recordings from your cameras online as part of your monthly subscription. The iCloud+ subscriptions start at just 79p per month with 50GB of storage for

your online iCloud Drive. This lets you store recordings from a single camera, while other iCloud+ plans support multiple cameras.

However, camera recordings don't count towards that storage allowance, so you can store recordings online and still have that 50GB of storage available for other files. That makes iCloud+ an affordable option for storing camera recordings online - far cheaper than the subscriptions offered by most manufacturers of security cameras. HomeKit Secure Video also includes other security features too, such as the ability to use face recognition, or to tell the camera to only focus on specific 'activity zones', perhaps around a doorway or parking space.



HOMEKIT ROUTERS

How to provide additional security for your smart devices



Routers are rarely mentioned when discussing the various types of devices that support HomeKit - and

that's probably because there are hardly any HomeKit routers available. In fact, Apple's list of HomeKit-compatible devices lists just a single router - the Linksys Velop AX4200. It supports Wi-Fi 6 and you can either buy it on its own (£259.95 from the Apple Store) and use it like a conventional router, or as part of a wider mesh networking system for larger homes (from £419.95).

The advantage of using a HomeKit router is that it can provide additional security to keep your home network safe from outside intruders and hacking attacks. Every smart device that is

connected to your home Wi-Fi network is a potential point of weakness that could allow a hacker to gain access to your home network. However, a HomeKit router can provide additional protection - but only for other HomeKit devices, such as lights and security cameras, that are set up within the Home app.

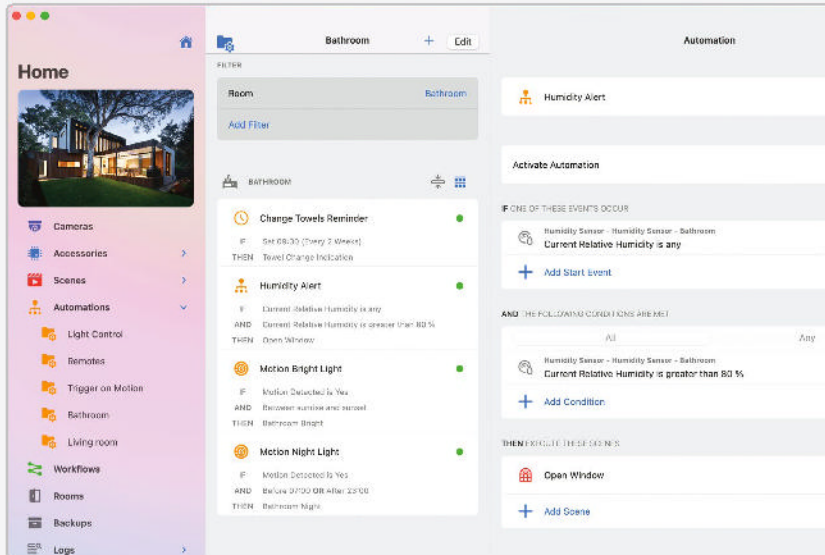
The router settings within the Home app enable you to apply 'restricted' status to any of your other HomeKit devices, ensuring that they only accept commands from the Home app on your Apple devices, and are also blocked from going beyond your home network and connecting to the wider internet. Some devices do sometimes need to connect to the internet for software or firmware updates, so there's also an

The Linksys Velop AX4200 is currently the only HomeKit-compatible router on the market.

'auto' security setting that allows limited connections to the internet, or you can simply opt for 'no restriction', which turns off all HomeKit security features. However, you can apply these settings to each of your devices individually.

BEYOND HOMEKIT

Going where the Home app fears to tread



Controller For HomeKit provides an alternative to Apple's Home app for creating automations and controlling your devices.



Apple's Shortcuts app is a pretty daunting prospect for non-programmers, but there

are other options for people who want to delve deeper into HomeKit. Controller For HomeKit is a popular app for Mac, iPhone and iPad, and the free version provides a more straightforward interface for creating automations and scenes.

There's also a Pro version with advanced features, such as the ability to respond to notifications from the Home app, which costs £24.99 per year (with one week free trial) or £54.99 for a lifetime licence.

Another user-friendly option for going beyond the Home app is Home+, which costs £12.99 from Matthias Hochgatterer. This again provides a more streamlined interface that helps you to create automations, along with a wider range of predefined automation controls than the Home app.

However, the main limitation of HomeKit is that it's supported by so few smart devices. If you've bought some of the popular Nest range of security cameras and other devices,

then you could try the Starling Home Hub (from starlinghome.io). For \$99 (around £80 plus shipping), this little device connects to your Wi-Fi router and acts as a bridge between your Nest devices and the Home app on your devices.

And if you're feeling really ambitious, there's an open-source project called Homebridge that is designed to work with a wide range of smart devices that don't normally support HomeKit. Like any open-source software, Homebridge tends to be fairly complex to use – and, like HomeKit, it requires a device that can act like a home hub, that must always be left on in order to run the software and control all your devices.

Homebridge can be installed on Macs, Windows PCs, Linux, and even on the Raspberry Pi too. Once that's done, you then need to locate and install a plug-in for the specific smart devices that you want to control (more info at homebridge.io). Setting up a Raspberry Pi with Homebridge could be a great educational project for those who are learning programming.

Troubleshooting tips

What to do if HomeKit devices do not appear to work as expected

1 Log in to your Apple ID

The Home app links to your Apple ID, so make sure that all your Apple devices are logged in to the same Apple ID in order to control your smart devices.

2 Check home hub

Some features of the Home app, such as using automations, require an iPad, HomePod or Apple TV to act as a 'home hub'. It's easy to sometimes forget and turn off your HomePod, so always check your home hub if devices aren't responding properly.

3 Try out the manufacturer's app

If you're having trouble adding a device to the Home app, check to see if it works properly using the manufacturer's own app first. The app may also have instructions for adding that device to the Home app.

4 Turn on Bluetooth


Most smart devices use Wi-Fi to connect to your home network. However, some devices also use Bluetooth during the initial set-up process, so turn on Bluetooth on your Apple device while setting up your smart devices.

5 Check your Wi-Fi settings

Some smart devices can only connect to Wi-Fi networks on the 2.4GHz band, so make sure that your Apple device and your third-party smart devices are using the same Wi-Fi frequency (you can switch bands again later).

Smart home products

Some of the best HomeKit gear for making life easier

 **HomeKit may still be trailing behind Amazon Alexa and the Google Assistant in the home-automation market, but there are still enough HomeKit-compatible devices available to create a pretty impressive smart home setup.**

The three top product categories in the smart home market are speakers, lights and security cameras. Apple does have a list of HomeKit-compatible devices on its website (apple.co/3WeNNrX). The list includes lots of other devices such as thermostats, controls for fans and

air conditioning systems, smart locks for your front door, and even remote controls for garage doors. However, many of these more complex devices require professional installation - the last thing you want to do in the winter is screw up your heating by trying to wire up a HomeKit thermostat by yourself!

AIRPLAY & HOMEKIT

That brings us back to the big three smart home items - speakers, lights and security cameras. The good news for audiophiles is that Apple's AirPlay

software - which was originally designed for multi-room speaker systems - is compatible with HomeKit and the Home app. This means that any AirPlay speaker can be controlled using the Home app, Siri, or Control Centre on any of your Apple devices. You can even mix and match speakers from different manufacturers, perhaps playing the same music on a Sonos Roam portable speaker in your garden, and also on a HomePod in the kitchen.

And, while HomeKit has struggled to attract support from other manufacturers, AirPlay has been adopted by many big-name audio brands, such as Sonos, Bowers & Wilkins, and Bang & Olufsen. Even Ikea has got in on the act with its somewhat bizarre Symfonisk speaker/lamp hybrid. The one disappointment here is that Apple doesn't allow these manufacturers to include Siri in their smart speakers, so the only smart speaker that currently supports Siri are Apple's HomePod and HomePod mini.

Lights, action!

Build a smart lighting system with these HomeKit bulbs

> **As we've mentioned, Philips has dozens of different lights in its Hue range.** But, if you want to use your Hue lights with HomeKit and the Home app, then it's best to start with one of the Hue Starter Kits. There are several Starter Kit options, costing as little as £69.99 for a basic kit with two plain white bulbs, going up to £169.99 with three colour-changing bulbs. However, all the Starter Kits also include the Hue Bridge, a small box that connects to your home Wi-Fi router with an Ethernet cable.

The Hue lights will work on their own, but it's the Hue Bridge that provides HomeKit compatibility, so you need the Bridge in order to use your Hue lights with HomeKit and the Home App (and make sure you get the square second-gen Bridge, and not the circular first-gen version as that's not compatible with HomeKit). Once you've got the Hue Bridge connected to your router, you can then expand your lighting system with any

When it comes to HomeKit-friendly lighting, the Philips Hue range really does have a lot of bases covered.

of the other Hue lights that you want to buy, including ceiling-mounted lights, floodlights for outdoor use, and even the colourful Festavia Christmas lights. Philips has also announced that it plans to provide a software update for the Hue Bridge that will allow it to support Matter in the coming months.

One other thing to watch out for is that some of the Hue lights utilise Bluetooth, rather than using Wi-Fi to connect to your home network and the Hue Bridge. Bluetooth lights can be controlled individually using the Hue app, but they're not compatible with HomeKit, so be aware that you won't be able to control them with your other lights and smart devices within the Home app.

LIGHT UP YOUR HOME

There aren't a huge number of smart lights that support HomeKit, but the key player that dominates this market is Philips with its Hue range of smart lights. Philips was one of the first companies to support HomeKit in its products, and the Hue range has been very successful, spawning a wide range of lights, bulbs and lamps for use in different rooms



Image credits: Signify Holding, Bowers & Wilkins

HOMEKIT SECURITY

A smart security camera is a good investment for any home



We're all concerned about the security of our homes, so it's hardly surprising that security cameras are one of the most popular categories of smart devices. But while there are dozens of security cameras available that provide apps for iOS and Android, there's a very limited selection that also support HomeKit and the Home app.

HomeKit cameras tend to be quite expensive, but Aqara is a new company that makes some very affordable security cameras, such as its G2H Pro, which costs just £74.95. The camera can also act as a control hub for other Aqara security sensors, making it a good way of setting up an affordable security system for your home.

One of the few security cameras that is totally focused on HomeKit is Logitech's Circle View, which can only be controlled through the Home app on Apple devices. Priced at £159.99, the Circle View is a 1080p camera with wide-angle lens and a sturdy metal casing that is suitable for indoor or outdoor use. The Circle View doesn't have a battery, though, relying on a 10ft long USB cable for its power supply instead, which means that it's not as portable as some of its rivals. (Logitech also introduced a Circle View Doorbell recently, costing \$200, although this isn't available outside the US at the moment.)

If you're looking for a dedicated outside option, then you could consider Netatmo's Smart Outdoor Camera, a sturdy floodlight camera that is ideal for

Netatmo make a range of HomeKit-compatible smart home devices.



Logitech's Circle View offers a 1080p camera with a wide-angle lens and sturdy casing.

monitoring gardens, parking spaces and other outdoor locations. The basic camera costs £239.99 or there's a model with a built-in siren for £289.99. Netatmo also makes an indoor HomeKit security camera, along with a range of motion sensors, smoke alarms and even thermostats too.

One of the biggest names in security cameras is Arlo, which makes an extensive (and expensive) range of security cameras. However, it's only the more expensive models that support HomeKit, such as the Arlo Ultra 2 with 4K resolution for £629.99 (for two cameras). And, like many security cameras, the Arlo range requires an additional subscription if you want to secure online storage for your video recordings. However, this is one area where HomeKit can come to the rescue, with useful, money-saving features such as HomeKit Secure Video, which is available as part of Apple's iCloud+ subscriptions (see p66).



Any AirPlay speaker, such as the Bowers & Wilkins Zeppelin, can be controlled using the Home app, Siri, or the Control Centre on your Apple devices.

around your home, and even outdoor lights for your garden or parking space.

If you want to use Hue products with HomeKit and the Home app, then you also need to buy a Hue Bridge - either on its own or as part of a Hue Starter Kit (see left). There are a couple of other companies that make HomeKit-compatible lights that are also well worth exploring. LIFX makes a range of lightbulbs, starting with simple, affordable white bulbs through to multicolour options, as well as decorative lightstrips and even lighting kits for gamers (available from lifx.com, although they're not all HomeKit-compatible, so make sure to check that before buying).

Nanoleaf also makes simple bulbs, but it's best known for eye-catching, multicolour modular lighting systems (nanoleaf.me). Rather than using bulbs, its lighting kits have names such as Lines, Hexagon and Canvas, and consist of illuminated panels of various shapes that you can link together to create decorative lighting designs that are almost like sculptures - or, of course, just disco lights for a party.

The future is looking even brighter too as there are other companies, such as Wiz (wizconnected.com), that have announced plans to support the new Matter technology with their smart lights and other products. Matter will be compatible with HomeKit, so that should mean that there are more speakers, lights, security cameras and other devices available for Apple-loving homes than ever before.

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MANAGE YOUR MONEY

ON MAC, iPHONE & IPAD

These apps enable you to keep track of your finances in multiple accounts

Reviewed by KENNY HEMPHILL

Budgeting and looking after your finances has never been much fun. But the advent of open banking a few years ago, along with advances in artificial intelligence have at least made it easier and less of a chore. There really is very little excuse now for not keeping tabs on how much you spend, where you spend it and when, no matter which of your accounts it comes from.

The apps we've tested here take advantage of open banking, which allows them to access data held by your bank about your spending, so you can see everything in one place. Many

of them also help you budget by suggesting ways you could spend less. For example, by finding a better deal for broadband than you currently have. And they'll suggest ways to save, such as rounding up spending to the nearest £1 and putting the difference in a savings pot.

While lots of banks now have their own apps which allow you to do similar things, the apps here have the benefit that they work with most bank accounts and so, if you have accounts with multiple providers, you can see all your incomings and outgoings in one place.

How we tested

> For each app, we looked at how friendly it was to use and how helpful it was in terms of making suggestions about saving money. We also checked which bank accounts each app supported, whether they had apps for iPhone, iPad and Mac, and how easy it was to do things like split bills, round up spending into savings pots, and manage direct debits and standing orders. We evaluated how easy or otherwise it was to navigate each app and complete the tasks we needed to carry out most often.

GROUP TEST Budgeting apps

Things to consider...

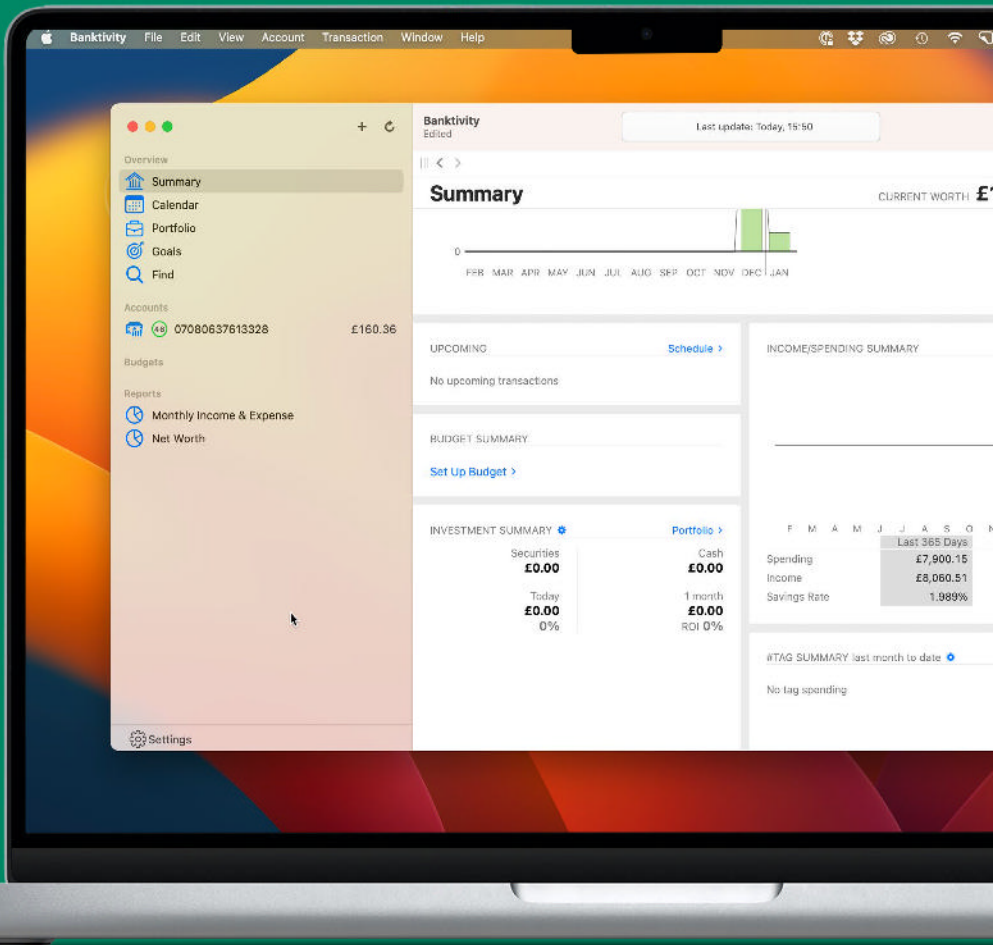
1 Bank account link
Clearly this is essential if you want an overview of your spending. Few of us want to change bank account just to use a money management app, no matter how good it is.

2 Open banking
Approved providers are regulated by the Financial Conduct Authority. If you're considering an app, you can check at openbanking.org.uk.

3 Additional benefits
Some providers have linked savings accounts that pay interest. If it's a better rate of interest than your bank, it's worth considering, though you may have to pay extra for it.

4 Can it save you money?
Some apps look for discount codes and vouchers for places you shop regularly. Others will work out what you spend on utility bills and suggest a switch.

1



Banktivity

► Bronze £48.99/year; Silver £68.99/year; Gold £97.99/year
► FROM banktivity.com ► NEEDS iOS 13.5/macOS 10.15 or later

1 Banktivity is the successor to iBank, a popular finance management tool for the Mac. It's aimed at those of us who don't want any of the features of the smart banking apps and just need a tool that to help with budgeting.

You can connect to your bank to download balances and transactions, and if you do it regularly, Banktivity will learn how you name and categorise transactions and do it for you. You can group accounts in ways that are meaningful; for example, one group for regular bank accounts, another for savings

accounts, and another for credit cards and loans.

If you use it to budget, you can tell it how much you want to spend in a given month, and then generate reports to track your progress. Generating reports is a key strength of Banktivity, allowing you to view your incomings and outgoings in just about every way you could imagine.

VERDICT

- ➕ Detailed reports
 - ➕ Mac app
 - ➖ Expensive
 - ➖ Takes a while to set up
- ★★★★★

Emma

► Free; Emma Plus £4.99/month; Emma Pro £9.99/month; Emma Ultimate £14.99/month ► FROM emma-app.com ► NEEDS iOS 11

2 Emma enables you to keep track of multiple bank accounts in one place. There's an iOS app, though no Mac app and no option to log in via a web browser. The free version enables you to track subscriptions, set budgets and view weekly spending reports. You can also get daily balance notifications and overdraft alerts, pay friends and transfer money between accounts.

Paid for features include seeing the 'true balance' of your account after monthly subscriptions and other regular payments have been deducted, and the

opportunity to earn cashback from selected retailers in the Plus version. The Plus version also offers fraud detection and more frequent syncing with your bank. The Pro version gives you ability to rename transactions and create offline accounts, and the Ultimate version allows you to add business accounts and to create 'Spaces' of grouped accounts.

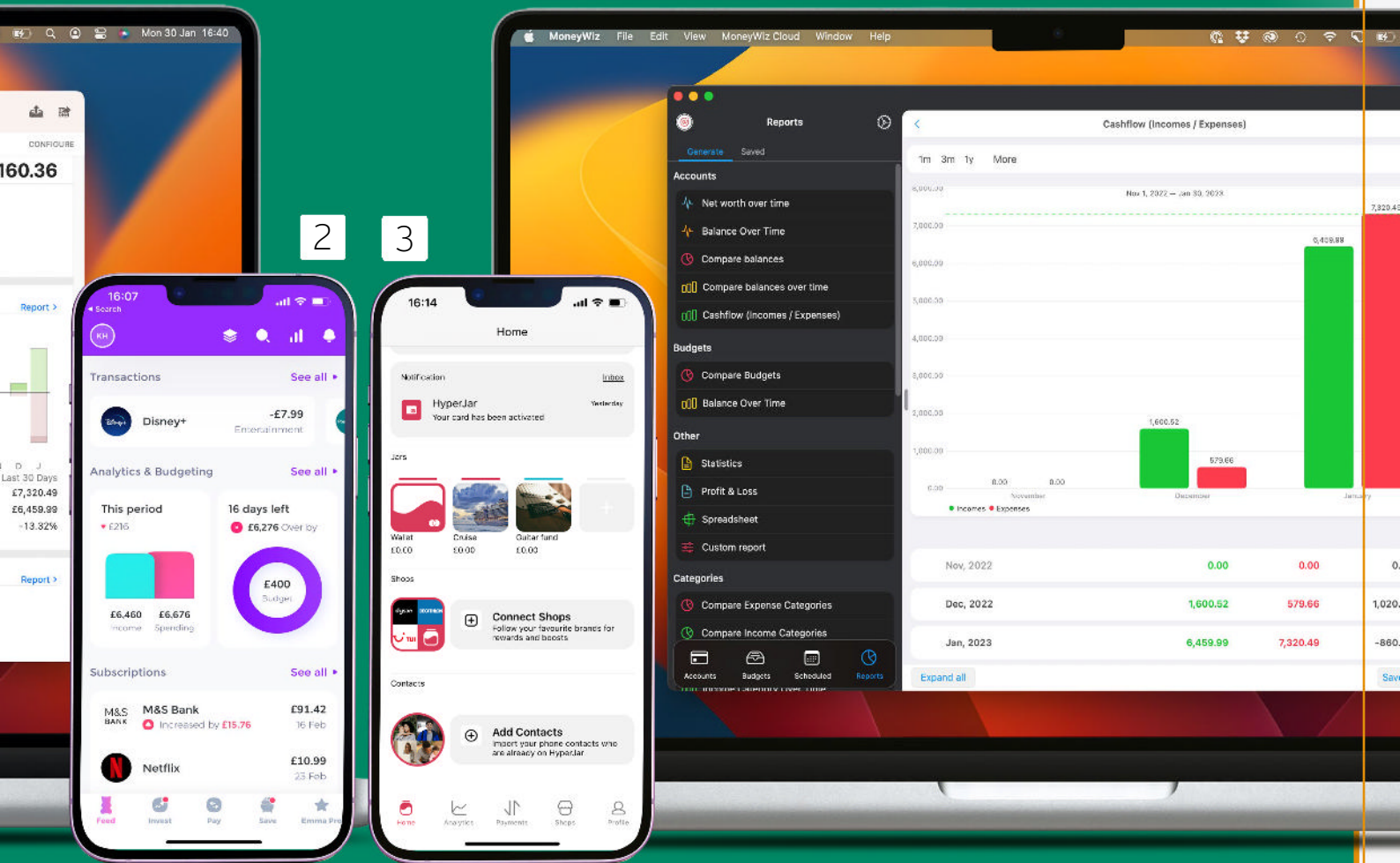
VERDICT

- ➕ Easy finance tracking
 - ➕ True balances
 - ➖ Expensive
 - ➖ iOS only
- ★★★★★

4

2

3



HyperJar

> Free > FROM hyperjar.com
> NEEDS iOS 13 or later

3 HyperJar is different to the other apps here, because of the way it splits your money into 'jars'. You get a pre-paid debit card that you load money onto. Once you've done that, you can split the money into the 'jars', which can be used for saving or spending, and they can be shared. So, for example, you could have one jar that acts as a shared account with a partner, and another you can put joint spending money into for a holiday with friends.

Kids get their own app and card and parents can add money to it, monitor spending, block specific

shops or services and set spending limits.

The main app offers rewards and discounts from some stores and lets you schedule payments into jars. You can link shops to jars so when you spend in a shop the funds are taken from that jar, and you can set limits to block certain shops or specify which shops' spending can be taken from a specific jar.

VERDICT

- ➕ Easy to manage spending
 - ➕ Discount offers
 - ➖ Doesn't connect to banks
 - ➖ Need to use HyperJar card
- ★★★★★

MoneyWiz 2023 Finance Tracker

> Free; Standard £19.99/year; Premium £48.99/year
> FROM wiz.money > NEEDS iOS 13.4/macOS 10.15.4 or later

4 The MoneyWiz app can connect to your bank accounts and, thanks to the fact it uses third-party providers to access your bank, it offers coverage of 40,000 banks in 55 countries. Or you can choose not to connect your bank account and track income and expenditure manually.

The free tier enables you to carry out basic tasks, but if you want to sync with multiple devices, you'll need a Standard subscription. To sync with your bank accounts regularly, you'll need the Premium version.

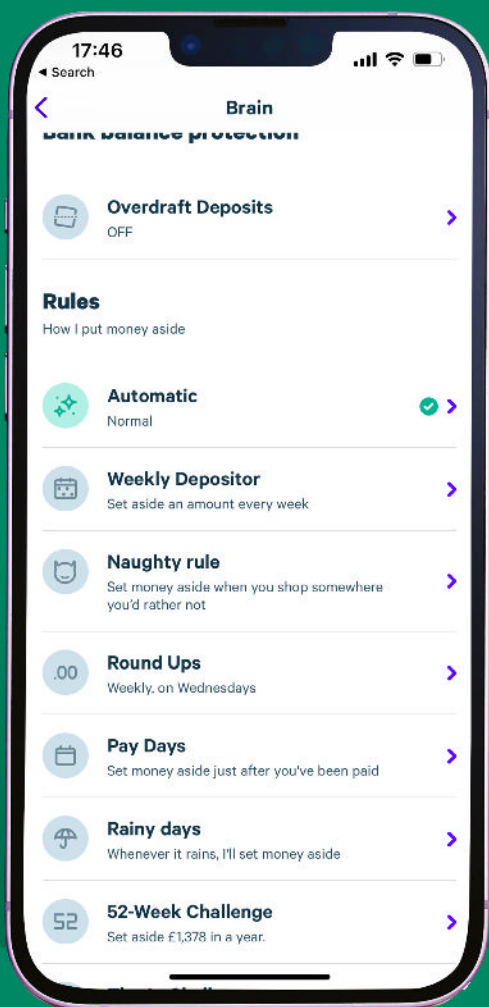
As well as tracking your spending in a bank account, MoneyWiz can keep tabs on credit cards, investments, loans, and cryptocurrency.

There are over 30 types of reports you can generate, and save as CSV or PDF. Despite this, MoneyWiz's interface is clean and easy to use.

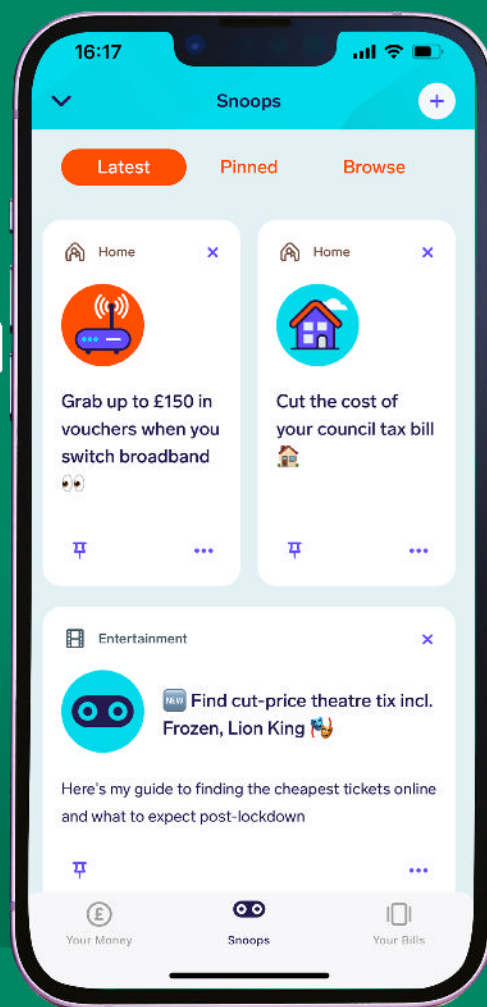
VERDICT

- ➕ Mac, iPhone and iPad apps
 - ➕ Lots of reports
 - ➖ Lacks savings suggestions
 - ➖ Premium version needed to regularly sync with banks
- ★★★★★

GROUP TEST Budgeting apps



5



6

Plum

► Free; Pro £2.99/month; Ultra £4.99; Premium £9.99/month
 ► FROM withplum.com ► NEEDS iOS 14.1 or later

5 Plum is designed to help you save as much as possible. Like HyperJar, it comes with a pre-paid debit card, although in this case, it's optional. And like the other smart banking apps here, it enables you to connect your existing bank accounts. There's a linked savings account that pays interest of up to 2.45%, though you'll need to pay for a subscription to access that rate.

Plum's attraction is in the way it allows you to set rules for saving money and then analyses your income and expenditure to determine how much to put into savings and

when. It even turns saving into a game by setting challenges and, for example, by putting money into your savings whenever it rains. Plum splits spending into categories and suggests ways you can save. You can also use Plum to invest and manage a Self-Invested Personal Pension (SIPP), by transferring an existing pension into it.

VERDICT

- ➕ Savings account
 - ➕ Challenges
 - ➖ Limited bank support
 - ➖ No reporting tools
- ★★★★★

Snoop

► Free; Snoop Plus £31.99/year ► FROM snoopapp.com
 ► MADE FOR iOS 13.0 or later

6 While several apps here aim to help you save more, Snoop is designed to help you spend less. It tracks your spending in the accounts you link to it and analyses how much you spend and where you spend it. Snoop then suggests ways you could save money.

For example, if it notices you spend a significant sum in a specific store, it will suggest ways you could save money in that store. It will also look for price hikes in subscriptions and utility bills and make it easy to stop subscriptions you don't use or switch utility suppliers at the optimal time.

Snoop also keeps an eye on your insurance policies and checks annually to see if you could get a better deal. Plus, it works with other companies to offer deals on things like utilities and insurance.

The Plus version lets you to create custom categories so if your planning a wedding or a renovation project, you can track how much you spend on them.

VERDICT

- ➕ Switching deals
 - ➕ Custom categories
 - ➖ Nags to upgrade
 - ➖ Offers over-promoted
- ★★★★★



THE WINNER

MoneyWiz 2023 Finance Tracker

Mac, iPhone and iPad apps, a clean interface, and tons of reports make it our top pick

Choosing a winner among the apps here was difficult. The four 'smart' banking apps - Emma, HyperJar, Plum and Snoop - offer variations on the same features, while Banktivity and MoneyWiz give you something very different. Plum supports significantly

fewer banks than the others and so we felt we couldn't make it a winner. HyperJar is a great idea and for some people will work very well. Snoop has some good analysis features, but we found the way it urged us to upgrade or cut bills by switching provider to be a

little annoying. Banktivity has a long history on the Mac (thanks to its predecessor iBank), and has iPhone and iPad apps. But we found the set-up process laborious, while its interface is not as friendly as the others here. That left Emma and MoneyWiz. While Emma was

our favourite among the new breed of smart banking apps, at £14.99/month for Ultimate, it's pricey. MoneyWiz is a deserving winner. It has Mac, iPhone and iPad apps, had no trouble connecting to our bank and enables us to analyse our finances in a huge variety of ways.

>How do they compare?



> Specs	Banktivity	Emma	HyperJar	MoneyWiz	Plum	Snoop
Website	banktivity.com	emma-app.com	hyperjar.com	wiz.money	withplum.com	snoopapp.com
Base price	£48.99/year	Free	Free	Free	Free	Free
Cost for all features	£97.99/year	£14.99/month	N/A	£48.99/year	£9.99/month	£4.99/month or £31.99/year
Made for	Mac, iPhone, iPad	iPhone	iPhone	Mac, iPhone, iPad	iPhone	iPhone
Bank support	Good	Good	Only for adding funds to card	Good	Fewer banks than the others	Good
Ease of use	★★★★☆	★★★★☆	★★★★★	★★★★☆	★★★★☆	★★★★☆
Best feature	Reports	True balance	Savings jars	Reports	Savings account	Switching offers
Nice to have	Can group accounts	Cashback offers	Rewards and discounts	CSV export	Savings challenges	Custom categories
> Overall	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆

Note: The final verdict scores reflect the overall opinion of a product and are not necessarily an average of the criteria listed in the table.

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- > On test: iPad Pro, iPad, Apple TV 4K
- > iPhone photo masterclass
- > macOS Ventura tips and tricks

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APPLE CHOICE

EDITED BY **ROB MEAD-GREEN** >



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> A truly exceptional product. Award given solely at the discretion of the editor.



> The best example of its kind when pitted against comparable products.



> A brilliant thing



> Strongly recommended



> Worth considering



> Notable flaws



> A waste of your money



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MacBook Pro 16-inch (2023)

The world's best laptop is now even better - and how!

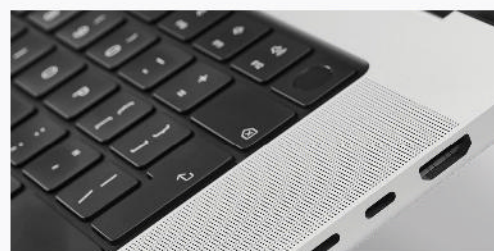
› From **£2,699** (model tested **£3,699**) › FROM apple.com/uk › FEATURES M2 Pro chip (12-core CPU, 19-core GPU), 512GB storage (2TB tested), 16GB of unified memory (32GB tested), 16.2-inch Liquid Retina XDR display (3456x 2234), MagSafe 3, 3x Thunderbolt 4 (USB-C) ports, 1x HDMI port, Wi-Fi 6E (802.11ax), Bluetooth 5.3

M2 Pro offers impressive performance without draining the battery

L launched alongside its 14-inch sibling in January, the MacBook Pro 16-inch doesn't so much reinvent what Apple's laptops can do as refines it, making it slicker and quicker than ever, while retaining all the things about the Apple silicon era we love - incredible performance and battery life, wrapped in a sophisticated and elegant portable package.

Before we explore the performance of the MacBook Pro 16-inch, let's look at the line-up in the round. As we've suggested, the 2023 MacBook Pro comes in two different sizes, but multiple configurations. Prices start at £2,149 for a MacBook Pro 14-inch with an Apple silicon M2 Pro (10-core CPU, 16-core GPU and 16-core Neural Engine), and also benefits from 16GB of unified memory, 512GB of solid-state storage, and topped off with a 14-inch Liquid Retina XDR display. Paying £2,699 gets you a step-up model with a 12-core CPU, 19-core GPU M2 Pro, plus 16GB of unified memory and a 512GB SSD. And £3,349 gets you a MacBook Pro 14-inch with an M2 Max chip (12-core CPU, 30-core GPU, 16-core Neural Engine), plus 32GB of unified memory and 1TB of storage.

The MacBook Pro 16-inch line-up is similar. The entry-level starts at £2,699 for a model equipped with a 12-core CPU, 19-core GPU M2 Pro, plus 16GB of unified memory and a 512GB SSD. Paying £200 more gets you an otherwise identical model equipped with a 1TB SSD, and the standard configurations top out at £3,749 for a MacBook Pro 16-inch equipped with a 12-core CPU, 38-core GPU, 16-core Neural Engine M2 Max, 32GB of unified memory and 1TB of solid-state storage.



The new MacBook Pro steers clear of the controversial Touch Bar in favour of a physical Function key row.

Like many Apple products, the MacBook Pro can be equipped with a range of build-to-order options, including both for memory and on-board storage. A fully specced out MacBook Pro 16-inch with a 12-core CPU, 38-core GPU M2 Max, 96GB of memory and 8TB of storage will cost you £6,749. The model on test here though is more modest, being equipped with a 12-core CPU, 19-core GPU M2 Pro, 32GB of unified memory and 2TB of storage, and costs a considerably less wallet-straining £3,699.

Design and build

Whichever MacBook Pro you choose you're in for a treat - both the 14-inch and 16-inch model takes all the things you love about the pre-Touch Bar-era Macs and polishes them to perfection. In the hand, these are gorgeous laptops to look at and to use with a generous helping of ports on their left- and right-hand sides, including 3x Thunderbolt/USB 4 ports, MagSafe 3, an HDMI port, 3.5mm headphone jack and an SDXC card slot, plus Bluetooth 5.3 and Wi-Fi 6E (802.11ax) wireless connectivity. The keyboard, with its full physical Function key row, is wonderfully tactile and easy to type on, while the generously sized Force Touch

trackpad almost looks too big, until you come to use it when its size becomes a virtue. The only thing that possibly counts against it is the MacBook Pro's weight and size - at

The MacBook Pro 16-inch has three Thunderbolt/USB 4 ports, plus an HDMI port, an SDXC card slot and MagSafe 3.



The 2023 MacBook Pro 16in looks identical to its 2021 predecessor, right down to its Force Touch trackpad and FaceTime HD camera notch.



1.68x35.57x 24.81cm and 2.15kg for the 16-inch M2 Pro model, and 2.16kg for the M2 Max, it's hefty to lug around. Think of it as a desktop replacement with occasional forays out on the road, though, and you won't go far wrong.

Note: we've not mentioned the remaining model in Apple's MacBook Pro line-up: the 13-inch. That's because, while it's still an accomplished machine, it feels more like a throwback to the last of the Intel-era models, with its Touch Bar and limited port selection. The 13-inch is also the only MacBook Pro to come with the standard M2 chip, rather than an M2 Pro or M2 Max, making it more akin to a MacBook Air on steroids than a true 'Pro' Mac.

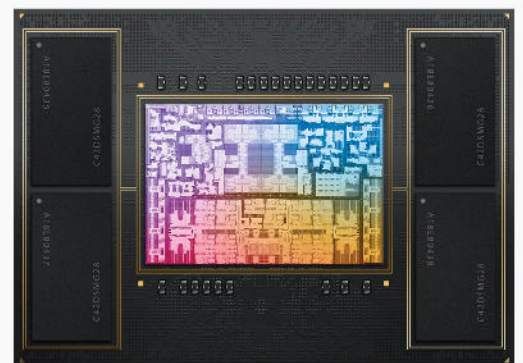
Before we move on to its performance, there are two other things to love about the 2023 MacBook Pro: its display and its battery life. The Liquid Retina XDR display on the 16-inch is truly incredible to look at and to use, with its mini-LED backlighting offering 1,600 nits of peak HDR brightness, plus a 1,000,000:1 contrast ratio. Throw in P3 wide colour gamut support and you have a display you want to drown yourself in - from photo editing to movie viewing, it looks superb. And you get that with a true all-day battery life of up to 22 hours - and that was certainly the case in our tests.

Performance

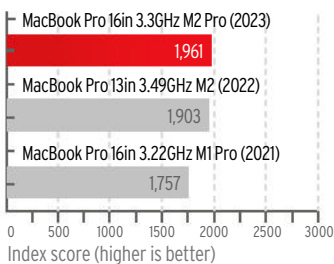
The arrival of Apple silicon in 2019 has been a true game changer for the Mac. No longer subject to the whims (and shortcomings) of Intel, Apple has been free to create custom chips for its computers that deliver not only in terms of pure power and performance, but also in efficiency - a MacBook Pro with an M2 Pro or Max runs just as quickly on battery as on mains power, and without sending you scurrying for the nearest power socket like Intel-era machines could.

Proof of those power and efficiency gains manifests itself in two ways. Firstly, the M2 Pro offers 30% faster graphics performance than the M1 Pro that preceded it, while also delivering twice the memory bandwidth (at 200GB/sec) of the standard M2 launched in 2022. And the M2 Max goes even further, also marking a 30% increase in GPU performance over the M1 Max and four times the memory bandwidth (400GB/sec). ➔

The M2 Pro chip offers 30% faster graphics performance than the M1 Pro chip and 2x the memory bandwidth of the standard M2.

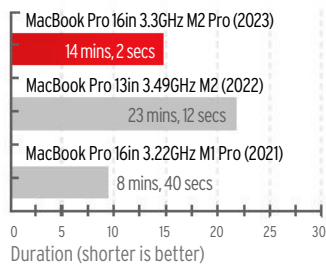


BENCHMARKS Our analysis explained >



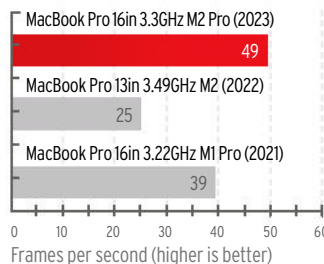
GEEKBENCH 5 SINGLE-CORE TEST

> This tests the capability of a single processor core. Many more common tasks on a Mac will only use a single core at a time. Geekbench 5 is a universal app running on Ventura.



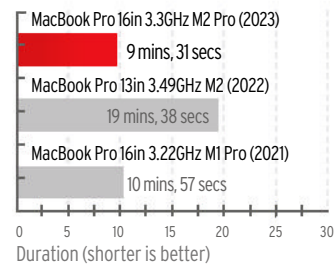
HANDBRAKE VIDEO ENCODING

> We transcode a Blu-ray-quality video file into H.264 format using HandBrake to test the multicore processor performance. Handbrake is available as a universal binary.



RISE OF THE TOMB RAIDER (1920X1280)

> For a real-world gaming test, we use the benchmarking tool in this game, with the graphics quality set to High and the resolution set to 1920x1280. Not yet optimised for M1.



DAVINCI RESOLVE

> In Blackmagic Design's editing tool for video professionals, we exported an effects-laden, 2.5-minute project to the H.264 format. The latest version of the app (Version 18) runs natively on M1 Macs.



23 mins 13 secs of the M2 MacBook Pro 13-inch (2022), although it was slower than the M1 Pro MacBook Pro (2021), which achieved the same result in 8 mins 40 seconds - a result of slower SSD speeds perhaps.

In DaVinci Resolve, we were able to render and export an effects-laden video in 9 mins 31 secs on the M2 Pro MacBook Pro, compared to 19 mins 38 secs on the M2 MacBook Pro 13-inch (2022) and 10 mins 57 secs on M1 Pro MacBook Pro 16-inch from 2021.

In Rise of the Tomb Raider too, the M2 Pro MacBook Pro was butter-smooth when running our benchmarks, peaking at 49fps, despite the game not being optimised for Apple silicon. While that's only

10fps higher than the M1 Pro MacBook Pro from 2021, it's better than the 25fps achieved by last year's M2 MacBook Pro.

Polish and poise

With Apple redefining the MacBook Pro in all kinds of interesting ways two years ago, it's no surprise that the 2023 version should feel evolutionary rather than revolutionary. But it's no worse for that. With new Apple silicon, and careful, considered refinements on board, the MacBook Pro 16-inch remains one of the best - if not the best - laptops in the world right now. From its design and build to its power, performance and battery life, it's an incredible machine to own and to use. We can't wait to see what Apple does next. **Rob Mead-Green**

Mac FORMAT

VERDICT

> The MacBook Pro is better than ever with the 2023 16-inch refining both power and performance.



- ⚡ Fast and efficient Apple silicon
- 🎨 Great design
- 🔋 Better battery life
- 📏 16-inch is big!

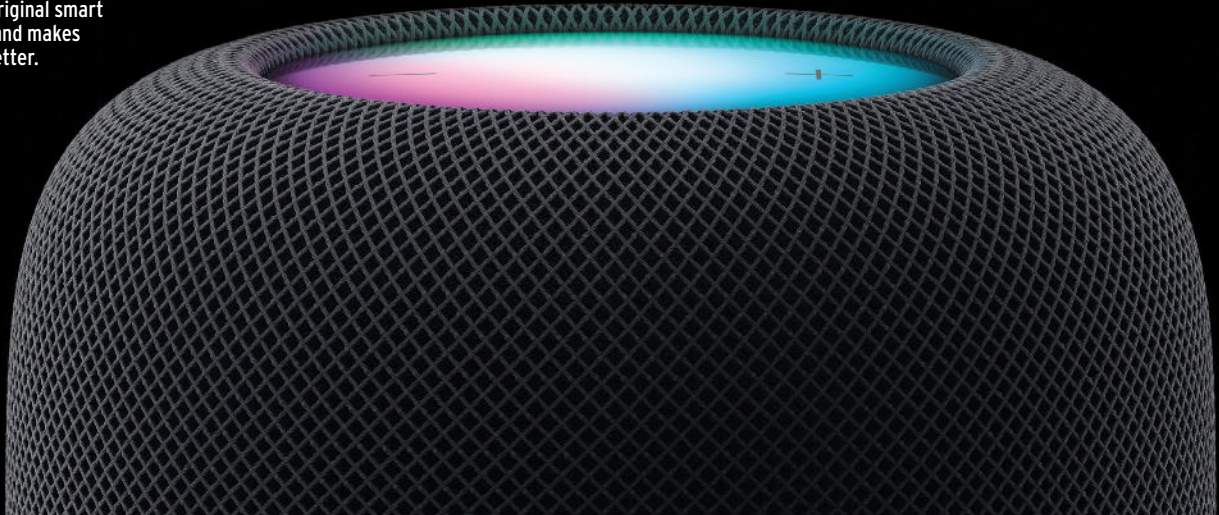
The edge-to-edge Liquid Retina display is one of the brightest and best on any laptop - and now has microLED backlighting.

⚡ Those claims are borne out by our benchmarks. From Geekbench 5 to Handbrake, Rise of the Tomb Raider to DaVinci Resolve, the MacBook Pro 16-inch we had on test delivered, and then kept on delivering.

In Geekbench 5, the M2 Pro MacBook Pro achieved an average single-core performance score of 1,961 points, putting it way ahead of the M2 MacBook Pro 13-inch we benchmarked last year (1,903) and even further ahead of the M1 Pro MacBook Pro, which achieved 1,703.

It's a similar story in Handbrake, where we transcode an hour's worth of 4K video. Here, the M2 MacBook Pro achieved the desired result in 14 mins 3 secs, compared to the

The new HomePod takes everything we loved about Apple's original smart speaker and makes it even better.



HomePod (2023)

Apple's original smart speaker is back – and better than ever

> **£299** > FROM apple.com/uk > **FEATURES** 4-inch high-excursion woofer, 5x horn-loaded tweeters, 4x microphones for far-field Siri, multi-room audio with AirPlay, Spatial Audio, Bluetooth 5.0, Wi-Fi 4 (802.11n), Thread, Ultra Wideband chip, 168x142mm, 2.3kg

The HomePod delivers your tunes with real gusto, sounding loud and punchy

Mac
FORMAT

VERDICT

> Siri and connectivity limitations aside, the new HomePod proves it was worth the wait.



⊕ Brilliant sound

⊕ Design and build

⊖ Limited connectivity

⊖ Siri weaknesses

Like the follow-up to the first Stone Roses album, HomePod aficionados had almost given up on its second coming following Apple's ditching of it in 2021; its focus shifting to the HomePod mini instead. Only now we have this; the all-new second-gen HomePod and, boy, was it worth the wait.

While outwardly little seems to have changed, in reality everything has – from the design of the mesh fabric outer (available in black or white) to the Siri window on the top, the 2023 HomePod is new. So too are its insides. Now driven by an Apple S7 chip (the same as in the Apple Watch Series 7), it features a 4-inch high excursion woofer (for mid-range and bass sounds), five horn-loaded



While it'll look familiar to anyone who owns an original, the 2023 HomePod is all new – both inside and out.

tweeters (down from seven in the original) and four microphones (down from six) for listening to Siri instructions, plus humidity and temperature sensors (also now enabled on the existing HomePod mini). Other new features include Thread smart home support and an Ultra Wideband chip so you can hand off music (and other sources) from your iPhone to the HomePod by bringing it close to the speaker and, somewhat controversially, Wi-Fi 4 (aka 802.11n) rather than Wi-Fi 6 (802.11ax) – Apple's reasoning is that support for the latest Wi-Fi standard simply isn't needed on a device primarily designed for streaming sound.

Sound astounds

And what sounds they are. Where the HomePod mini gives a spirited but small-scale rendition in mono (pairing two in stereo works better), the HomePod delivers your tunes with real gusto, sounding loud and punchy without overwhelming with boomy bass (like the original could). From jazz to rock, classical to vocal, the HomePod rarely disappoints – and, when used for soundtrack playback on Apple TV, it sounds glorious with realistic-sounding dialogue, music and sound effects.

There's no doubt that two HomePods sound better than one, while connectivity remains limited to AirPlay. It's unfortunate, too, that Siri remains a weak spot in an otherwise brilliant multi-room speaker. **Rob Mead-Green**

Mac mini (2023)

Apple's most affordable Mac goes Pro – and about time too

> From **£649** (model tested **£1,899**) > FROM apple.com/uk > **FEATURES** M2 chip with 8-core CPU, 10-core GPU, 8GB unified memory (16GB/24GB available), 256GB storage (512GB/1TB/2TB available), two Thunderbolt 4 ports, M2 Pro chip with 10-core CPU, 16-core GPU (12-core CPU, 19-core GPU available), 16GB of unified memory (32GB available), 512GB storage (1TB/2TB/4TB/8TB available), four Thunderbolt 4 ports; HDMI port, Gigabit Ethernet port (10Gb Ethernet available), 3.5mm headphone jack, Wi-Fi 6E (802.11ax), Bluetooth 5.3, built-in speaker, 3.58x19.7x19.7cm

Not only does the M2 Pro Mac mini have more power, it also gets more memory, more storage and more ports

The M2 Pro-powered Mac mini has more ports, as well as a lot more power than the M2 version.

With prices starting at **£649**, the new Mac mini is an even more affordable way to buy into the Mac - whether you're looking to make a first-time purchase, buy a second computer for your home or office, or as an upgrade to an older machine.

That's because not only is the new Mac mini £50 cheaper than before, it's now been upgraded in a couple of significant ways. The first is that it's now powered by the same M2 System-on-a-Chip (SoC) found in the MacBook Pro 13-inch and the MacBook Air; the second is that Apple's now appealing to those of us who want 'pro' level desktop Mac features, but don't want to pay for a 'pro' Mac Studio.

To that end, there's a new option available on the Mac mini, and that's to kit it out with an M2 Pro, the same powerhouse chip used in the

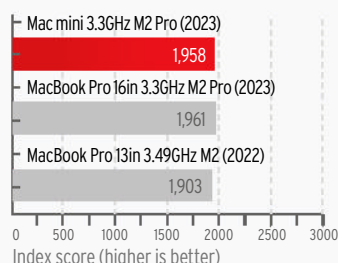
MacBook Pro 14- and 16-inch (see p78). Not only does the M2 Pro Mac mini have more power, it also gets more memory, more storage and more ports - although those added extras do come at a cost, as you'll soon see.

Before we get to that, let's take a look at the design. Like the previous-gen mini, the 2023 version comes in a low-slung aluminium box with a power light on the front and a selection of ports on the back. On M2-powered models you get 2x Thunderbolt/USB 4, 2x USB 3.2 type A ports, an Ethernet port, HDMI and a 3.5mm headphone jack. M2 Pro-powered versions get two additional Thunderbolt/USB 4 ports, plus support for additional external displays.

While the M2-powered Mac mini can support up to two external displays (one at 6K, or one at 5K plus one at 4K), the M2 Pro-powered version can handle up to three (either two at 6K and one at 5K via Thunderbolt, or two at 6K via Thunderbolt, plus one at 4K via HDMI). Additionally, while the M2-powered Mac mini can be kitted out with a maximum of 24GB of unified memory and up to 2TB of storage,

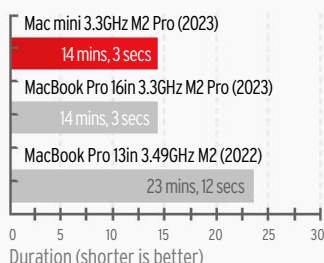


BENCHMARKS Our analysis explained >



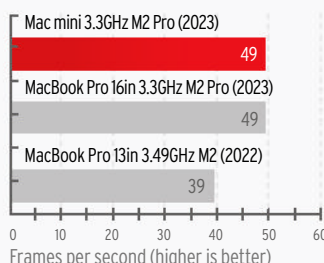
GEKBENCH 5 SINGLE-CORE TEST

> This tests the capability of a single processor core. Many more common tasks on a Mac will only use a single core at a time. Geekbench 5 is a universal app running on Monterey.



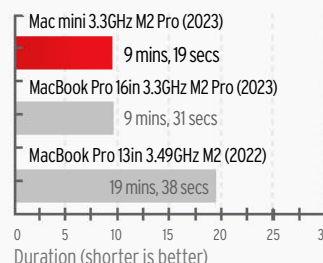
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DAVINCI RESOLVE

> In Blackmagic Design's editing tool for video professionals, we exported an effects-laden, 2.5-minute project to the H.264 format. The latest version of the app (Version 18) runs natively on M1 Macs.



the M2 Pro version can handle up to 32GB of memory and up to 8TB of storage.

Spending £649 will bag you an 8-core CPU, 10-core GPU M2 Mac mini with 8GB of memory and 256GB of solid-state storage, while £849 will get you an 8-core CPU, 10-core GPU M2 Mac mini with 8GB of memory and a 512GB SSD.

To get into M2 Pro territory, though, you'll need to spend at least £1,399 with build-to-order prices rising from there. The model we tested came with 12-core CPU, 19-core GPU M2 Pro with 16GB of memory and a 1TB SSD and costs a cool £1,899. That makes it cheaper than a Mac Studio, though, which is £1,999 to start.

Performance

While the cheapest Mac mini remains a great way to get into the Mac in general and Apple silicon Macs in particular, the M2 Pro-powered Mac mini is in another league entirely. With an M2 Pro at its heart, it can go toe to toe with an M2 Pro-powered MacBook Pro which means when it comes to performance you can expect similar returns. This is something that's certainly borne out by our benchmarks with the M2 Pro Mac mini we had on test matching the MacBook Pro 16-inch (p78) measure for measure across Geekbench 5, Handbrake, Rise of the Tomb Raider and DaVinci Resolve.

In Geekbench 5, for example, the M2 Pro-powered Mac mini scored an average of 1,958 points in single-core CPU performance, just three points short of the MacBook Pro, while in Handbrake it transcoded a one-hour 4K video in 14 minutes 3 seconds, again an identical result to Apple's flagship notebook.

In Rise of the Tomb Raider with the display resolution set to 1920x1280, graphics set to High and V-Sync off, the Mac mini hit a consistent final score of 49fps, with butter-smooth on-screen

action. Even in the newer Shadow of the Tomb Raider, the Mac mini averaged 96fps - again mirroring the one on the MacBook Pro.

For our final benchmark we render an effects laden 2.5-minute video in DaVinci Resolve and again the results proved astonishingly consistent, achieving the final result in an average of 9 mins 19 secs, compared to 9 mins 31 seconds on the similarly specified MacBook Pro.

Whichever benchmarks we threw at it, the Mac mini delivered each of them without fuss, remaining relatively cool to the touch with its built-in fans kicking in (very quietly) on occasion. Compare that to the heat and roaring fans of the previous-generation Intel machines and the Apple silicon advantage remains obvious.

In day-to-day use, the usual Apple silicon superlatives apply - the Mac mini is quick to boot and log in to, and apps typically launch in a single bounce of their icons in the Dock. Everyday tasks from messaging in Mail to photo-editing in Photos is quick and easy, with little in the way of stuttering and slowdowns. Put an Intel Mac and an Apple silicon Mac side by side and ask us to choose one for our everyday machine, and the Apple silicon Mac would win every time, the M2 Mac mini being just the latest example.

While rumours ahead of the new Mac mini launch speculated about a possible redesign, the fact that didn't happen doesn't matter. Instead, the most important changes are all under the hood - from faster wireless connectivity to the huge leap in performance that comes with the M2 Pro. While the M2 Pro-equipped Mac mini is hardly cheap, it plugs a gap in Apple's Mac line-up - if you want more power from a desktop Mac than an M2 Mac mini or even an M1 iMac can provide, but don't want the expense of a Mac Studio or Mac Pro, your needs are catered for. And that is brilliant news. **Rob Mead-Green**

A fully kitted out Mac mini with M2 Pro is expensive - so expensive in fact, it ends up in Mac Studio territory.

Mac FORMAT VERDICT

> The Mac mini is a great compact desktop for the rest of us - and in M2 Pro guise it's crazy powerful too.



- ⊕ Powerful but compact
- ⊕ M2 Pro option
- ⊕ Excellent connectivity
- ⊕ Great value

Lenco LBT-188

Jump on the vinyl revival bandwagon with this Bluetooth turntable

> **£219.99** > FROM lenco.uk > **FEATURES** Belt-drive turntable, 33 and 45rpm playback speeds, Moving Magnet Coil (MMC) pick-up, aluminium platter, pre-amplifier, anti-skating weight, manual armlift, Bluetooth 4.2, 1x RCA (phono) output, 1x USB-B port, 42x36x12.6cm



You'll have real fun dusting down your old vinyl and giving it a spin again

With vinyl records now outselling CDs in the UK, it's no surprise that turntables are hot ticket tech items right now - especially when they're as accomplished as the Lenco LBT-188. Finished in groovy dark walnut, it comes with 33 and 45rpm spin speeds, support for 7, 10 and 12in vinyl, and includes its own phono preamp so you don't have to worry about either owning a stereo amp with one built-in, or adding an off-board one separately.

Best of all, it has Bluetooth and a USB-B port on board - the first makes it easy to connect to compatible wireless speakers and headphones; the second means you can hook it up to your Mac using the USB-B to USB-A cable supplied (you'll need an adaptor if your Mac has USB-C). You can then use that USB-B connection to digitise your vinyl using an app such as Audacity or Amadeus Pro. Easy. Hi-fi purists aren't excluded either as the turntable also includes an RCA (phono) output for connection to an amplifier.

Considering the reasonable price, the Lenco LBT-188 boats a very impressive build quality.

With those bases covered, let's turn to the Lenco LBT-188's build quality and ease of use - and it's mostly a win for this £219.99 deck, thanks to its high-quality finish, aluminium platter, dial-shaped metal 33/45rpm and On/Off switches and its metal tonearm, which comes complete with an Audio Technica Magnetic Moving Coil (MMC) cartridge.

Fun and quality

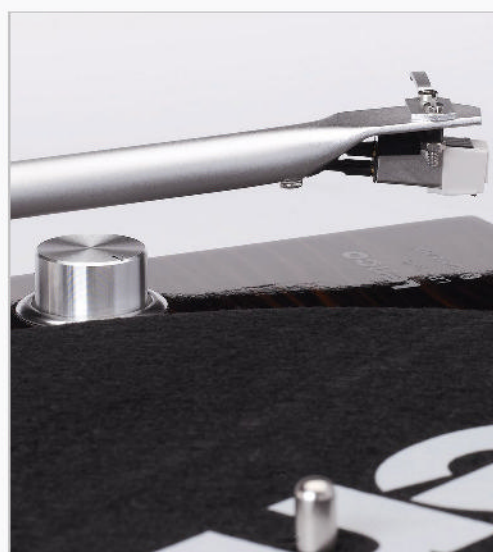
While some turntables - notably the £249.99 Sony PSLX310BT - require zero set-up and can be used straight out of the box, the Lenco LBT-188 needs some cossetting. Not only do you have to adjust the counterweight at the end of the tonearm, but you also have to add the anti-skate weight, which dangles from a separate anti-skate arm and is attached to the tonearm with a skinny plastic cable that's akin to a fishing line - and that can be a bit of a faff.

Once that's done though, the LBT-188 works brilliantly. We had no problem pairing it with either a Bluetooth speaker or a pair of Bluetooth headphones, or connecting to a Mac for a marathon vinyl recording session via USB.

Sound quality is excellent for the money and you'll have real fun dusting down your old vinyl and giving it a spin again. Plus, the Lenco LBT-188 has everything needed to enjoy it all, with cables, a dust cover, platter mat and even a vinyl cleaning cloth included.

While the Lenco LBT-188 lacks some of the niceties of some of its rivals, it's a superb budget deck that gets the basics right - and for that it has to be applauded.

Rob Mead-Green



While you can't use the turntable straight out of the box, everything works well once you've got it all set up.

**Mac
FORMAT**

VERDICT

> A brilliant budget turntable that exudes class while breathing new life into your old vinyl collection.



- Solid build quality
- Good range of connectivity options
- Great sound for the money
- Set-up is a bit fiddly

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Group test

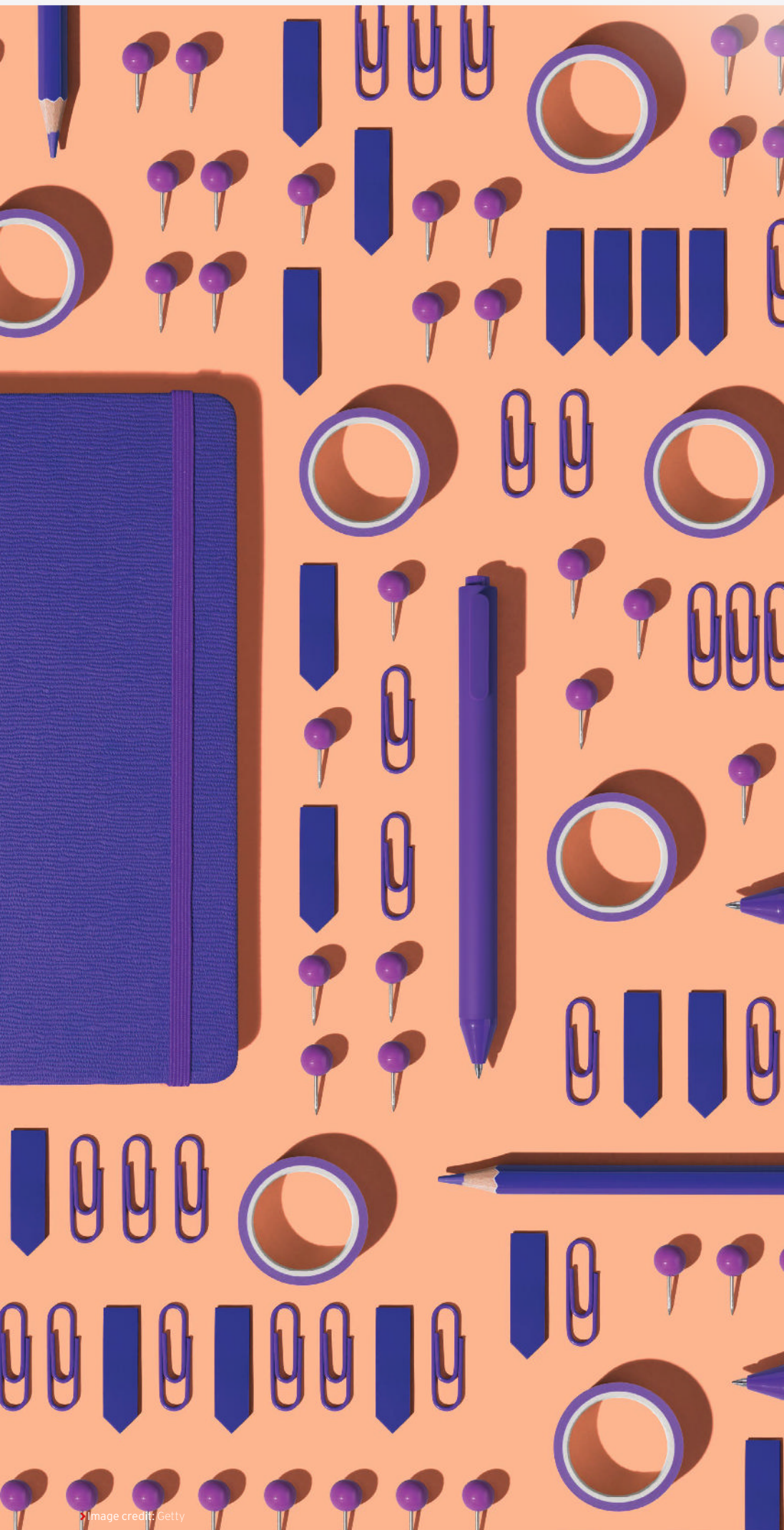
Reviewed by
KENNY HEMPHILL

ON TEST...

- > Agenda.
- > Bear
- > Evernote
- > Notability
- > Notes
- > Simplenote

THE BEST NOTE-TAKING APPS FOR MAC

Apple may have improved its Notes app, but there are plenty of other options if it's not the one for you



Why bother looking for another note-taking app when there's a perfectly good one built into macOS? For the same reason you might use a different email client or web browser. While Apple's Notes has become a very good note-taking app, it's not perfect. Take a look at the others here and you'll see that Bear isn't just beautiful, but has so many of the features you'd find in a writing tool, you can use it as one. Agenda organises notes by date and enables you to create and share projects, while Evernote's web clipping tool is a class apart from the one in Notes.

Notability takes a different approach in that it focuses on creating notes using multiple media. Sure, you can type notes, but you can also record audio and sync it with your notes, annotate a PDF and deliver a presentation.

If those features are too much, and you don't want either Notes' Quick Note or sharing features, Simplenote may be just what you need. If Apple's Notes isn't the one for you, one of the others on test here certainly will be.

How we tested

► To test each of the apps here, we installed them on our Mac, iPhone and iPad and used them to create notes from scratch. We tested how easy it was to grab content from websites and add them to a note, or to use the content to create a new note. Where other features like audio recording were available, we tested those too.

We added images, drawings, annotations and links to apps. And we examined how easy it was to organise notes and to search through them.

Things to consider...

1 Syncing with other devices

You may want to make sure the note-taking tool you choose has an iPhone or iPad version, that it syncs and whether there is an additional cost.

2 Web clipper

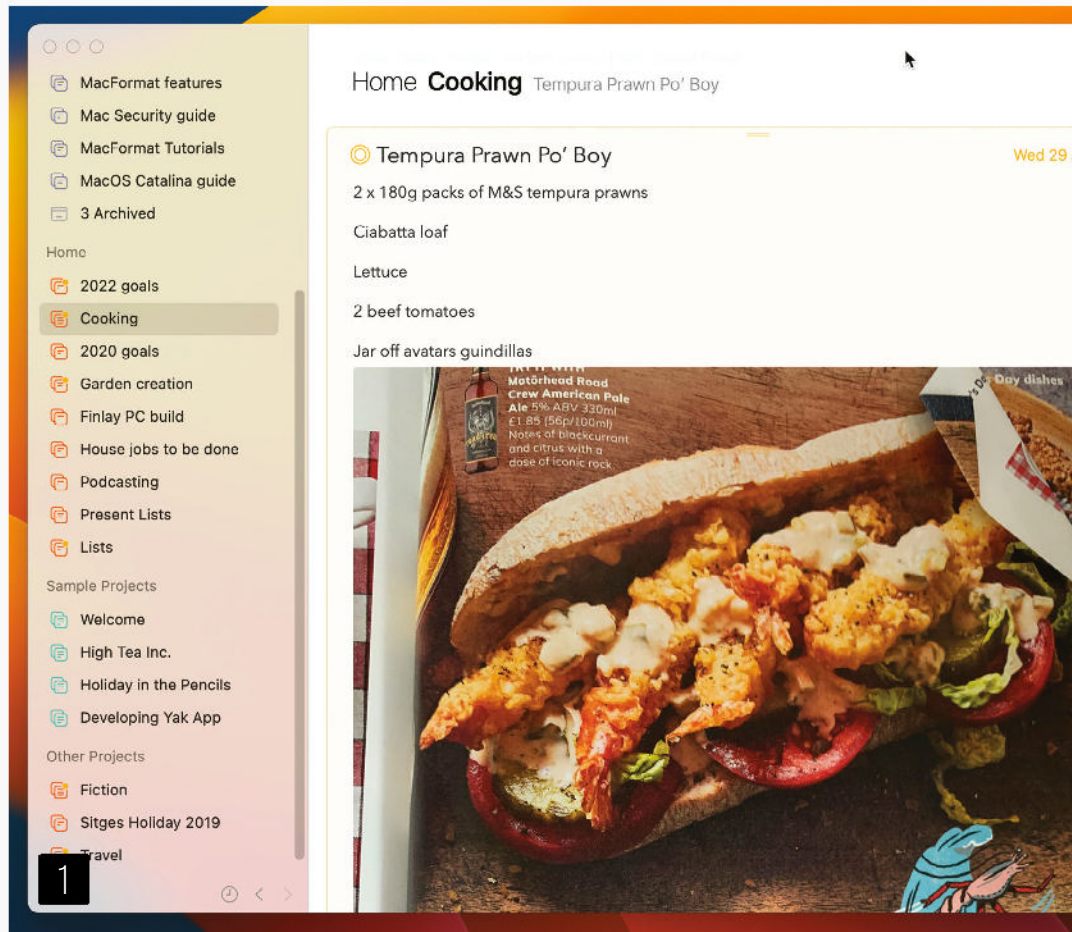
Grabbing a recipe from a website is one of our favourite uses of notes apps and the easier it is to grab, the better. Some apps here use the Share menu to do that, others have their own browser extension.

3 Tagging

Tags are a simple but effective way to organise notes. Add a tag to a note in an app that supports them, and you can then filter notes for a specific project.

4 Shortcuts

Apple's Shortcuts enable you to automate all kinds of workflows and processes for extra efficiency.



Agenda.

> Free; Premium **£29.99** > FROM agenda.com

1 The main difference between Agenda and the other note-taking apps here is that it is 'date-focused'. This means that you can assign dates to notes and set reminders for them. You can also import Calendars and Reminders from the respective macOS apps. The Today view shows you all the notes assigned to today, and you can mark notes as On the Agenda - usually those you need to work on now.

Agenda notes support rich text formatting, images, links and tags. You can create multiple projects and save notes to them. You can also save a note as a template and

use it to create new notes in future. You can add URLs from Safari's Share menu, although only the link is inserted, not content from the page.

Agenda is free, with a fee for additional features such as collaborating with others and full-colour notes. Plus, one of our favourite things about Agenda is the active online community, which shares tips and tricks.

VERDICT

- 👉 Rich text & image support
 - 👉 Templates
 - 👉 Active community
 - 👉 Difficult to add web content
- ★★★★★

Bear

> Free; Bear Pro **£13.99/year** > FROM bear.app

2 Bear is by far the prettiest note-taking app here. But don't let its cutesy aesthetic fool you: this is a powerful note-taking and writing tool. It has full support for Markdown and when you're done writing a note, you can export it either as the Markdown original, rich text, a Word document, PDF, or HTML.

As well as Markdown, you can add images, URLs, and format blocks of text as code. Support for tagging is excellent. Tags appear in the sidebar, and you can group them, use nested tags, and add an icon to make a tag easy to pick out. We like that

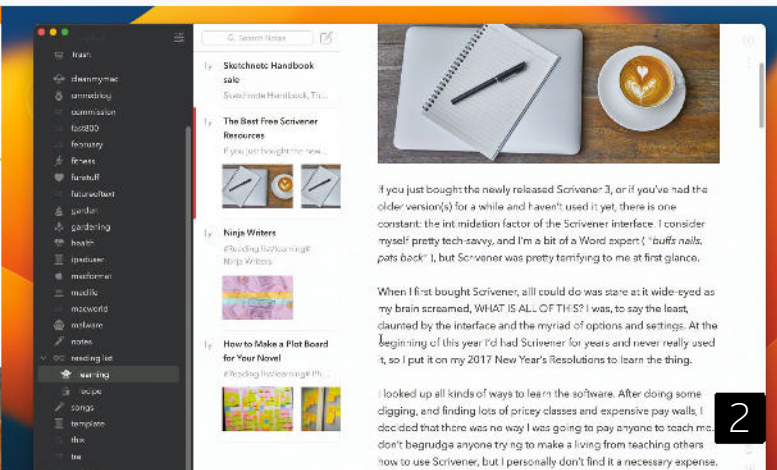
you can choose to ignore tags when you export notes in other formats.

Bear has its own web clipper, which means you can select whether to include images and URLs when you add a web page to a note.

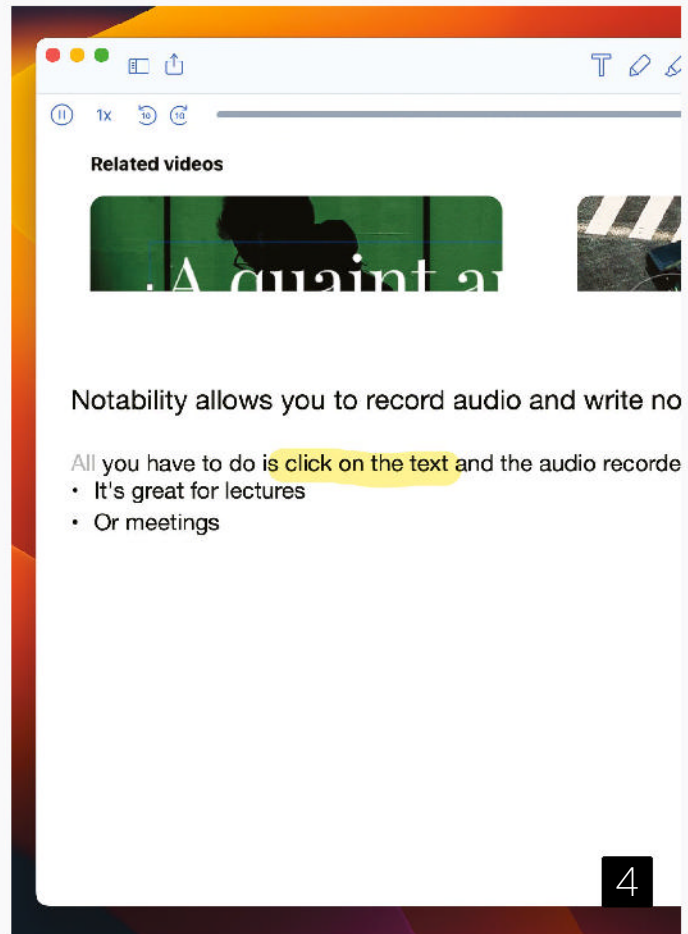
Bear Pro syncs via iCloud, enables you to secure notes with a password, and gives you access to lots of themes. There are also Shortcut actions for creating notes.

VERDICT

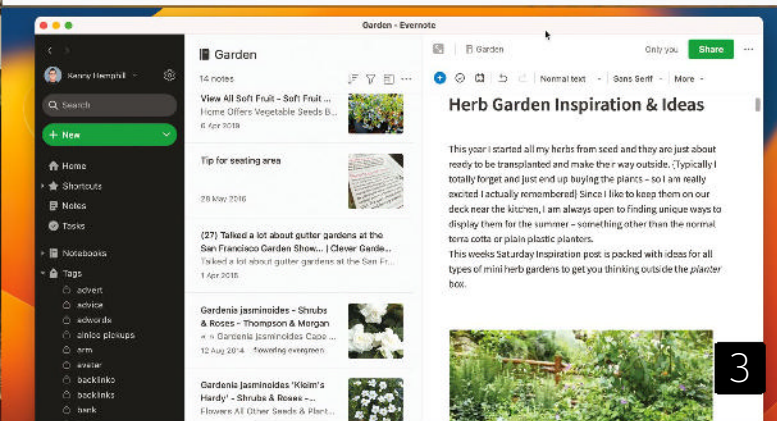
- 👉 Markdown support
 - 👉 Web clipper
 - 👉 Good export options
 - 👉 Free version very limited
- ★★★★★



2



4



3

Evernote

> **Free**; Personal **£68.99/year** > FROM evernote.com

3 If you mainly want to use a note-taking app for grabbing and saving articles or recipes from the web, then Evernote is the standout app here. Its web clipper is second to none, and enables you to choose each time you clip whether to save the full page, an article on the page or a simplified version. When you make a choice, you will see a preview of the clip before you save it.

Evernote is also the notebook to choose if you sometimes need to use non-Apple platforms, as there are versions for Android and Windows, and a web app that looks like the desktop version.

Evernote syncs across all your devices, though the free version is limited to two. Your data is stored on its servers, so there's a limit on how much you can upload, depending on your chosen subscription plan.

There's full support for tagging and creating rich-text notes, as well as adding images and links. The search tool is excellent and the paid-for version enables you to create task lists, too.

VERDICT

- 🟢 Works on any platform
 - 🟢 Excellent web clipper
 - 🟢 Formatting options
 - 🔴 Expensive
- ★★★★★

Notability

> **Free**; Plus **£11.49/year** > FROM notability.com

4 Need to take lots of notes in meetings or lectures? Notability should be top of your list. It enables you to record audio as you make notes and syncs the audio with the written note. You can then click on a word in the note to hear the audio at that point.

Notability also enables you to present your notes and view one note on your screen while another note is presented. You can add images and links to notes, and on the iPad version, you can hand write or draw using Apple Pencil.

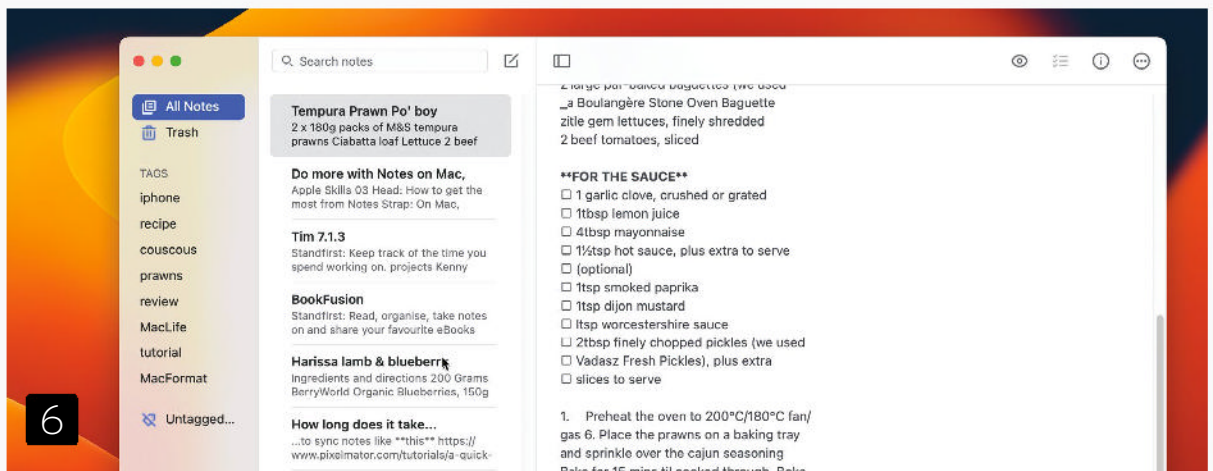
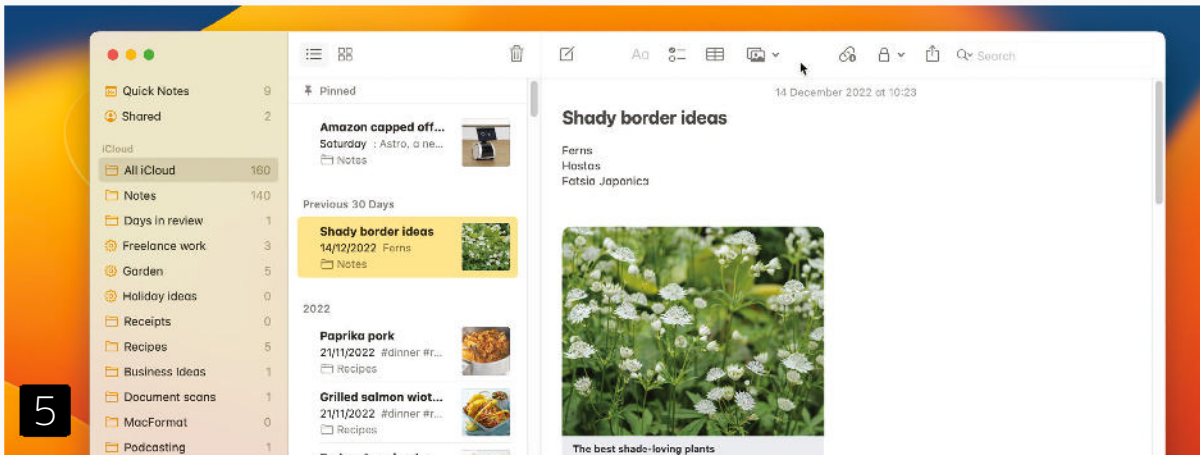
The free version also enables you to use templates from a gallery, import and annotate PDFs, scan

documents and sync via iCloud. Upgrade to Notability Plus to convert handwritten notes to text, access additional templates, and convert hand-written equations to high-res images.

When it comes to sharing, you can export notes as PDFs and password protect them. Or, you can share them as images, notes, or text documents using Notability's share sheet.

VERDICT

- 🟢 Audio and syncing
 - 🟢 Presentation mode
 - 🟢 Templates
 - 🔴 No web clipper
- ★★★★★



Notes

> Free > FROM apple.com/uk

5 Apple's Notes has evolved into a very capable note-taking tool. Of course, it syncs with iPhone and iPad, but it also enables you to share notes with others and collaborate on them. An Activity view shows you the changes others have made to your notes, and when you '@' someone you're collaborating with, they'll get a notification.

Quick Note enables you to create or add to notes without launching the app, or leaving the app you're currently using; just move the cursor to the corner of the screen or use the sharing extensions in apps that support it.

When you grab a web page from Safari, Notes shows you a thumbnail preview of the content as well as embedding a URL.

Notes enables you to organise notes folders, and create Smart Folders to sort based on criteria you specify. And tags mean you can search for and filter notes easily. If you create notes that you need to keep private, secure them with a password.

VERDICT

- ⊕ Quick Note
- ⊕ Collaboration features
- ⊕ Smart Folders
- ⊖ Limited to Apple devices

★★★★★

Simplenote

> Free > FROM simplenote.com

6 If you want a Markdown-friendly app that dispenses with fancy features in favour of speed in jotting down and retrieving notes, this is the tool for you.

Simplenote is purely about creating and storing text notes. There are no templates or audio recording features. And the only way to clip web pages is to manually paste a URL, which remains a URL, rather than a page preview. However, it's easy to use and you can preview the Markdown output at the click of a button. You can also quickly see how many words or characters are in a note.

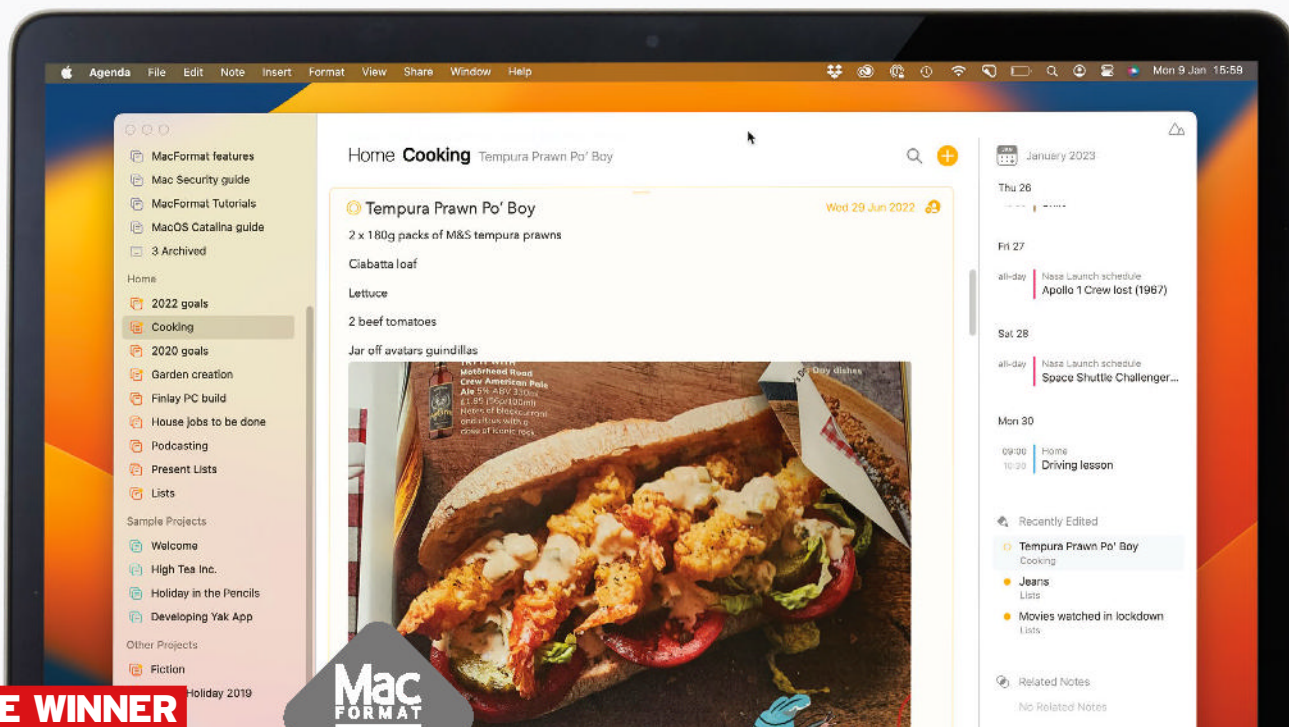
You can publish notes to Simplenote's web platform, as well as share them as text in an email, message or to another app. You can even collaborate by adding an email to the tags box. You can filter notes by clicking on a tag in the sidebar.

Notes are synced via Simplenote's own server, meaning you can also sign in to your account and access your notes in a web browser.

VERDICT

- ⊕ Fast search
- ⊕ Good Markdown support
- ⊕ Completely free
- ⊖ No web clipper

★★★★★



THE WINNER

Agenda.



A note-taking app that will keep you focused and help with managing your day

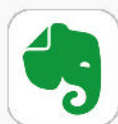
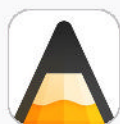
We could make a case for at least four of the apps featured here to be the winner of our group test. Bear is not just visually beautiful, but has a powerful set of features that make it both simple and very capable.

Notability is unique in allowing you to record audio and sync it with typed or handwritten notes, and then deliver them as a presentation. And Simplenote provides everything you need in a basic, easy-to-use note-taking app at no cost.

However, there can be only one winner and, in this case, that's Agenda. The date-based approach and On the Agenda view are a powerful way to keep you focused on what needs to be done, and the integration with Reminders and Calendar

are excellent. Add to that the formatting options, image support and collaboration features, and Agenda is hugely powerful. Plus, it has excellent support for Shortcuts, with several actions ready to be included in your workflows.

>How do they compare?



> Specs	Agenda.	Bear	Evernote	Notability	Notes	Simplenote
Base price	Free	Free	Free	Free	Free	Free
Full price	£26.99/year	£13.99/year	£68.99/year	£11.49/year	Free	Free
Website	agenda.com	bear.app	evernote.com	notability.com	apple.com/uk	simplenote.com
Syncs with other platforms	iOS, iPadOS	iOS, iPadOS	iOS, iPadOS, Windows, Android, web	iOS, iPadOS	iOS, iPadOS	iOS, iPadOS, web
Web clipper?	No (can use Safari share sheet, though)	Yes	Yes	No	No (can use Safari share sheet, though)	No
Collaboration features?	Yes	No		No	Yes	No
Password protection	No	Yes	Yes*	Yes	Yes	Yes
Shortcuts actions	Yes	Yes	Yes	No	Yes	Yes
> Overall	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★

Note: The final verdict scores reflect the overall opinion of a product and are not necessarily an average of the criteria listed in the table.

*Can encrypt text within a note but not a whole note

Affinity Photo 2

Serif's powerful editing app gets a serious update

> £17.99 (for iPad; universal licence £144.99) > FROM affinity.serif.com > NEEDS iPadOS 15 or later

You get a layer-based image editor that's split into 'personas'

Serif's Affinity suite rivals Adobe in bringing pro-grade image editing without a subscription to Macs and iPads. The latest releases of the three Affinity apps, released as version 2 rather than a free update, may mean you have to pay once more, but a universal licence - which gets you all apps on all platforms with no extra costs - is about the same as one year of equivalent Adobe apps. There's a 30-day free trial too.

The iPad version of Affinity Photo 2 is probably the most interesting of the updates, as it has the broadest appeal and is cheaper than the Mac app (which costs £69.99 if you buy it separately). And while the both Mac and iPad versions takes on Adobe Photoshop, the Mac version lacks the organisational tools of Adobe Lightroom or the browsing capabilities of Adobe Bridge, and there is no equivalent on iPad either, which is a shame.

With Affinity Photo 2, you get a layer-based image editor that's split into 'personas'. The Photo persona is a straightforward image-editing app, though a powerful and complex one that will require time spent in the online manual and tutorials to master. The Develop persona is for processing your Raw files. Liquify is for heavy retouching that's more like



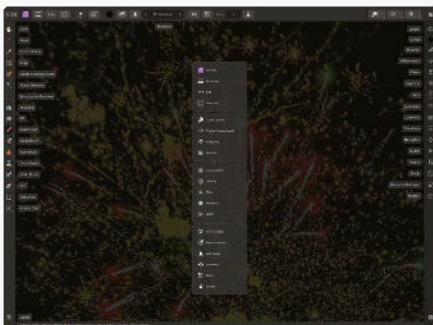
Panoramas can be automatically stitched together from a series of multiple images.

sculpture in the way it moves pixels about, and Tone Mapping is for HDR. Finally, Export is for creating the perfect output file for your needs. Personas take over the interface of the app, changing the available tools and options, rather than appearing in a floating window.

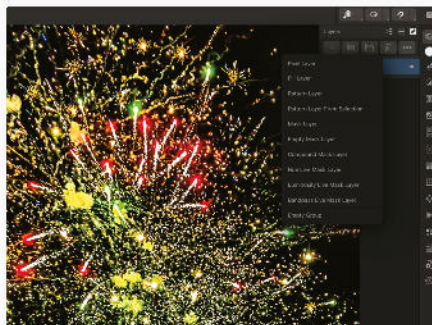
Users of the first version of Affinity Photo on Mac will find a great deal of refinement but little that's actually new, though the iPad version now features quick menus and a command controller to speed up workflows, a compact mode to make the best use of limited

APP TIPS

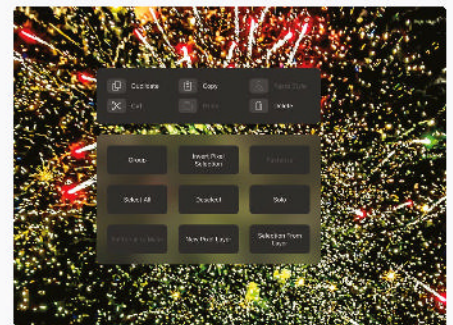
Getting started with Affinity Photo 2: handy hints



Hold the '?' button in the bottom right of the iPad interface, and you'll get a helpful overlay that makes up for the lack of tooltips.



The panels usually close automatically when you tap on your image, but you can keep one open with the pin icon at the top right.

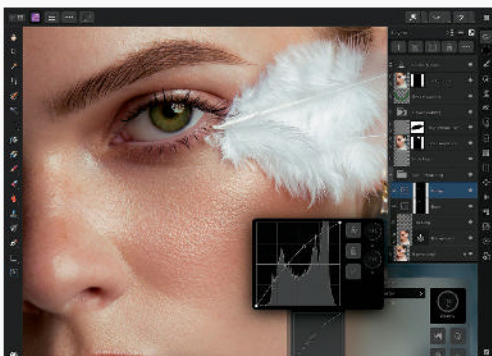


Swipe down with three fingers on your document and a customisable quick menu will open, with shortcuts for common tasks.



Affinity Photo 2 for iPad has the blend modes you'd expect from the desktop version.

screen size, and a resource manager for linked content. The Layers palette has had an overhaul, making masking, clipping and reordering clearer; plus, there are a great many more non-destructive options when masking (the entire Develop persona is non-destructive too, appearing as a layer with adjustable settings). Additionally, you have the



There's a healing brush for skin retouching, and operations such as frequency separation are easily accomplished.

option to export straight to the WebP format or open the HIF files from Canon cameras.

Not about the smarts

While Adobe is pushing Photoshop in an interesting direction with its neural filters and Sensei-powered smarts, you won't find any of that in Affinity Photo 2. The most automatic thing is the selection of a correction profile for your Raw files. Otherwise, you're doing everything by hand, with Apple Pencil on iPad, and Force Touch and Touch Bar on Mac to assist. It's not just an image editor though, as natural media brushes, vector illustration, and type handling all come under its purview.

As part of the Affinity suite that centres on Publisher - which is now available on iPad for the first time - Affinity Photo 2 fits in nicely, but works well as a standalone app too. While not an app for absolute beginners, the ability to dip in and learn without an ongoing subscription is hugely valuable. **Ian Evenden**

Mac FORMAT VERDICT

> **Serif's pro-grade image-editing app is now even more essential.**



⊕ **A very capable app gets even better**

⊕ **Pay once, no subscription**

● **Steep learning curve for newbies**

● **No asset management component**

CrossOver 22

Run (some) PC apps on your Mac without Windows

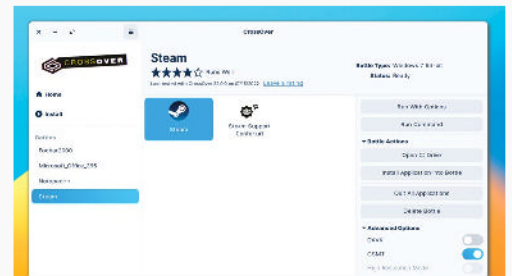
> £60 (12 months' support), £414 (lifetime support) > FROM codeweavers.com > NEEDS macOS 10.13 (Apple silicon M1 or better requires macOS 11.1 or later), 1GB of free disk space plus more for installed Windows apps

The latest improvements make it a lot easier for everyday users to successfully run CrossOver

There will always be apps, mostly games, whose publishers won't port them to the Mac for financial or contractual reasons. CodeWeavers' CrossOver offers a simple, convenient way to run many of those apps. The result isn't as reliable or universal as other solutions, but it's a lot cheaper and easier, and with CrossOver's helpful database of app functionality and generous try-before-you-buy period, you can see whether it'll run the apps you want to use before you commit your hard-earned cash.

CrossOver translates Windows commands into Mac ones on the fly. It's based on the open-source WINE project, but its improvements to standard WINE make it a lot easier for everyday users to successfully run. CrossOver 22 is only available from CodeWeavers' website.

After installation, CrossOver does most of the hard work. It sets up a 'bottle' - a contained virtual environment - in which you can install basic Windows or Linux underpinnings, plus any apps you'd care to run. CrossOver builds in shortcuts to install popular apps like Steam, and it can seamlessly install apps from the web, from downloaded ISO files, or from a physical disc, should you have an external drive.



If you need every Windows app you run to work well, if not perfectly, on a Mac, CrossOver isn't for you.

You can have multiple separate bottles for different apps, or put all the apps you use in a single vessel. As with containerised software set-ups like Docker, this makes CrossOver easier and less stressful to use. In the event that something goes wrong inside a bottle, it won't affect your larger system. Just delete the bottle and start fresh.

Fresh interface

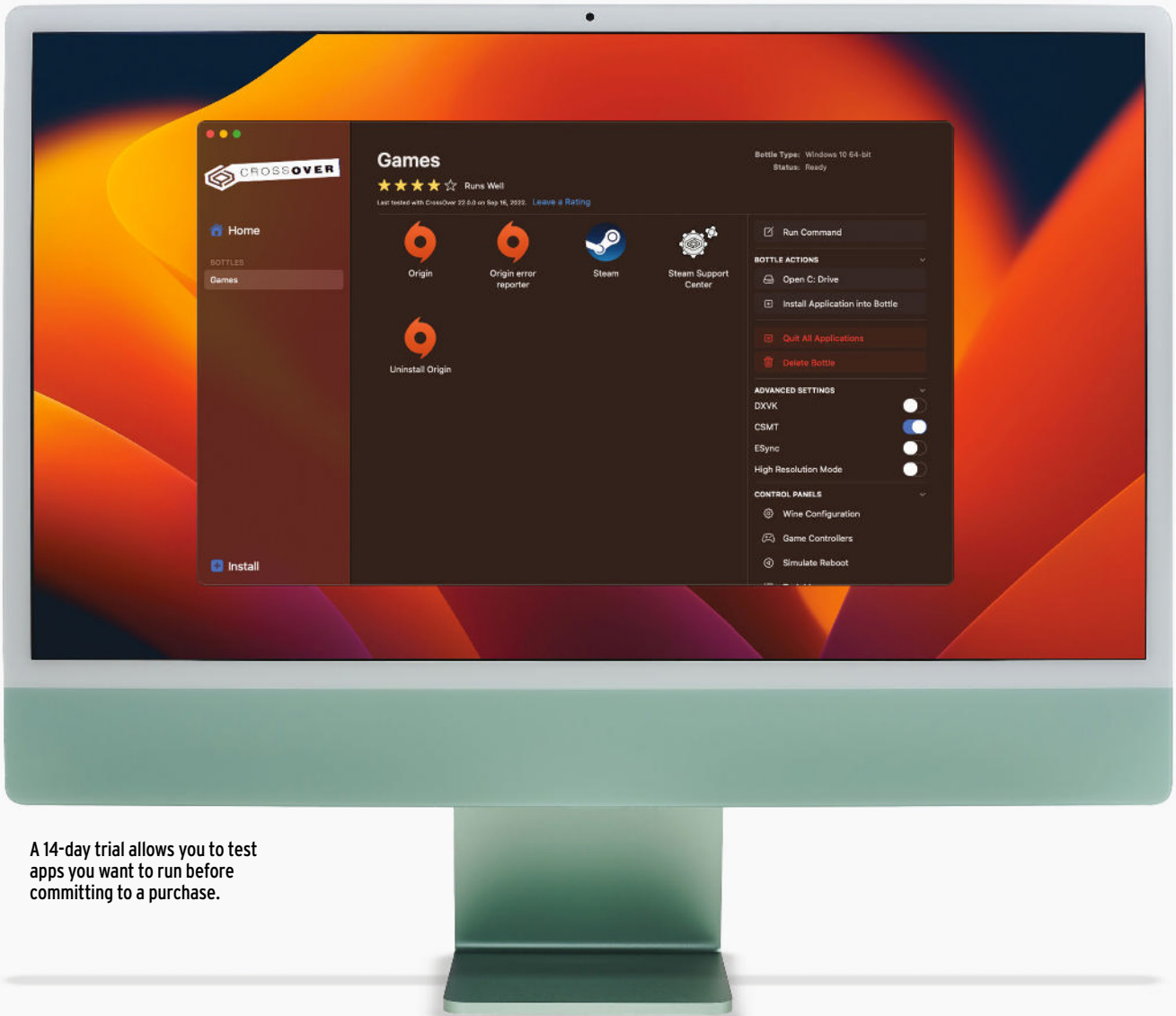
Each new version of CrossOver offers performance improvements, but CrossOver 22's biggest leap forward lies in its overhauled interface. Previous versions hid important toggles and features behind poorly designed contextual menus. CrossOver 22 takes design cues from the Mac App Store, with more crucial options in full view. And it's now easier than ever to run apps you've already got installed, or add new ones.

CodeWeavers' database of popular apps and their compatibility, maintained by volunteer testers, is now more directly integrated into the app itself, rather than requiring a separate visit to CodeWeavers' website. That database isn't particularly comprehensive but it's a good place to start when you're curious.

More processing power equals better performance. Even though it's an Intel native app, it runs best on Apple silicon under Rosetta 2 emulation, thanks to the sheer horsepower of the M1 and higher. (CrossOver plans to eventually support Apple silicon.) Popular launcher apps like Steam, and simple 2D games like Guacamelee! ran without a hitch in tests,

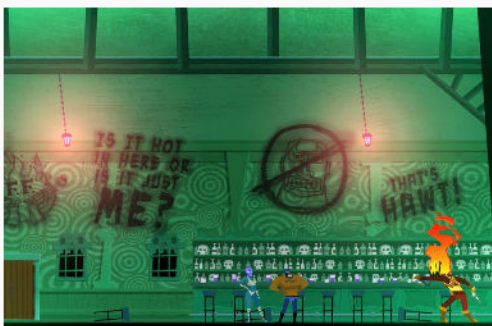


If you're into gaming, we'd recommend more than 8GB of memory, or a more powerful chip than an M1.



A 14-day trial allows you to test apps you want to run before committing to a purchase.

but more sophisticated titles had various degrees of trade-offs. On a stock M1 Mac mini, 2017's Star Wars: Battlefront II looked great. But depending on the game mode and the size and type of the environments, performance ranged from fast and fluid to an unplayable crawl. If you want to game with CrossOver,



Alternatively, when it comes to gaming, you'll find sticking to simple 2D games provides more dependable results.

more than 8GB of memory or a more powerful chip than a basic M1 will serve you well.

Furthermore, Metal has different aims and priorities than DirectX, trading some measure of tech sophistication for the ability to run across macOS, iOS, and tvOS. Even under Apple's new Metal 3, there are just some things DirectX does for which Metal lacks an easily translated equivalent. And even if everything else goes swimmingly, there are facets of Windows software that just won't work outside that platform.

CrossOver 22 is impressive in its simplicity, at least in terms of how easy it is to get select Windows applications up and running on macOS. It's by no means perfect, and your mileage will vary dramatically depending on the complexity of the apps you're looking to run, not to mention the power of your Mac itself. **Nathan Alderman**

Mac FORMAT VERDICT

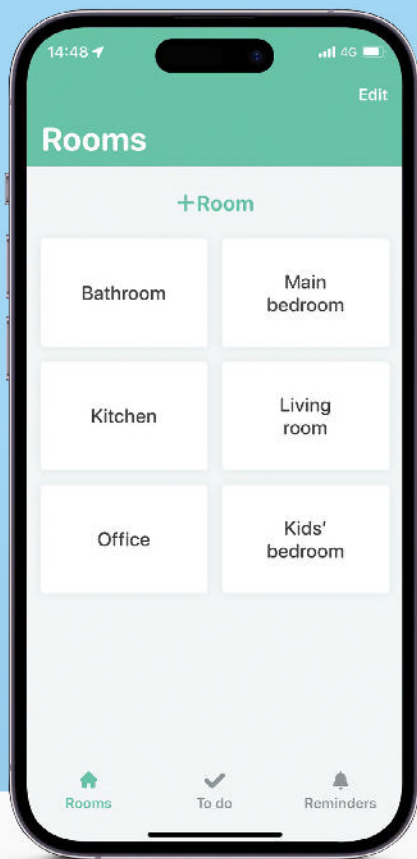
> CrossOver is an easy way to experiment with Windows' games and apps on your Mac.



- ⊕ A lightweight solution to running PC apps on Mac
- ⊕ Easy to install and use
- ⊕ No need to buy Windows
- ⊖ Requires a fast processor and lots of memory

6 apps to help with your spring cleaning

Clear out the clutter and keep your home organised

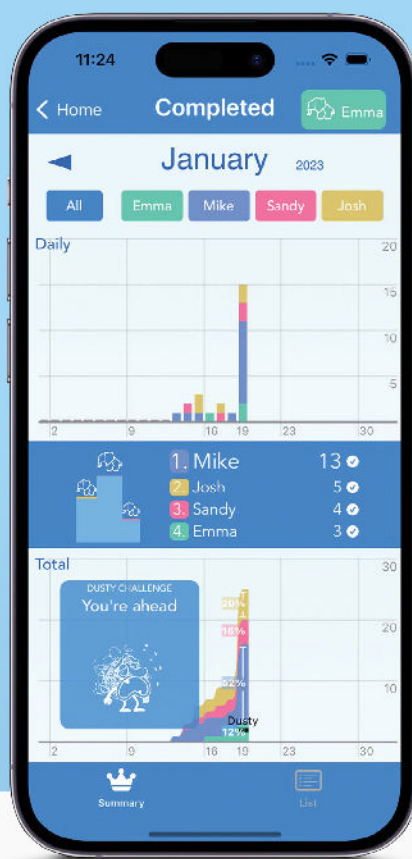


Spotless

> Free (IAPs) > FROM rhpi.com.au
> NEEDS iOS 13 or later



The first step towards a cleaner home is making a plan of action. Once you've worked out what needs to be done and when, you will be more equipped to tackle your tasks head-on. Spotless is the perfect way to do that, as it lets you divide up your home into rooms, set jobs for each area, then track your progress and get reminders when it's time for a little elbow grease. With it by your side, you'll never forget a cleaning chore again, helping your home stay spotless for longer.

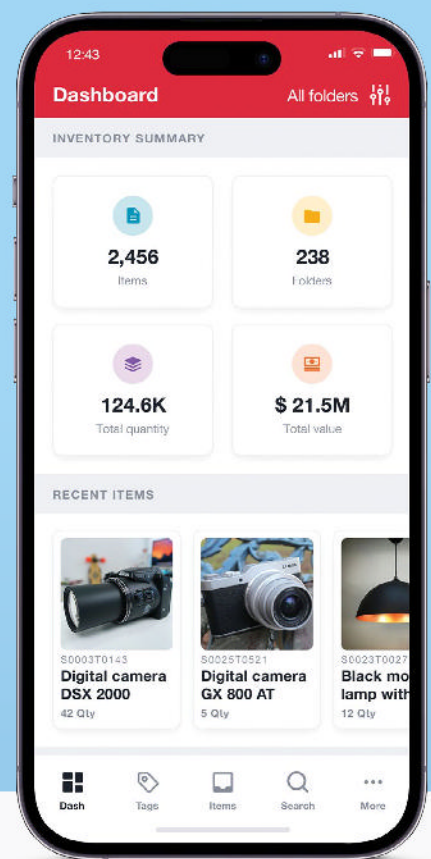


Tody

> £5.99 > FROM todyapp.com
> NEEDS iOS 15 or later



Sometimes, it can feel as though your cleaning routine is in control of you, rather than the other way around. Fortunately, you can take back control with Tody. This handy little app helps you keep on top of every room in the house, but instead of nagging you to clean up, it lets you decide when to get started. Each task has a dirt meter to help motivate you without flooding your device with reminders and notifications. And you can assign tasks to other family members to share the load.



Sortly

> Free (IAPs) > FROM sortly.com
> NEEDS iOS 14 or later

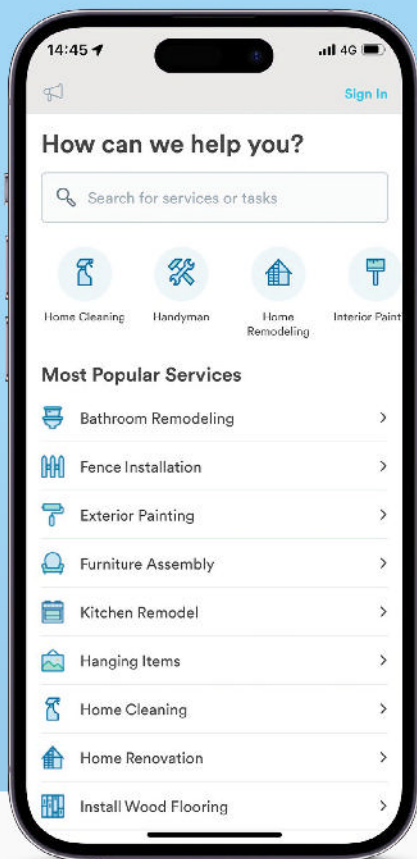


You can't clean out your house if you don't know what you've got in the first place - and that's where Sortly comes in. With this app in your arsenal, you can catalogue your items and quickly create an inventory. Just snap a photo or scan the barcode and add it to the app to get started. You can then add tags, notes, prices and more, giving you a complete picture of your contents. And once you know that, you can easily see what you should keep and what you can get rid of.

Nothing else helps to banish the winter blues quite like a good clear-out and declutter.

But, even with the best intentions, taking stock of what you've got and making decisions over what you really need can be daunting. And that's before you factor

in actually, gulp, getting rid of stuff. As always, it's reassuring to know there's an app (several in fact) for that! From a spot of cleaning and tidying, to finally getting round to all those odd jobs and actually offloading unloved items, you'll find help is just a touchscreen away. **Alex Blake**



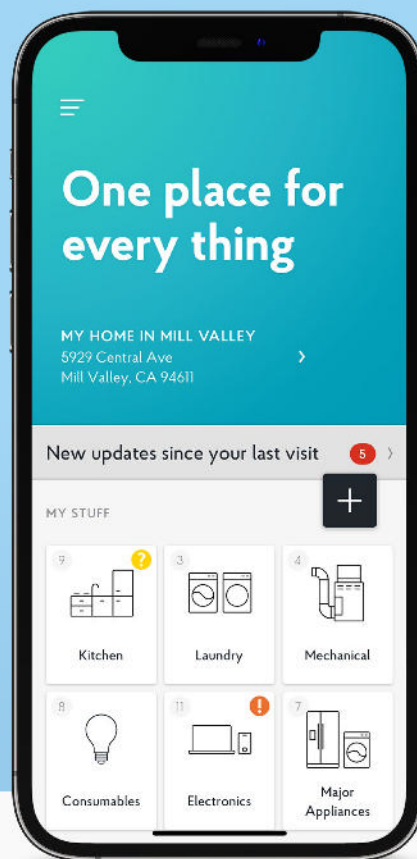
Handy.com

> **Free** > FROM handy.com
> **NEEDS** iOS 11 or later



Feel like there's more on your plate than you can handle?

Sometimes it's best to get the professionals in. Whether you need some help with cleaning or want a plumber to fix your pipes, Handy can put you in touch with the best person. Just tell the app what you need and when you need it and you'll be connected with a host of excellent options. When you're ready, just pay in the app and you'll be on your way. That's great for when you need an extra helping hand around the house.



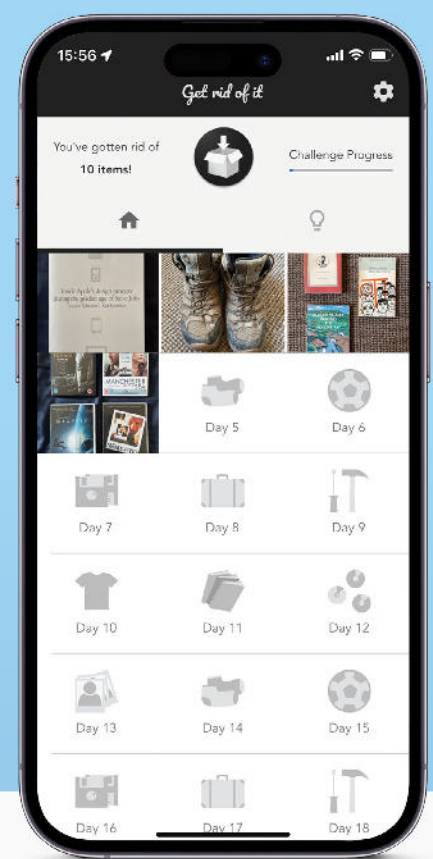
Centriq

> **Free** > FROM mycentriq.com
> **NEEDS** iOS 12 or later



As you accumulate devices in your home over time, you might find yourself throwing out the manuals to save space.

But what if one day you need them? No need to worry, as Centriq is a clever solution to this problem. Simply scan a device's product label and the app will chase down manuals, guides, parts info, helpful videos, and more. If you've ever found yourself at a loss for how to fix a product, Centriq can find the answers for you - no online searching necessary.



Get rid of it

> **Free** > FROM getridofit.uppernavts.com
> **NEEDS** iOS 9 or later



Inspired by podcasters The Minimalists and their 30-Day Minimalism Game, the idea behind this app is simple.

On day one, you find one thing to get rid of. On day two, you increase it to two things. And so on, until the end of the month. You can sell, bin, or give away your excess, and when you're done, you'll be amazed at how much stuff you didn't need - and how much better you feel without it. Instead of being overrun with needless possessions, your home feels lighter.

STORE GUIDE

Your guide to the best Apple hardware and third-party accessories



EXPECTED
NOV 2023
UPDATED
APR 2021

Mid-range and top-tier iMacs comes with a Magic Keyboard with Touch ID. The entry-level has a standard Magic Keyboard.



iMac > From £1,249

> Ever since the Bondi Blue iMac debuted in 1998, Apple's all-in-one desktop computer has been setting standards for design and performance.

The current 24in model is certainly Apple's finest yet - thanks to its 4.5K (4480x2520) Retina display and the Apple-designed M1 chip, which is available with either an 8-core CPU/7-core GPU at the entry-level, or an 8-core CPU/8-core

GPU on the mid-range and top-tier versions. All models come with 8GB of memory as standard (upgradeable to 16GB), with solid-state drive (SSD) storage ranging from 256GB on the entry-level and mid-range versions to 512GB on the top tier, although you can add more - up to 1TB on the entry-level and up to 2TB on the mid-range and top-tier models if you wish via Apple's build-to-order options.

Available in a choice of seven gorgeous colours (Green, Yellow, Orange, Pink, Purple, Blue and Silver), each M1 iMac also comes with a 1080p FaceTime camera, a six-speaker sound system and support for Spatial Audio. You'll also find two Thunderbolt/USB 4 ports on each model, with mid-range and top-tier options gaining two additional USB 3 (USB-C) ports. Prices start at £1,249.

iMac 24inch £1,249 (Entry level)

Display: 23.5in 4.5K Retina (4480x2520) with True Tone
Chip: Apple M1 with 8-core CPU (4 performance cores, 4 efficiency cores), 7-core GPU, 16-core Neural Engine
Memory: 8GB (upgradeable to 16GB)
Storage: 256GB (upgradeable to 512GB or 1TB)
Ports: 2x Thunderbolt/USB 4, 1x Gb Ethernet (option)

iMac 24inch £1,449 (Mid-range)

Display: 23.5in 4.5K Retina (4480x2520) with True Tone
Chip: Apple M1 with 8-core CPU (4 performance cores, 4 efficiency cores), 7-core GPU, 16-core Neural Engine
Memory: 8GB (upgradeable to 16GB)
Storage: 256GB (upgradeable to 512GB, 1TB or 2TB)
Ports: 2x Thunderbolt/USB 4, 2x USB 3, 1x Gb Ethernet

iMac 24inch £1,649 (Ultimate)

Display: 23.5in 4.5K Retina (4480x2520) with True Tone
Chip: Apple M1 with 8-core CPU (4 performance cores, 4 efficiency cores), 8-core GPU, 16-core Neural Engine
Memory: 8GB (upgradeable to 16GB)
Storage: 512GB (upgradeable to 1TB or 2TB)
Ports: 2x Thunderbolt/USB 4, 2x USB 3, 1x Gb Ethernet



Apple Magic Keyboard with Touch ID and Numeric Keypad

> From £179

> This extended keyboard is a great upgrade option for any Mac and comes with Touch ID for faster Mac logins. The black version costs £199.

Apple Magic Mouse

> From £79

> Design quirks aside, (we're looking at you, Lightning Port) the Magic Mouse is a great pointing device, thanks to its Multi Touch support. The black version costs £99.



Apple Magic Trackpad

> From £129

> This Multi Touch glass trackpad is a thing of beauty, giving you lots of control over macOS and it's rechargeable too. The black version costs £149.



EXPECTED
JAN 2024
UPDATED
JAN 2023



Mac mini > From £649

> Apple's most affordable desktop may not come with a mouse, a trackpad or keyboard, but it's also great value starting at even less than the last model at £649.

Despite the reduction in price, the Mac mini now boasts Apple's M2 chip, boasting an 8-core CPU, 10-core GPU and 16-core Neural Engine. The 8GB of memory can now be boosted up to 24GB, while SSD storage options range from 256GB all the way up to 2TB. There is now also an M2 Pro version with a 10-core CPU/16-core GPU (configurable to 12-core CPU/19-core GPU), with 16 to 32GB memory and 512GB to 8TB SSD storage.

Entry-level and mid-range M2 Mac mini models continue to come with two Thunderbolt/USB 4 ports, but the M2 Pro model has now has four.

Mac mini £649 (Entry level)

Chip: Apple M2, 8-core CPU (4 performance cores, 4 efficiency cores), 10-core GPU, 16-core Neural Engine
Memory: 8GB (upgradeable to 24GB)
Storage: 256GB (upgradeable to 512GB, 1TB or 2TB)
Ports: 2x Thunderbolt/USB 4, 2x USB-A, 1x HDMI 2.0, 3.5mm headphone jack, Gb Ethernet (10Gb Ethernet option)

Mac mini £1,399 (Ultimate)

Chip: Apple M2 Pro with 10-core CPU (4 performance cores, 4 efficiency cores), 16-core GPU, 16-core Neural Engine
Memory: 8GB (upgradeable to 16GB)
Storage: 512GB (upgradeable to 1TB or 2TB)
Ports: 4x Thunderbolt/USB 4, 2x USB-A, 1x HDMI 2.0, 3.5mm headphone jack, Gb Ethernet (10Gb Ethernet option)



EXPECTED
JUNE 2023
UPDATED
JUNE 2022

MacBook Air > From £999

> Updated in June 2022, Apple's thinnest, lightest laptop now comes with Apple's new M2 chip. The M2 features a next-gen 8-core CPU (offering 18% more CPU performance), along with Apple's next-generation GPU, which now has up to 10 cores (providing a 35% boost in GPU performance), and up to 50% more memory bandwidth. The base model comes with 8GB of memory as standard but this is configurable to 16 or 24GB.

The redesigned Air is now thinner at 11.3mm and weighs just 1.24kg. Apple has also managed to reduce overall volume by 20%. Despite its slimline profile, it now also comes with a 13.6in Liquid Retina display. Boasting a resolution of 2560x1664, the display is bigger and

25% brighter than before and supports up to one billion colours.

The M2-equipped MacBook Air gets a 1080p FaceTime HD camera, and the laptop also features a four-speaker sound system which supports Apple's immersive Spatial Audio technology.

As before, you get two Thunderbolt/USB 4 ports and a headphone jack as well as 802.11ax Wi-Fi (aka Wi-Fi 6) and Bluetooth 5.0, and there's the welcome return of MagSafe. You also still get great battery life, with up to 18 hours of video playback or 15 hours of web surfing.

The Air is available in Space Grey and Silver but now also comes in Midnight and Starlight finishes. Prices for the M2 version start at £1,249. The M1 model is still available from £999.

MacBook Air £999 (Entry level)

Display: 13.3in Retina with True Tone
Chip: Apple M1 with 8-core CPU (4 performance cores, 4 efficiency cores), 7-core GPU, 16-core Neural Engine
Memory: 8GB (upgradeable to 16GB)
Storage: 256GB (upgradeable to 512GB, 1TB or 2TB)
Ports: 2x Thunderbolt/USB 4, 3.5mm headphone jack

MacBook Air £1,249 (Mid-range)

Display: 13.6in Liquid Retina with True Tone
Chip: Apple M2 with 8-core CPU (4 performance cores, 4 efficiency cores), 8-core GPU, 16-core Neural Engine
Memory: 8GB (upgradeable to 24GB)
Storage: 256GB (upgradeable to 1TB or 2TB)
Ports: 2x Thunderbolt/USB 4, 3.5mm headphone jack

Apple TV 4K

> From £149

> Apple's third-gen little black box with A15 Bionic chip now adds HDR10+ to the mix. Prices now start at just £149 (Wi-Fi only); the standard version now comes with 64GB of storage, while paying £20 extra gets you 128GB and Ethernet support.



Apple HomePod/ HomePod mini

> £99/£299

> Apple's Siri-powered speakers sound great, you can link two for stereo sound, and use them as smart home hubs. The mini comes in five colours, while the new Midnight/White HomePod (£299), offers higher spec and spatial audio.



Apple Watch Series SE, 8 and Ultra

> From £259

> The 8 and SE are water resistant to 50m, but the new titanium Ultra is water resistant to 100m. The 8 and the Ultra boast an always-on display, and all three offer Emergency SOS and Crash Detection.



MacBook Pro

> From £1,349

> While the MacBook Pro 13-inch got the M2 treatment back in June 2022, January 2023 sees the introduction of the M2 Max or M2 Pro in the 14in and 16in models. The new 14-inch M2 Pro model is available in a variety of CPU/GPU flavours - 10-core CPU/16-core GPU, 12-core CPU/19-core GPU, with 16 or 32GB memory options. Alternatively, if you step up to the M2 Max option, you can go for a 12-core CPU/30-core GPU or 12-core CPU/38-core GPU, with 32 or 64GB unified memory. All range from 512GB



EXPECTED
JAN 2024
UPDATED
JAN 2023

SSD storage to 8TB SSD storage. The 16in offers an M2 Pro 12-core CPU/19-core GPU, with 16 or 32GB memory. The M2 Max comes in either 12-core CPU/30-

core GPU, with 32 or 64GB memory flavour or 12-core/28-core GPU, with 32 to 96GB memory. Again, all range from 512GB to 8TB SSD storage.

MacBook Pro 13in £1,349

(Entry level)

Display: 13.3in Retina (2560x1600) with True Tone
Chip: Apple M2 with 8-core CPU (4 performance cores, 4 efficiency cores), 10-core GPU, 16-core Neural Engine
Memory: 8GB (upgradeable to 24GB)
Storage: 256GB (upgradeable to 512GB, 1TB or 2TB)
Ports: 2x Thunderbolt/USB 4, 3.5mm headphone jack

MacBook Pro 14in £2,149

(Mid-range)

Display: 14.2in Liquid Retina (3024x1964) with True Tone
Chip: Apple M2 Pro with 10-core CPU (6 performance cores, 4 efficiency cores), 16-core GPU, 16-core Neural Engine
Memory: 16GB (upgradeable to 32GB)
Storage: 512GB (upgradeable to 1TB, 2TB, 4TB or 8TB)
Ports: 3x Thunderbolt/USB 4, HDMI port, SDXC card slot

MacBook Pro 16in £3,749

(Ultimate)

Display: 16.2in Liquid Retina (3456x2234) with True Tone
Chip: Apple M2 Max with 12-core CPU (8 performance cores, 4 efficiency cores), 38-core GPU, 16-core Neural Engine
Memory: 32GB (upgradeable to 96GB)
Storage: 1TB (upgradeable to 2TB, 4TB or 8TB)
Ports: 3x Thunderbolt/USB 4, HDMI port, SDXC card slot

Mac Studio

> From £1,999

> Launched in March 2022, the Mac Studio is the best expression of Apple's silicon's superpowers yet.

Looking like an oversized Mac mini, its capacious aluminium body is still remarkably compact for a desktop Mac, measuring 197x197x95mm, but it's what's inside that really counts.

The £1,999 entry-level model packs the same M1 Max chip as the MacBook Pro, with a 10-core CPU, 24-core GPU and 32GB of memory, but it's the step-up models that are the most interesting.

That's because you can also buy a Mac Studio with M1 Ultra - a powerhouse piece of Apple silicon with a 20-core CPU, and up to 64 graphics cores, as well as



The Mac Studio is Apple's most powerful desktop Mac to date - it's pricy though.

up to 128GB of unified memory. Storage options also scale up to 8TB.

With Mac Studio M1 Ultra prices starting at £3,999, it's not for everyone - especially as you'll need to add a display, a keyboard and a mouse or trackpad too. But even the base model gets a decent array of connectivity options.

EXPECTED
OCT 2023
LAUNCHED
MAR 2022



Studio Display

> From £1,499

> Launched alongside the Mac Studio in March 2022, the Studio Display is a great addition to any Mac setup.

Powered by Apple's A13 Bionic and running iOS, it features a 27-inch Retina display with 5K resolution (5120x2880 pixels) and True Tone, a 12MP Ultra Wide camera with Centre Stage, and a six-speaker sound system with support for Spatial Audio. A range of stand options are available, and you can choose nano-texture glass for £250 more.

Mac Studio £1,999

(Entry level)

Chip: Apple M1 Max with 10-core CPU (8 performance cores, 2 efficiency cores), 24-core GPU, 16-core Neural Engine
Memory: 32GB (upgradeable to 64GB)
Storage: 512GB (upgradeable to 1TB, 2TB, 4TB, 8TB)
Ports: 4x Thunderbolt 4, 2x USB-C, 2x USB-A, 1x HDMI 2.0, 1x 3.5mm headphone jack, 1x 10Gb Ethernet, SDXC card slot

Mac Studio £3,999

(Ultimate)

Chip: Apple M1 Ultra with 20-core CPU (16 performance cores, 4 efficiency cores), 48-core GPU, 32-core Neural Engine
Memory: 64GB (upgradeable to 128GB)
Storage: 1TB (upgradeable to 2TB, 4TB, 8TB)
Ports: 4x Thunderbolt 4, 2x USB-C, 2x USB-A, 1x HDMI 2.0, 1x 3.5mm headphone jack, 1x 10Gb Ethernet, SDXC card slot



iPad/mini

- > iPad (10th gen) From **£499**
- > iPad mini From **£569**

> **Apple celebrates the iPad's 10th incarnation by increasing the display to 10.9in and boosting its internals to an A14 Bionic chip.** You now get an Ultra Wide 12MP front and updated 12MP back camera. The iPad now also finally adopts the USB-C port, and comes in Blue, Pink, Yellow and Silver. Prices start at £499.

The iPad mini is like a shrunk down iPad Air, with an all-screen design centred around its 8.3in Liquid Retina display. The £569 version comes with 64GB of storage (but can be upgraded to 256GB), comes with a 12MP Wide camera, second-gen Apple Pencil support and USB-C charging.

iPad Air > From £669

> **Like the iPad, iPad mini and iPad Pro, the iPad Air has an all-screen design that makes the most of its 10.9in Liquid Retina display.** Inside its super-slim chassis, you'll find the same Apple silicon M1 chip as the entry-level MacBook Air and Mac mini. Plus it's available in a choice of storage options (64GB or 256GB), has 802.11ax Wi-Fi (aka Wi-Fi 6) and Bluetooth 5.0 onboard, and there are Wi-Fi+Cellular variants with 5G starting at £719.

The iPad Air also supports Apple's second-gen Apple Pencil and can be teamed with Apple's Magic Keyboard for powerhouse productivity on the go. Augmented reality fans will love its LiDAR-equipped 12MP Wide camera, plus it also has Centre Stage.

iPad Pro > From £899

> **Apple's priciest iPad is also its most fully featured.** Available in 11in and 12.9in sizes, the iPad Pro models now boast M2 Apple silicon, which turbocharges the performance, and iPadOS 16 enables the new Apple Pencil 'hover experience'.

The 12.9in model's Liquid Retina XDR display boasts miniLED backlighting, but even the 11in model gets 120Hz ProMotion refresh rates, plus a Thunderbolt/USB 4 port for charging and connection to a wide range of external devices. And both support the second-gen Apple Pencil, Magic Keyboard, and Centre Stage. The 12.9in now makes an even greater MacBook replacement.

iPad

Display: 10.9in
Chip: A14 Bionic
Storage: 64GB, 256GB
Ports: USB-C
Unlocking: Touch ID

iPad mini

Display: 8.3in
Chip: A15 Bionic
Storage: 64GB, 256GB
Ports: USB-C
Unlocking: Touch ID

iPad Air

Display: 10.9in
Chip: Apple M1
Storage: 64GB, 256GB
Ports: USB-C
Unlocking: Touch ID



iPad Pro

Display: 11in or 12.9in
Chip: Apple M2
Storage: 128GB-2TB
Ports: Thunderbolt 4
Unlocking: Face ID



Apple Smart Folio

> From **£69**

> Available in a range of stylish colours, these wrap-around magnetic cases will keep your iPad mini, iPad Air and iPad Pro looking good for years, and they double as handy stands.



Apple Pencil

> From **£89**

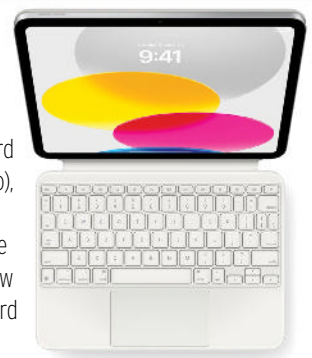
> Available in first-gen and second-gen variants, the Pencil brings pinpoint accuracy to your iPad interactions, making it great for sketching, painting and creating handwritten notes. And lots more besides.



Apple Magic Keyboard/Folio

> From **£279**

> The Magic Keyboard (for iPad Air/iPad Pro), comes with backlit keys and easy-to-use trackpad. There's now also a Magic Keyboard Folio for iPads.



EXPECTED SEPT 2023
UPDATED MAR 2022



iPhone SE

> From £449

> Apple's most affordable iPhone is now even better value, thanks to a March 2022 update that saw it receive the same A15 Bionic chip as the rest of the iPhone line-up and gain 5G to boot. Old-school design aside, the iPhone SE has most of the things people love about iPhone, from iOS's phenomenal ease of use to a 12MP Wide main camera with 4K recording - perfect for shooting photos and videos.

Battery life is decent too with the iPhone SE lasting for up to 15 hours between recharges (with Qi wireless charging onboard too). The main thing the iPhone SE misses out on is Face ID unlocking, making do with Touch ID on the Home button instead.

EXPECTED SEPT 2023
UPDATED SEPT 2022



iPhone 14/ Plus

> iPhone 14 From £849
> iPhone 14 Plus From £949

> The iPhone 14 retains the 6.1in screen of the 13, although the mini has been discontinued, and there's a 14 Plus with a 6.7in screen.

The two handsets retain the A15 Bionic chip, and the Main, Ultra Wide TrueDepth cameras are still 12MP but the phones now boast a Photonic Engine for better low-light images.

The iPhone 14 lasts up to 20 hours for video playback; the Plus up to 26 hours. All four handsets feature Emergency SOS and Crash Detection - Apple's latest ways of establishing an accident and contacting the emergency services.



EXPECTED SEPT 2023
UPDATED SEPT 2022

iPhone 14 Pro/Pro Max

> iPhone 14 Pro From £1,099
> iPhone 14 Pro Max From £1,199

> The iPhone 14 Pro and Pro Max come with the Dynamic Island, an interactive area around the new TrueDepth camera, that integrates alerts, activities, and notifications.

The Pro 14 and Pro Max are powered by a new A16 Bionic chip, and despite now offering an always-on display, the 14 Pro can last up to 23 hours for video playback, while the 14 Pro Max can keep going for up to 29 hours. Photography gets an upgrade too, as a new quad-pixel sensor on the Main camera provides 48MP quality at 12MP optimisation.

iPhone SE

Display: 4.7in
Chip: A15 Bionic
Storage: 64GB-256GB
Connectivity: 5G, Wi-Fi
Unlocking: Touch ID



iPhone 14

Display: 6.1in
Chip: A15 Bionic
Storage: 128GB-512GB
Connectivity: 5G, Wi-Fi
Unlocking: Face ID

iPhone 14 Plus

Display: 6.7in
Chip: A15 Bionic
Storage: 128GB-512GB
Connectivity: 5G, Wi-Fi
Unlocking: Face ID

iPhone 14 Pro

Display: 6.1in
Chip: A16 Bionic
Storage: 128GB-1TB
Connectivity: 5G, Wi-Fi
Unlocking: Face ID

iPhone 14 Pro Max

Display: 6.7in
Chip: A16 Bionic
Storage: 128GB-1TB
Connectivity: 5G, Wi-Fi
Unlocking: Face ID

Apple AirTag

> £35

> Ideal for keeping track of keys, bags and other easily mislaid items, AirTag hooks into Apple's Find My network, with precision finding on the iPhone 11 or later, thanks to their built-in U1 chip.



Apple AirPods/ AirPods Pro 2

> From £189

> Third-gen AirPods and second-gen AirPods Pro boast Spatial Audio with dynamic head tracking. The Pro also support ANC and Adaptive Transparency.



Apple AirPods Max

> £549

> These premium headphones aren't for everyone - especially at that eye-watering price tag. They are supremely comfortable and great-sounding though.



BEST BUYS...



> **NOISE-CANCELLING HEADPHONES**
Sony WH-1000XM5

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> They're a bit pricey but these are the best noise-cancelling cans you can buy. The app is great too.
★★★★★ MF382



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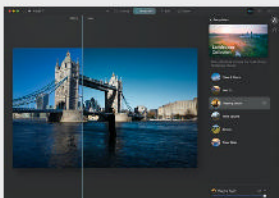
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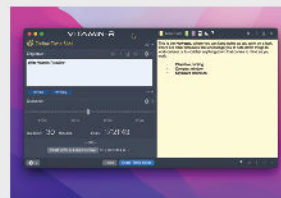
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£59 skylum.com

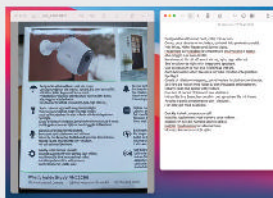
> If you want to improve your photos without spending too much, this is the app for you.
★★★★★ MF361



> **PRODUCTIVITY TIMER**
Vitamin-R 4.14

€27.95 (about £30)

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★★★★★ MF384



> **TEXT RECOGNITION**
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> TextSniper can quickly recognise and extract text from anything you can see on your Mac's screen.
★★★★★ MF364

> **OUR TOP 3**
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★★★★★ MF367



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★★★★★ MF361



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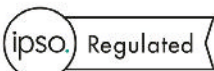
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RANDOM APPLE MEMORY

iPod Hi-Fi

With a new HomePod on the shelves, Graham Barlow looks back at Apple's first venture into home audio



Apple surprised everybody in January this year with the release of a new home speaker, the second incarnation of the HomePod. Undercut by much cheaper Alexa rivals, the original 2018 HomePod model had disappeared from Apple's product line-up by 2021, with only the cheaper HomePod mini still available for anybody who wanted to buy an Apple speaker. But now the new full-size HomePod (2nd gen) is back to reclaim its rightful throne from Alexa.

At £299, the HomePod (2nd gen) is still an expensive investment, and it's a whole £200 more than the HomePod mini, which is only £99. It also looks pretty similar to the original model. So, what are Apple banking on to make the new HomePod a success this time around?

If a powerful high-excursion woofer and beam-forming tweeters aren't enough to persuade your ears then the new HomePod is also a smart home hub, with Siri built in, so you can talk to it about life, the universe and everything, or maybe just ask it to turn down your smart light bulbs in the living room when you want to watch a movie. Unfortunately, Apple still insists on ignoring Bluetooth entirely in favour of AirPlay, and there's also

no AUX-in port, meaning you need to be running an Apple-only household to get the most out of it.

It's a world away from Apple's first foray into the audio market – the ill-fated iPod Hi-Fi from back in 2006. Decked out in the purest Apple white, the iPod Hi-Fi was a beast of a speaker that lacked the subtlety that Apple had become known for. It was heavy too (7.6kg when fed with the required six D-size batteries), and at 17-inches long there was no way it could be discreetly tucked away in your front room. Its built-in handles seemed to imply it was portable, but it was probably the least portable accessory that Apple had ever made.

Sounding more successful

When Steve Jobs launched the iPod Hi-Fi he claimed that it was, "Home stereo. Reinvented". But it's strange to think that there was once a day when Apple thought that having a massive speaker was what people wanted, when everything else was getting smaller. It sounded great though, and if it had been Bluetooth compatible and a bit smaller, it probably would have had a longer life, because just a short year and a half after its launch it was gone forever. Now you can buy one on eBay for about £75. Let's hope the (second-gen) HomePod lasts a bit longer than that.



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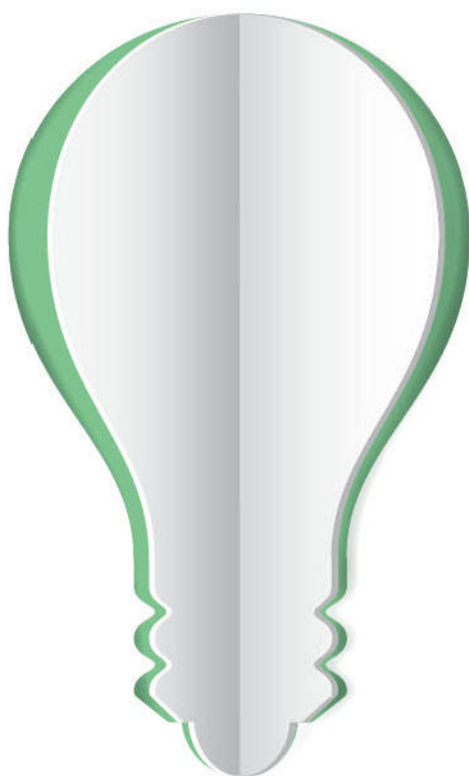
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