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Mac FORMAT

New iPad

> Unleash your creative side with Apple Pencil support

Build a better NETWORK

Banish dead spots, extend your range, and get rock-solid performance

IMPROVE SAFARI
> Boost what your browser can do!

APPLE HOME
> Grow your garden with smart gadgets

Learn new Apple skills
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FUTURE

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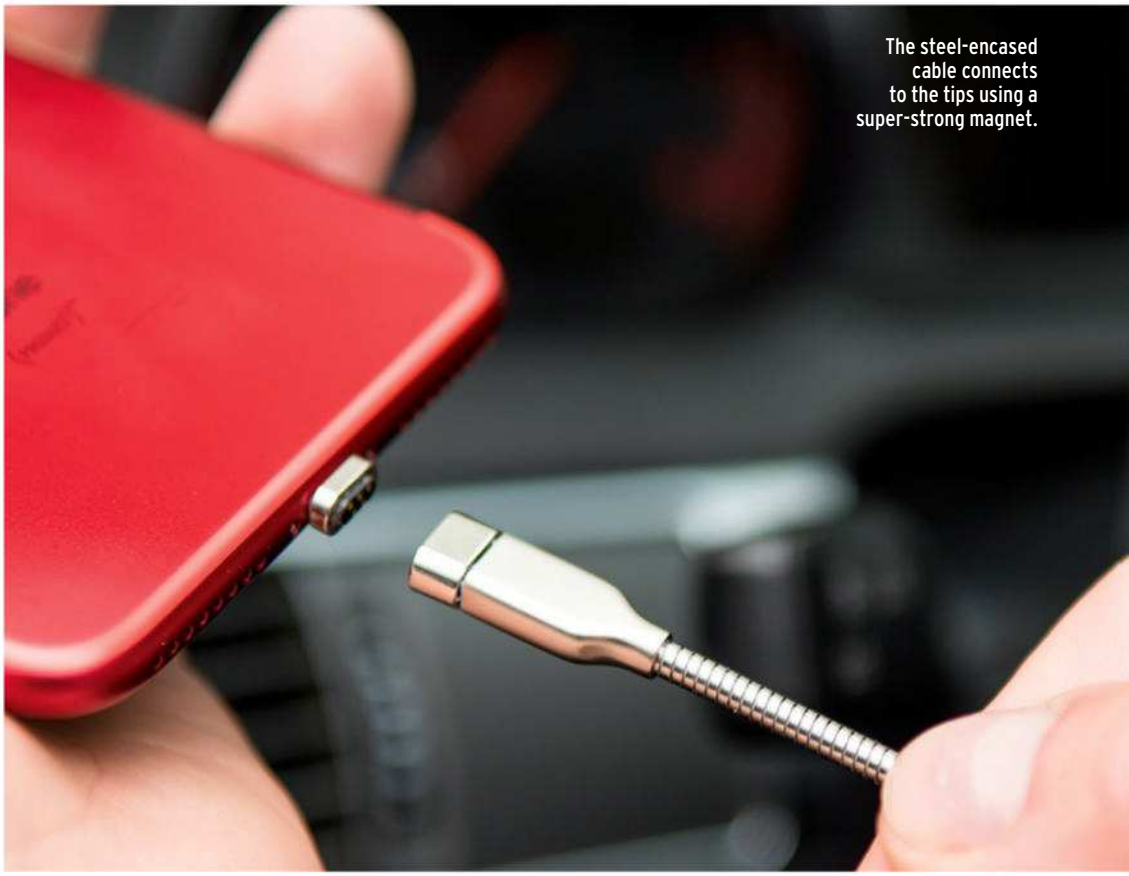
Mac FORMAT PRESENTS

iOpener

Game-changing tech from the world of Apple and beyond

Thanks to the interchangeable tips, the cable works with a variety of devices.

The tangle-free cable comes with a lifetime warranty.



The steel-encased cable connects to the tips using a super-strong magnet.

Anchor Cable

What if you could carry just one cable?

In an ideal world, you'd be able to use the same cable to charge and sync all your mobile devices. The Anchor Cable has a magnetic tip at one end, onto which you can attach one of three interchangeable tips: USB-C, Micro-USB and Lightning. At the other end is a USB-A connector. The cable is wrapped in a flexible metal sheath that stretches out a little, so it feels like it should hold up better against tension and flex than rubber-coated options. No case is provided for the tips so, unless you leave them installed in devices, you'll want to get a box for safekeeping.

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› **INCLUDES** 4ft Anchor Cable, USB-C, Micro-USB and Lightning tips

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Turn to page 36

Mac owners have been living with Wi-Fi since the summer of 1999, and which of us would be without it? Sure, there are some circumstances in which a cabled connection is better, but can you imagine if the great handheld devices we used today had to be plugged in to get online?

This issue we take an in-depth look at how to improve your home network. Whether some or all of your devices use Wi-Fi or Ethernet, you've almost certainly run into connection troubles at some point. The problem might be with your network, the place where you're trying to get online with a device, or further afield. We'll show you how to pinpoint problems, diagnose their causes, solutions for fixing them, and advice on products that can eliminate network nuisances.

When you've knocked your network into shape, check out our second feature and be inspired by all the things you can do in a web browser these days. If you need help comparing online prices, want something more robust than Safari's Reading List to keep track of pages to return to, or need guidance about whether a site is safe to use, you'll discover great web browser extensions for these tasks and more.

Before you get stuck in: if you're tired of recent system updates offering little more than fixes, check out our guide to the latest updates' features on page 40.

ALAN STONEBRIDGE
EDITOR
editor@macformat.com

Meet the team

Jo Membery
Operations Editor
Jo is looking forward to sorting out her home network. Her aim is to eliminate the phrase 'Mum, the Wi-Fi is so laggy!' from her life.

Alex Blake
Commissioning Editor
Alex has been on an extended Safari this issue, researching our guide to the many useful (and some outright fun) things you can do in a browser.

Paul Blachford
Art Editor
Paul was intrigued by the new 9.7-inch iPad, due to its Apple Pencil support, until he found out about weaknesses for pro users. Check out our review on page 82 to learn more.

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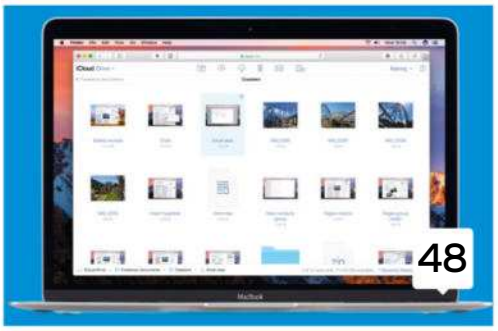

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APPLE CORE

EDITED BY **ALAN STONEBRIDGE**

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Apple is looking into manufacturing its own Mac processors, which would mean it would no longer be subject to Intel's timeline.

HOT TOPIC!

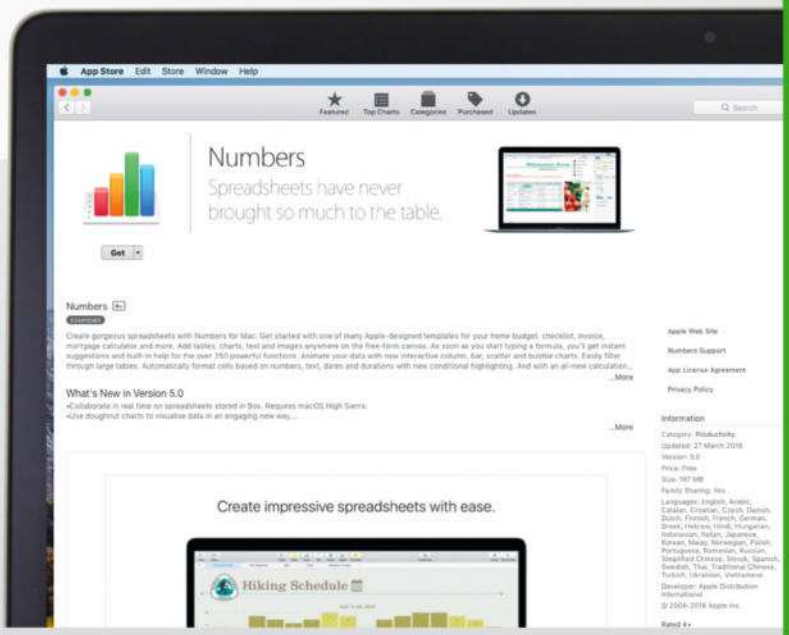
Apple working on own chips

Mac processors may be made by Apple in the future

Over the years, Apple has started introducing its own chips into its products. AirPods are equipped with the W1 wireless chip, for example, while the iPhone X runs on the A11 Bionic chip. Now it looks like Apple may start doing the same for its Mac computers.

According to *Bloomberg*, Apple will switch Macs over to its own processors as early as 2020, replacing Intel as its chip supplier. That could be a blow to Intel, which has worked with Apple on its Mac chips since 2006, when it moved away from PowerPC processors. Apple currently provides Intel with about 5% of its revenues, claims *Bloomberg*.

The initiative is reportedly code-named Kalamata at Apple, and is still in the early stages of development. The end goal is to have all of Apple's devices running on its own chips, thereby aiding their ability to seamlessly



The Mac App Store is soon to require 64-bit support for future app updates.

Time running out for 32-bit apps

Mac App Store to futureproof your app purchases

Starting on 1 June, all app updates submitted to the Mac App Store must be 64-bit-compatible. This follows Apple's move in January 2018, when it began requiring new apps to be optimised for 64-bit Macs.

This latest change will largely affect older apps that are yet to add 64-bit support. The first time you open a 32-bit app on macOS 10.13.4 or later, you'll get a warning telling you that the app is not optimised for your Mac.

Apple announced at WWDC 2017 that it would start phasing out support for 32-bit apps in macOS, and that High Sierra would be the last version to support 32-bit apps "without compromises". It also stated that all future macOS software must be 64-bit.

work and integrate with each other.

One major benefit of the move for Apple would be that it could release its Mac products to its own timeline, rather than having to rely on Intel's schedule. Whenever Intel releases a new generation of chips, there is much speculation as to whether they will be integrated into Macs and whether Apple has time to do so.

Having more control over the Mac's processor would also let Apple integrate its hardware and software more closely, as it can with the iPhone and iPad. It could also mean closer cooperation between iOS and macOS, according to Shannon Cross, an analyst at Cross Research.

Bloomberg further reports that Apple is working on a plan to allow iOS apps to work on macOS. The project, code-named Marzipan, could be unveiled as soon as this year and would benefit from the use of Apple's own chips in the future.

Of course, Apple will want to ensure that its own processors are able to keep up with Intel's current crop that are found in Macs. Intel's processors are known for their speed and power; therefore Apple might first introduce its own chips in its MacBook or MacBook Air models, which are less demanding than desktop Macs.

By running Macs on its own chips, Apple would be the only major computer maker to do so. Its rivals, such as Lenovo, Dell and Asus, use Intel chips or those of its competitor AMD.

When the news of Apple's potential chip switch was first reported, Intel's shares dropped by as much as 9.2%, its biggest drop in two years. Still, given the early stage of the plan's development, Apple could still change its mind and sideline the project.

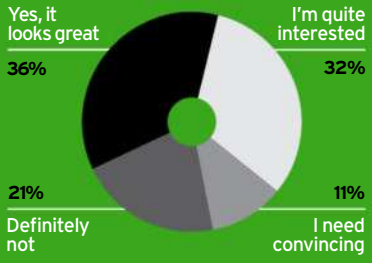
Intel declined to comment on the story, stating: "We don't comment on speculation about our customers." Apple has also declined to comment.

> If Apple develops its own chips, it could integrate hardware and software more closely

Mac FORMAT

THE POLL

WE ASKED... Does the new £319 iPad's Apple Pencil support interest you?



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Apple hires former Google AI executive

> In the nascent battle for the smart home, Siri has come under some heavy scrutiny. That could be why Apple has recently hired Google's former artificial intelligence (AI) chief John Giannandrea.

Giannandrea joined Google in 2010 when it purchased Metaweb, where he was Chief Technology Officer. The firm wanted to build a "database of the world's knowledge", which has been developed as part of Google's ability to answer questions posed by its users.

He joins Apple to run its 'machine learning and AI strategy', including Siri. In an email to Apple employees, Cook said "John shares our commitment to privacy and our thoughtful approach as we make computers even smarter and more personal."

Giannandrea's move will hopefully result in a boost to Siri.

APPLE NEWS ROUNDUP

APPLE CLAMPS DOWN ON LEAKS

FIRM SAYS IT FOUND 29 LEAKERS IN 2017

› Apple has a reputation for secrecy, something it is keen to uphold according to an internal memo. The note said Apple found 29 leakers last year, 12 of whom were arrested. It added that leakers can lose their jobs and "face extreme difficulty finding employment elsewhere." This stern approach is often mirrored by other Silicon Valley firms.

THIRD-PARTY WATCH FACES

WATCHOS CODE COULD ALLOW CUSTOM FACES

› Developers working on Apple Watch have long been restricted from creating their own watch faces, but that might soon change. Code from watchOS 4.3.1 appears to contain references to some future capability to add third-party faces. The code, spotted by *9to5Mac*, is not yet implemented but could come into action as soon as watchOS 5 – assuming the idea isn't dropped before then.

Mac Pro to launch in 2019

Apple is designing its powerful computer as a 'workflow-led' system

When it revealed it was working on a new Mac Pro, Apple said the computer would not arrive in 2017. Now we have a more firm date: Apple says it will launch in 2019.

In an interview with Matthew Panzarino of *TechCrunch*, Tom Boger, Apple's Senior Director of Mac Hardware Marketing, said "We want to be transparent... with our pro community so we want them to know that the Mac Pro is a 2019 product."

Apple has set up a Pro Workflow Team, which works with professionals in various industries in order to understand what they need from the Mac Pro. These users go about their work using a Mac Pro, then tell Apple where they hit bottlenecks.

Boger confirmed that the next Mac Pro is still set to be a modular platform. That might not mean the ability to add internal graphics cards, though – Panzarino says the vision of modularity he saw during the interview was of iPad Pros hooked up to an iMac as control devices, or of MacBooks running external graphics cards. Of course, we still don't know what form this modularity will end up taking.

Finally, John Ternus, Vice President of Hardware Engineering at Apple, also stated that the workflow-led approach is relevant to every computer Apple makes.

Curved, gesture-controlled iPhones

Apple reportedly working on radical screen tech for the future

With almost every smartphone now looking like an iPhone, Apple needs to differentiate its hardware. According to *Bloomberg*, the company plans to do that with a curved, gesture-controlled iPhone in the future.

The report states that the gesture controls would allow you to move a finger close to the screen (without actually touching it) and still be able to perform some tasks. However, it says that the technology will not be ready for at least two more years.

As for the curved screen, it would gradually curve inwards from top to bottom. Samsung has released its own curved phones, although they curve down at the edges.

In order to implement this, Apple would use OLED-based displays, which can be curved in ways which LCD tech can't. The iPhone X is so far the only iPhone with an OLED screen.

Bloomberg also reported that Apple is working on an iPhone that incorporates new screen technology known as MicroLED, but that this is at least three to five years away.

Of course, Apple may eventually choose not to use this tech – watch this space.

APP OF THE MONTH

[iOS APP]

Boulevard AR £2.99

Augment your home furnishings with Tudor reality

Here's an augmented reality (AR) app that's educational and a whole lot of fun. The National Portrait Gallery has turned its Tudor collection of fine artworks into a digital exhibition for you to explore in the comfort of your own home.

The app uses Apple's ARKit 1.5 technology, introduced in iOS 11.3, which is able to detect and place objects on vertical surfaces, rather than just horizontal ones. This enables you to see what artworks would look like in your own home, and you can move in for a closer look at the details. The visuals are accompanied by narration and period music.

Although AR doesn't (yet) allow you to reach out and touch the art, at least you won't get barred from a gallery for trying. And you don't have to trek all the way to (or across) London and deal with the crowds to enjoy it!

[iOS GAME]

Ovivo

£1.99

Guide Ovo through its monochromatic world, switching its colour to fall through from one area to the other. Gravity pulls down in the light, pushes up in the dark, and Ovo's momentum carries across the colour boundary, enabling it to explore new mysteries.

Why you need it: Simple but increasingly intriguing visuals.

What's it best for: Mechanics that play with your mind.

[MAC & iOS APP]

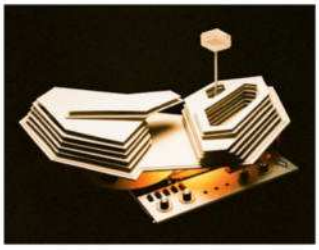
Textlicious

£1.99

If you've seen unusual text styles on social media or in messaging apps – such as letters enclosed in circles, a script font, or double-struck through – but don't know how to recreate the effects, this tool for Mac, iPhone and iPad offers a simple way to do it.

Why you need it: Enables you to use funky text styles.

What's it best for: Access in Services menu/Share sheet.



[iTUNES STORE]

Tranquility Base... Arctic Monkeys £8.99

After a long hiatus, Arctic Monkeys' first album in five years goes on sale just a few days after this issue! The band teased the release at the start of April, with an intriguing animation featuring the album's artwork, which you can watch at bit.ly/amtranq.

Why you need it: Come on, Arctic Monkeys are huge!

What's it best for: Inventive and cool British rock.

APPLE TV

Our top picks of what's worth watching and playing this month

[MOVIE]

Three Billboards...

£9.99

A Missourian mother seeks justice for her murdered daughter. Frances McDormand won an Oscar for this darkly comedic drama.

[PODCAST]

Plumbing the Death Star

FREE

Do Transformers tire? Why does Donkey Kong wear a tie? Laugh along with this overanalysis of popular culture.

[TV SHOW]

Gotham (Season 4)

£19.99

While DC films fail to satisfy, this reimagining of the origins of Batman and his foes is enjoyably trashy. It largely works due to great casting.

STEVE JOBS IN NUMBERS

Entrepreneur, inventor, designer. Having built his wealth co-founding Apple, what did Jobs spend his fortune on?

1

11 Years

› Steve Jobs bought the famous Jackling House in Woodside, California in 1984. He abandoned the mansion in 2000, leaving it empty for 11 years before finally demolishing it in 2011.

2

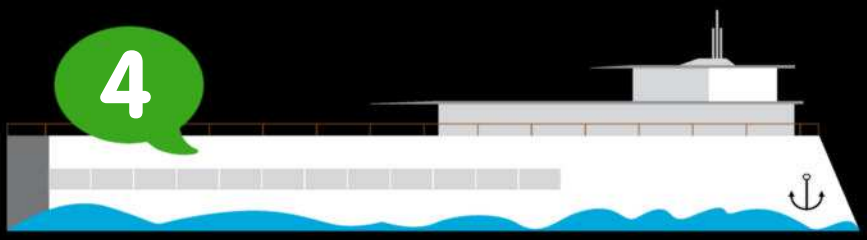
› **How's this for a perk? Steve Jobs once bought a Bösendorfer piano, costing around $80,000, for Apple employees to tinkle on during development time.**

3

5,768ft²

› **Aside from the Jackling House, Jobs had a 5,768-square-foot house in Palo Alto, which he used as his main residence and where he passed away in 2011.**

4



$100 million

› **Steve Jobs didn't have just any yacht – he had a super yacht. The boat, christened Venus, was only finished after his death, at a cost of over $100 million.**

5

› During his lifetime, Jobs was criticised for not giving to charity. In reality, he was a prolific philanthropist – albeit in private – for example, donating $50 million to Stanford hospitals.

6

$10 million

› Back in 1986, Pixar had just been spun out from Lucasfilm and was seeking funding. Jobs invested $10 million into the company, joining the board of directors as chairman.

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Mac FORMAT

INVESTIGATES

The future of wireless charging

With its own AirPower mat on the way, Apple is exploring wireless charging. So what's the next step?

WRITTEN BY **ALEX BLAKE**

When the latest round of iPhones debuted with wireless charging, it felt somewhat overdue. After all, wireless charging has exploded in recent years, and is almost old news now. The global wireless charging market has expanded from $1.87 billion in 2014 and is expected to reach $22.25 billion by 2022. Apple's rivals have seen its potential and have been equipping their phones with wireless charging capabilities for a couple of years. In contrast, Apple feels late to the party.

Still, you can see why Apple waited – wireless charging has its drawbacks. It's fiddly as you need to line your iPhone up correctly on the charging mat. It's expensive, requiring a compatible iPhone and a charging mat, which will set you back more than a simple cable will. And not every wireless charger will work if your iPhone is clad in a case. It's also slower – you can fast charge an iPhone X with a Lightning cable, which gives it up to 50% charge in 30 minutes, but you can't get the same speedy charging if you do it wirelessly.

With all these potential tripping hazards, it's no wonder Apple didn't jump on wireless charging as fast as some of its rivals did. Apple wants your wireless charging experience to be as good as possible – much better to let its rivals experiment while the tech is young, then appear on stage once the wrinkles have been ironed out.

Yet there's no doubt that wireless iPhone charging is in Apple's short-term plans. But what lies beyond in the sphere of wireless power? And what are other companies working on that could determine how you charge up your phone in the not-so-distant future?

Power play

On a basic level, the power level of chargers is increasing. Some of the original wireless chargers for iPhone supplied 5W of power, but CES 2018 saw the appearance of 15W chargers. Over time, this figure is likely to increase, leading to chargers that are able to power up your device in less time – in theory, at least. That's because iOS puts a limit on the maximum power draw of your iPhone, currently at 7.5W for wireless connections; iOS 11.2 upped the wireless power limit from 5W to 7.5W, so it's feasible that Apple will continue to increase this limit. Hopefully, this will mean that you're eventually able to fast-charge your iPhone simply by using a wireless charger.

Apple is at least exploring the possibility

The glass-backed iPhone 8, 8 Plus and X can all be charged wirelessly with a Qi-certified charger.

Apple's AirPower mat will be able to charge your iPhone, Watch and AirPods (using a new case) all at once.

of an improved wireless charger, according to two patents published in December 2017.

The first detailed a system that could create custom schedules to let a charger send power to various different devices, including phones, laptops, tablets and watches. The proposed system could be used to set up complex priority rules, and would remember the priority order in the future. For example, you could set it to charge your iPhone first, but only if your iPad has at least 25% battery power. Or you could dictate that your iPhone takes charging priority in the evening, but only if your calendar shows that you will be out of the office the next morning, thereby allowing you to have enough charge to use your phone while away from a power socket.

The second patent described a wireless charging device that could act as a standalone adaptor or send power to a charging mat. It could also potentially be embedded inside furniture or a vehicle interior, and from there charge a 'wireless power receiving device'.

> WattUp is the type of system we'd expect to see integrated into Apple devices

Added into the mix is Apple's acquisition in late 2017 of PowerbyProxi, a company that is working on high-power wireless charging devices. One such product, the Proxi-Module 100W, can (as the name suggests) supply up to 100W of power wirelessly to compatible devices. MacBooks can currently be charged by adaptors that supply up to a maximum of 87W; integrating the tech from PowerbyProxi into its future products could allow Apple to develop a charger that is not only more powerful than its current wired offerings, but that can also charge your MacBook wirelessly.

Interestingly, the Proxi-Module 100W allows you to charge your devices "through any non-electrically conducting medium", including solids, liquids and air. If Apple builds that into its future chargers, we could see it release a 'true' wireless charger that you can use without the need to place your device on a mat; it would charge simply by being in the vicinity of the charger. But in that effort, Apple and its new acquisition are not alone.

WattUp, doc?

Apple is reported to have been working with companies other than PowerbyProxi when it comes to wireless charging. Of particular note is Energous, the developer of a true wireless charging system called WattUp that aims to power up your devices from up to 15 feet away (though it's yet to go on sale). In 2016, prolific

Driving innovation ›

It may sound odd, but there has been a lot of work on developing wireless charging for cars. The idea is that the electric cars of the future will need an easy way to charge. For instance, chargers could be embedded in your garage, allowing you to top up your car without having to leave the house.

WiTricity, the company that worked with Dell on the Latitude 7285, has been active in this area; with 245 wireless patents to its name, it licenses its know-how to carmakers, which build wireless charging into their vehicles.

Furthermore, a research team from Stanford University has developed a system that allows power to be wirelessly transferred to a moving object, perhaps one day allowing you to charge your car as you drive.

Not only would that be far more convenient than having to stop and charge your vehicle, but it would help to lower its cost and increase its range as well.

tech leaker Evan Blass spotted a note in Energous's investor prospectus claiming that the firm expected its wireless charger to undergo Apple compliance testing in the future. This came after Energous publicly acknowledged that it was working with "one of the top five consumer electronics companies", which could be Apple. This set off a whirlwind of speculation that Apple was actively working on a unit that could charge your devices from a distance through the air.

However, Energous's PR firm replied to the allegations, stating that the expectation of Apple compliance testing "blankets any future anticipated testing and is not indicative of specific partners." Even if Apple is not working with Energous, WattUp is the type of system we'd expect to see integrated into Apple devices sooner or later – we very much doubt AirPower represents the height of Apple's ambitions in this field.

Energous isn't the only company that's working on true wireless charging devices. While Apple uses the Qi standard for its wireless chargers, a company named Pi is selling its own charger (also called Pi) that can replenish your phone from a foot away. You'll need a compatible Pi case if your iPhone does not come with built-in wireless charging capability; if it does, you don't need anything extra. The company claims you can charge up to four phones at once using the device, as long as they're all within about 12 inches of the Pi. Lixin Shi, co-founder of Pi, states that the charger's maximum power output is 20W at the moment, but that this limit could be increased in the future. Pi might eventually even be able to charge laptops.

In that respect, however, Pi has been beaten to the punch by Dell. Last year, the company released the Latitude 7285, the first laptop that could be charged wirelessly. It's a 2-in-1 laptop/tablet device, so you need the special wireless charging keyboard and the wireless charging mat to get this benefit. But once that's all in place, you can charge the laptop simply by placing it on the mat. It does not have to be aligned perfectly in order to charge, either.

Elsewhere, a team at California's Stanford University recently published research on 'robust wireless power transfer using a nonlinear parity-time-symmetric circuit'. In layman's terms, that means the team has developed a wireless charging system that can adjust its power output depending on the situation. For example, if you move the device being charged further away from the charger, its power output will be increased to make up for the extra distance.

Don't get too excited about super-long-range wireless charging yet, though; Tank Huang, the founder of charging company SmartPower, says there are drawbacks. Specifically, the wattage required for long-range charging could result in it interfering with Wi-Fi and Bluetooth connections (think of it like a microwave with its door open, suggests Huang). Overcoming that hitch will be a key task for the future of long-range wireless charging.

A wireless future

There is clearly a lot of work going into improving the capabilities of wireless charging, and no doubt Apple is developing the next step after AirPower right now (and perhaps the step after that).

Developing wireless charging past its current state won't be easy, not least because of the potential clashes with wireless data standards, but Apple is forging full steam ahead. The company has always chosen to go with wireless in the past, as the removal of innumerable Ethernet ports, headphone jacks and CD drives from its products attests.

As well as that, there are plenty of other companies heading in the same direction. Apple is prone to snapping up companies that develop tech it's interested in, and has already done so with at least one wireless charging company in the form of PowerbyProxi. If it's looking to improve its own products with the technology developed by one of these firms, it has a lot to choose from.

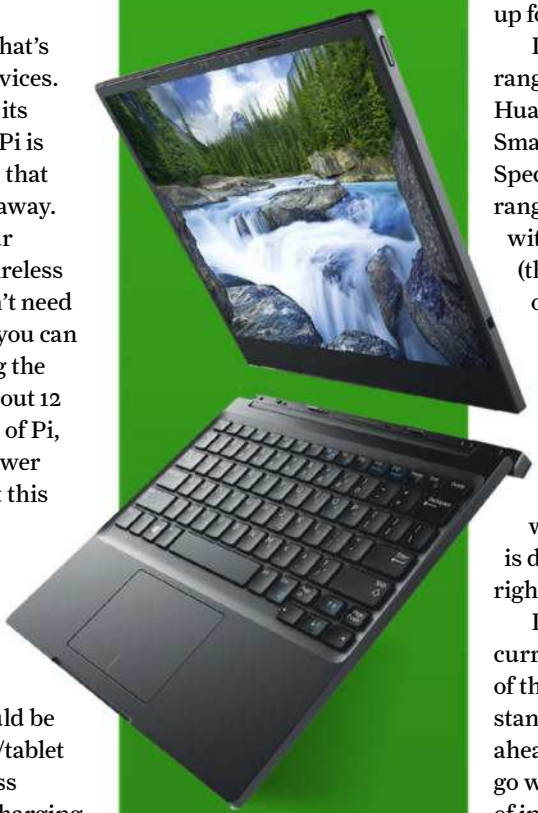
AirPower ›

By making it available in all of its latest phones, it's clear that Apple is committed to wireless charging. During the iPhone X launch event, it teased AirPower, its wireless charging mat that can power up to three compatible devices at a time. You don't need to worry about placing your devices in a certain position or orientation on the mat either; AirPower will charge them up no matter where you place them on the mat.

It's based on the popular Qi charging standard, with a couple of software tweaks that allow you to monitor on your iPhone the power levels of all devices as they charge.

The use of Qi means you can charge a compatible iPhone anywhere you find a Qi charger, such as certain hotel chains.

There are plenty of companies developing wireless charging tech, so we can hopefully look forward to long-range charging in the future.



Last year, Dell released the first laptop that could be charged wirelessly

CONTACTS

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> Email your queries and your questions to letters@macformat.com

LETTER OF THE MONTH!

What's up with Apple?

Matt Bolton's commentary on Apple's admission that it got it wrong when designing the Mac Pro set me thinking about the increasing number of design errors from the company.

The idiotic placement of the Lightning charging socket on the underside of the Magic Mouse has been well publicised. What about the thin white rubber feet on the Magic Keyboard, which is so flimsy that mine sagged in the middle and scraped on my desk – which I've solved with four slightly deeper self-adhesive feet, plus an extra in the middle.

Then there's the Apple Pencil's Lightning connector, which precariously plugs in to the iPad. Yes, you get an adapter so you can charge from a Lightning cable, but that's so tiny that I've yet to find a safe spot to keep it.

Last week, when I turned on my iPad, a message told me the Pencil's battery was down to 2% and needed recharging. I still haven't found anything in iOS to monitor its charge. It also seems there's no facility in macOS for monitoring the charge levels of the Magic accessories. Nor is there any help from Apple to indicate how long these relatively expensive add-ons need to be connected to reach full charge.

Of course, the trackpad and keyboard can be kept connected and used while recharging. But when the mouse or the Pencil run out of juice, there's no option but to take a 'time-out' of indeterminate length.

Individually these problems may seem trivial, but collectively they signal that Apple is losing sight of its 'It Just Works' mantra.

BY DIGBY HARPER

ALAN SAYS... Magic Mouse's charging situation is disappointing; even if the mouse is functional when its battery is past its best, it'll have to be laid to rest. (That said, I find cabled mice horrid to use.)

You can check Apple Pencil's charge in the Today view; tap Edit at the bottom of that view, then add the Batteries widget. On a Mac, monitor wireless accessories' charge from the Bluetooth menu bar icon. Add it in System Prefs > Bluetooth, then click the menu bar icon and put the pointer over an accessory's name. However, I find the reliability of its early warning that the level is low to be variable.

It's too easy to accidentally press a volume control and the side power button when picking up an iPhone X, leading to unintentional screenshots.

Hopes for Apple in 2018

In your newsletter, you asked what we hope Apple will do this year. Are you granting me three Apple wishes? Lovely! Wish 1: that it moves the iPhone's on/off button to the top edge instead of the side – where I inevitably press a volume control while awkwardly trying to turn it off or take a screenshot.

Wish 2: that it stops bringing out yearly system updates, and only releases when something sound and secure is ready.

Wish 3: for intentional support to continue for Photoshop CS5 so I can update to the latest macOS. We can't all afford subscription services! (I have no wishes for *MacFormat*. It's perfect already.)

BY ELEANOR PATRICK

PAUL SAYS... You wouldn't believe how many times we've heard Alan curse when he picks up his iPhone X and takes a screenshot by accidentally pressing buttons on both sides! We can't see this changing, though, since the side button is used even more extensively on Apple's current top-of-the-line smartphone.

We're hoping to learn about reported changes to Apple's development process at WWDC in June. It'll be interesting to see how far it allows features to be held back. We also hope it'll disclose more about the (non-)future of 32-bit apps on the Mac; we'll be returning to this topic to cover your options for keeping old apps running on macOS 10.14.

Finally, thank you very much for your kind words about the magazine.

LETTER OF THE MONTH

Win a Night Cable...

> The author of our Letter of the Month receives a prize! Email us to be in with a chance of winning a Night Cable from Native Union. This ultra-strong three-metre cable has a weighted ball to help keep it in place. Find out more at nativeunion.com.

More hopes for Apple in 2018

I'm hoping Apple updates the Mac mini. At the moment, it's the only reasonably priced Mac that allows me to use my own monitor. That is of huge importance to me, because of where I sit and the height I need to work. I can't use my husband's iMac as the screen height isn't adjustable. (How hard could *that* be to engineer? Ach, never mind.)

I produce a lot of creative writing, and back up manually on hard disks and flash drives. I don't use the cloud for this, because I don't trust it not to fail; there are lots of horror stories about people whose work vanished there. Time Machine has already failed me twice, so I no longer use it either. Simple flash drive storage for daily changes and a few hard disks for occasional full backups (and a clone of my system) work fine for me, and I want to continue to use them.

I would want a new mini to support things like flash drives and other media, as it does now. In other words, I want it to have plenty of ports. Including one for my printer, one for my monitor and several more, whatever the latest ones are.

I hope, in all the striving to produce the next big thing, that Apple realises we're not all panting for that thing. We are happy to upgrade as required, but not if we lose the elements that make the Mac work for us. If it takes away important elements, such as the ability to save our work locally, it risks losing our custom.

BY JAN FOLEY

The current mini's design has a plethora of ports: two Thunderbolt 2, four USB-A, HDMI, Gigabit Ethernet, discrete audio in and out, and an SD card reader.

JO SAYS... I don't think Apple will lock us in to cloud-based storage. However, I am also concerned that it might reduce the number of ports on the Mac mini. The iMac didn't lose out when USB-C was added to it, but the mini is a different proposition; ultimately, the fate of its ports might depend on whether the Mac mini becomes more of a Mac micro.

HomePod and Android

Your article 'Is HomePod too late?' (*MacFormat* #324) featured some interesting discussion on the pros and cons of Apple's speaker, and its development and marketing strategy. I want to point out that it's not entirely true, as Alex said, that AirPlay is "exclusive to Apple devices" and "won't work with Android phones".

HTC Android phones are one exception, having featured built-in AirPlay streaming for a while. That was a very welcome development as my wife is a big HTC fan, but we have my AirPlay speakers all around the house. She can now stream music from any source, including Apple Music, to all of them from her HTC U11.

This shows how Apple is actually open to third parties licensing and employing AirPlay, should they choose to do so. The problem may lie with those companies. If HomePod catches on, I hope more will follow HTC's lead and bring the benefits of AirPlay to Android users.

BY TOM ROGERS

ALEX SAYS... Please accept our apology for overlooking HTC's licensing agreement. Indeed, things are looking up for Apple licensing tech, what with it also relaxing the approval of HomeKit accessories. I, too, hope it can secure new partners with AirPlay 2. Right now, though, we're still waiting for that on HomePod, never mind third-party kit.

Have Your Say

We want to hear your opinion on what we're covering in MacFormat and how well we're addressing your needs as an Apple fan.

Take part in our reader survey at

bit.ly/mfsurvey2018

The closing date of this survey is Friday 15 June, 2018

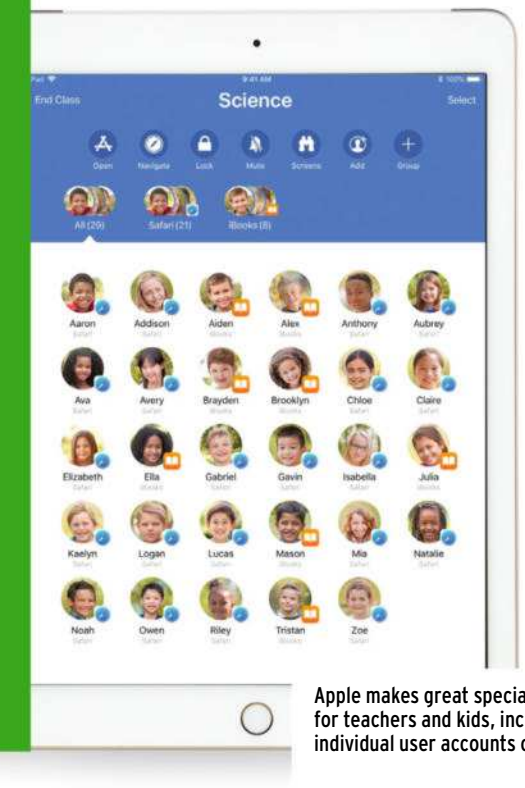
MATT BOLTON...

WONDERS IF APPLE'S SOCIALLY CONSCIOUS AND BUSINESS SIDES ARE TRIPPING OVER EACH OTHER WHEN IT COMES TO SCHOOLS

When Tim Cook, and others at Apple, say they care about social issues, I believe them. I don't think it's just typical Silicon Valley PR, but I can understand why other people would. For a start, we've all had a good laugh (cry) at the hollowness of something like Google's 'Don't be evil' mantra. Second, we know that manufacturing electronics has a shadow cast over it by the use of conflict minerals, regardless of how well intentioned companies are. And third – the thing that vexes me most – surely a company that reportedly has over a quarter of a *trillion* dollars in cash should really be making more of an impact on these issues.

Schools get Apple kit a little cheaper, but not really cheap enough

I found myself thinking about these doubts after Apple's recent education event. The company's announcements – grants to equip some poor schools with iPads, free coding training for teachers in some areas, and improvements and new apps focused on education – are wonderful for the people they reach, but it's a narrow impact. A new low-cost iPad that supports a cheaper version of the Apple Pencil is great on its own merits, but is it really going to beat out cheaper Chromebooks in schools given the horrifyingly tight budget limits they have? Schools can buy iPads at a slightly lower price, but not really cheap enough – it still feels like these iPads will be the preserve of the already-cared-for, while the kids who would most benefit from having these tools will be largely left as they are.



Apple makes great specialist tools for teachers and kids, including individual user accounts on iPad.

I'd love to know the internal politics behind these decisions, because Apple's new announcements leave things in a strange halfway house. Education iCloud accounts now get 200GB of storage, instead of 5GB! But isn't that move an implicit confession that the 5GB the rest of us get isn't enough? Similarly, the cheaper Logitech Crayon stylus isn't being sold beyond special education

The new iPad is a wonderful computer for kids to learn on and play with, but will its benefits actually reach the kids who would be helped by it the most?

stores – it's just for schools. Surely lots of businesses and kids would benefit from one? It has this nasty smell of Apple thinking it isn't good enough to sell outright... in which case, why is it good enough to sell to schools?

It means the end result feels like a limp gesture: 'Here, have a few quid off, while our pile of money grows large enough to show up on a map of the Earth.' I'd like to see Apple sell the new iPad and Apple Pencil to schools at (or even below) cost. That would knock up to $100 off the iPad's price, making it highly competitive with Chromebooks. This isn't even a bad business decision – if it tempts more schools to go with iPads, that's an investment in people wanting more Apple products in the future. I know business interests make doing this kind of thing tough, but I believe people at Apple want to make the world a better place. Apple is their tool to do that, but I hope it isn't also the obstacle.

ABOUT MATT BOLTON

Matt is the editor of Future's flagship technology magazine *T3* and has been charting changes at Apple since his student days. He's sceptical of tech industry hyperbole, but still gets warm and fuzzy on hearing "one more thing".

SPLIT VIEW

The *MacFormat* team debates the hot Apple issues of the day, using their iPhones of course!

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Turn to page 36

Alex says... "WHAT D'YOU THINK ABOUT EXTERNAL GRAPHICS CARDS ON THE MAC?"

Have you seen that Apple at last introduced external graphics card (eGPU) support with the macOS 10.13.4 update?.

Alan says...

Yes, it opens up some intriguing possibilities for upgrading your Mac – as long as you have one with Thunderbolt 3.

That bodes well. In the past, if you're serious about games you've really had to go down the PC route to keep up with demands. That might not be the case going forward.

Speaking of cases, they work out pretty expensive on top of whatever card you pick – about £320 – but the total might be less than buying a brand-new Mac.

True – the cost means this isn't an option for everyone. You'll also be limited to AMD cards – Apple doesn't support Nvidia's yet.

Also, you'll only benefit from an eGPU in apps that use the Metal 2, OpenCL and OpenGL technologies, such as Final Cut Pro X.

So it sounds like it's going to be a very niche thing – at least for a while. Still, it's nice to have this option at long last!

Indeed! I'm excited to see how eGPU support might fit into Apple's plans for the modular Mac Pro. I guess we'll find out next year.

Siri...ously?

Siri, who let the dogs out?

tap to edit

Due to unforeseen circumstances, that witticism has been retired.

APPLE IN QUOTES

GREG JOSWIAK
apple.com

"Before the industry knew it, we were blowing people away [with the tech]."

Apple exec says the gaming capability of iOS has surprised people

PHIL SCHILLER
apple.com

"We want them to understand the importance they have for us... [and] that we're investing in new Macs."

Marketing chief says Apple is working hard to satisfy its pro users

EDDY CUE
apple.com

"The people that make technology have to make it for good."

Apple software exec says technology "in and of itself is not for good"

TIM COOK
apple.com

"The only way to protect your data is to encrypt it. There is no other way known today."

Apple CEO is forceful on the benefits of encryption to privacy

PRIZES WORTH OVER £800

Win!

One of two incredible Mac displays from Philips!

Boost your Mac use with a colour-accurate Philips display!

If you want a brilliant high-quality display with some well thought-out extras, you're in luck. That's because in this issue you can win one of two superb displays from Philips.

The 32-inch Philips 328P6AUBREB received five stars and an Editor's Choice award when we reviewed it last issue, making it one of the best displays we've reviewed in recent years.

For one thing, we loved its amazing 10-bit display. It covers 99% of the Adobe RGB gamut, so it's ideal if you need a screen for colour-accurate work.

It's a big display, sitting pretty at 32 inches diagonally, and it has a resolution of 2560x1440 pixels. That gives you plenty of space to have multiple windows side by side with room to spare.

But this display's benefits aren't all in the panel. It's equipped with a USB-C port and two USB-A ports, so you'll have a great data hub for your devices. Not only that, but due to the USB-C, DisplayPort 1.2 and HDMI 2.0 ports, it's a cinch to connect the screen to whatever Mac you have.

Even if you don't need the great colour accuracy, this is still a fantastic monitor that comes with our seal of approval – don't miss your chance to win one in our giveaway!

>THE QUESTION

We've got two Philips 328P6AUBREB Mac displays to give away. For your chance to win, answer this question:

How many USB-A ports does this display have?

A) 1
B) 2
C) 3

For more information about the Philips 328P6AUBREB, plus Philips' full range of displays and other products for your Mac, visit the company's website at **philips.co.uk**.

HOW TO ENTER...

- To enter, you can visit our website at **bitly.com/Philipsduo** (web address is case sensitive).
- For full terms and conditions, go to **bitly.com/Philipsduo**. By sending your entry, you agree to these competition rules and confirm you're happy to receive details of future offers and promotions from Future Publishing Limited and carefully selected third parties.
- This competition closes on **4 June 2018**. Over 18, GB residents only.

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tv
HELIOS LanTest File Edit Window Help
Sun 15:20
Network Utility
Info Netstat Ping Lookup Traceroute Whois Finger Port Scan
Select a network interface for information.
Wi-Fi (en1)
Interface Information
Hardware Address: a8:8e:24:a5:21:03
IP Address: 192.168.35.55
Link Speed: 450 Mbit/s
Link Status: Active
Vendor: Apple
Model: Wireless Network Adapter (802.11 a/b/g/n)
Transfer Statistics
Sent Packets: 779
Send Errors: 0
Recv Packets: 11,932
Recv Errors: 0
Collisions: 0
Network
Location: Automatic
Ethernet
Wi-Fi
Bluetooth PAN
FireWire
Thunde...lt Bridge
Status: Connected
Configure IPv4: Using DHCP
IP Address: 192.168.35.67
Subnet Mask: 255.255.255.0
Router: 192.168.35.254
DNS Server:
Search Domains:
HELIOS LanTest
Test settings
HELIOS
Volume: nickpeers Desktop
Network: Very fast networks, e.g. Gigabit Ethernet
Printer: Dell B1265dnf Laser MFP (DEL001599DC8612)
Repeat tests 10 times
Number of users: 1
Test selection
Description Results Last Average Unit
Create 300 files of 20 kB 33.8 46.3 ms
Open/Close 300 files 7.5 11.3 ms
Remove 300 files 18.8 26.7 ms
Write 300 MB to file 215.2 187.0 MB/s
Read 300 MB from file 265.7 286.6 MB/s
Lock/Unlock 16000 times 103.3 104.5 ms
Read directory (640 files) 0.4 0.4 ms
Print 300 MB 0.0 0.0 MB/s
Spotlight Search
Server-based Indexing and Search for Mac, Windows, Web and iOS Clients
A HELIOS Spotlight search is super fast and returns results in seconds instead of hours when searching on server volumes. This search technology enables Mac, Windows, and Web users to quickly find server files, based upon file name, metadata, or text content.
Start
SPEEDTEST
TESTS 3
FASTEST 31.7 Mbps
AVERAGE 30.4 Mbps
15 31.7 9.62
15 29.6 6.32
15 30 6.24
RESULT HISTORY
RUN IN MENU BAR
ABOUT
QUIT SPEEDTEST
MacBook Pro

Build a better NETWORK

Banish dead spots, extend your range, and get rock-solid performance

Written by Nick Peers

These days, your network is put to much greater use than simply getting your Mac online to browse the web and check email. Inevitably, that means enduring a lot more disruption if something goes wrong with it – no more Netflix, tunes won't stream from Apple Music or Spotify, and you may be unable to access files on your networked storage until the problem is fixed.

But, how do you go about identifying the root cause of the problem, which could originate anywhere from your internet service provider to the location within your home that you've chosen to use your Mac, iPhone, iPad, Apple TV or some other kit?

Here you'll learn about diagnosing network interference, kit that can boost your network, ways to improve security, new things to do with your network, and more. Even if your network's running well right now, networking niggles can suddenly sneak up on you, so hold on to this guide to keep yourself connected.

Troubleshoot your current setup

Problems getting on to the internet or your own network? Start here

Your network can be neatly divided into two zones: inside and outside. The outside refers to the wider internet, delivered to your home through your phone or cable connection, while the inside is where all your networked devices reside – whether they're connected using Wi-Fi or Ethernet cabling. Bridging the two is your modem-router, which does the hard work of managing the connections between devices, both inside the local network as well as with the outside world.

When it comes to troubleshooting your network connection, therefore, you have three major points where problems tend to occur: your Mac or some other device, your router, or your internet connection.

The simple stuff

Begin by restarting your router or powering it off for a minute or so – this often clears up most problems, just like restarting your Mac can occasionally fix glitches. Speaking of which, restart that at the same time. Don't take this as a reason to regularly power off your router, mind – it should normally be left on 24/7.

That will clear up some glitches, but not all. The guide opposite reveals how to use macOS's own networking tools to try to determine the problem and implement a solution – as they tend to focus on your Mac, check whether your other devices are suffering a similar problem before focusing attention on your computer.

If the problem appears to affect all your devices, then the next port of call is your router. If devices can see and connect with each other, but not the internet, then the issue may lie with a problem outside your home (and direct control). The second step-by-step guide opposite reveals how to go about trying to rectify this problem – if you don't have the means to connect to the internet another way – for example, using a hotspot feature on your mobile phone – it's worth checking with neighbours to see if their broadband connection is down and, if not, if they'll let you connect temporarily to continue troubleshooting.

There are plenty of free Mac tools available to help benchmark and troubleshoot your connection.

Check network speed

Speedtest can help you determine the actual speed you're getting from your internet connection.

Worried your internet connection isn't delivering the performance you expect? First, install SpeedTest from the App Store (it's available for Mac, iOS and tvOS) to run a pair of tests that will give your connection's upload and download speeds. It's worth trying this at different times of day to see if performance changes – for example, when more households are connected in the evening.

You can check your current local network speed by opening Network Utility (type its name in Spotlight) and switching to its Info tab. Select 'Ethernet (en0)' for your wired connection – the link speed should be 1Gbit/s; if not, check the cables and verify your router supports a fast Gigabit Ethernet connection. Select 'Wi-Fi (en1)' to check your wireless connection. Here, a strong signal should deliver at least 200Mbps for a 2.4GHz network, and 350Mbps for a 5GHz connection.

For real-world benchmark results, try the free HELIOS LanTest tool (bit.ly/heliostest) – you'll need the username and password shown on that page to get it, and to use System Preferences' Security & Privacy to allow the app to be installed.

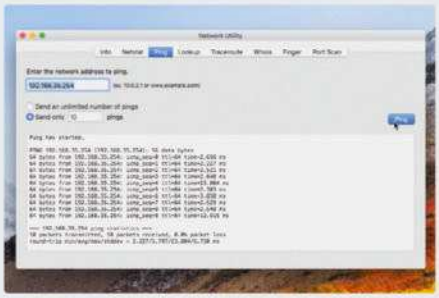
Diagnose connection issues

A quick-fire guide to network troubleshooting

The first place to check your Mac's connection is System Preferences' Network pane. Select Ethernet or Wi-Fi, depending on which one you use. If the circle next to it is red (no connection) or yellow (not configured), the pane should provide info on the problem, such as a missing IP address (the set of four numbers that uniquely identify a device) or lack of an internet connection. If that's not enough to identify the issue, read on.

1 Check for Wi-Fi problems

Hold ⌥, click the Wi-Fi menu bar icon and choose Open Wireless Diagnostics. Click Continue to let this tool run a series of tests, then click each result for a detailed description of what it has found.



2 Run connectivity tests

Use Spotlight (⌘+[spacebar]) to open Network Utility. In the app's Ping tab, type your router's IP address in the box and click Ping. If the packets are all received, the issue isn't with your Mac.

3 Verify IP settings

Go to System Preferences' Network pane. Select your connection type and check an IP address has been assigned – if set manually, click Advanced, then TCP/IP; try setting IPv4 to 'Using DHCP'.

4 Renew the lease

Try renewing the lease of the IP address given by your router. If the issue persists, pick 'Using DHCP with manual address'; enter an unused one, leave the mask as is, and verify the router address.

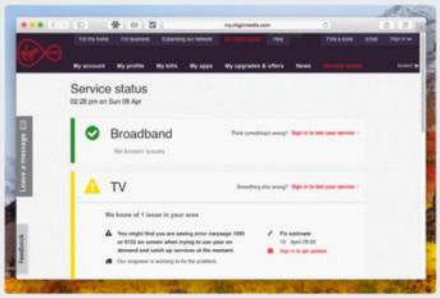
5 Forget Wi-Fi network

If you use Wi-Fi, click Advanced, then the Wi-Fi tab, select your misbehaving network in the list and click – (minus) to remove it. Click OK, Apply, then the Wi-Fi menu bar icon and connect from scratch.

HOW TO Troubleshoot router problems ›

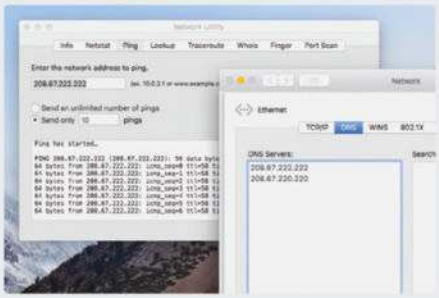
1 Log in to your router

Point your web browser at your router's IP address (see the TCP/IP tab in System Prefs › Network › Advanced). Check to see if the status page indicates an issue with your internet connection.



2 Ask your provider

If the connection is down but you can get online on your phone, check your service provider's status page for outage reports. Its support pages should give its required settings, plus contact details.



3 Resolve DNS issues

If your router has a connection but pages don't load, your provider's DNS server, which connects web addresses to servers, might be in trouble. Follow bit.ly/odnsma to see if this free service fixes it.

Mesh network

This tech is designed to extend Wi-Fi networks through larger homes. Asus has even launched its own mesh system (asus.com/uk/AiMesh) that works not just with brand new routers but its existing models, too.

Range extender

This relays your Wi-Fi signal to a dead spot in your home. Prices start from around £15 for an 802.11n model that supports a transmission rate of 300Mbps, or save a little money by reusing an old router in bridge mode.

Improve your infrastructure

Bring your network bang up to date to boost its speed or range

Once upon a time, you plugged your Mac in to a modem and that was your internet connection sorted. These days, your network consists of more than just a few computers and perhaps a printer; now there are your mobile devices, smart TVs, Internet of Things (IoT) gadgets and other hardware besides to consider. If your network is struggling to cope with bandwidth demands or the places you need it to reach, now's the time to look for the right upgrade to suit your needs and your wallet.

Network switch

Add extra ports to your network for cabled devices. Ideally, use a switch with Gigabit ports for max performance. Managed switches have advanced features, such as link aggregation for combined throughput – useful on Macs that have multiple Ethernet ports.

New Wi-Fi router

The 802.11ac wireless standard gives you faster wireless performance at greater range, covering more of your home. A new router may have other advantages, too – extra features, stronger security and so on. See what to look for on page 35.

Powerline adapters

Extend your network over your electrical circuit. You'll need at least two (one goes near your router). Choose 1200AV models to maximise performance, and passthrough models if you need to keep the wall socket free. Some models feature Wi-Fi, too.

How your network works

Discover how your networked devices communicate with each other

How exactly does data travel from one part of your network to another? The answer lies in the TCP/IP model. TCP (Transmission Control Protocol) is the method used by computers to connect over networks, while IP (Internet Protocol) is the way in which data is broken down into 'packets' of information and transferred.

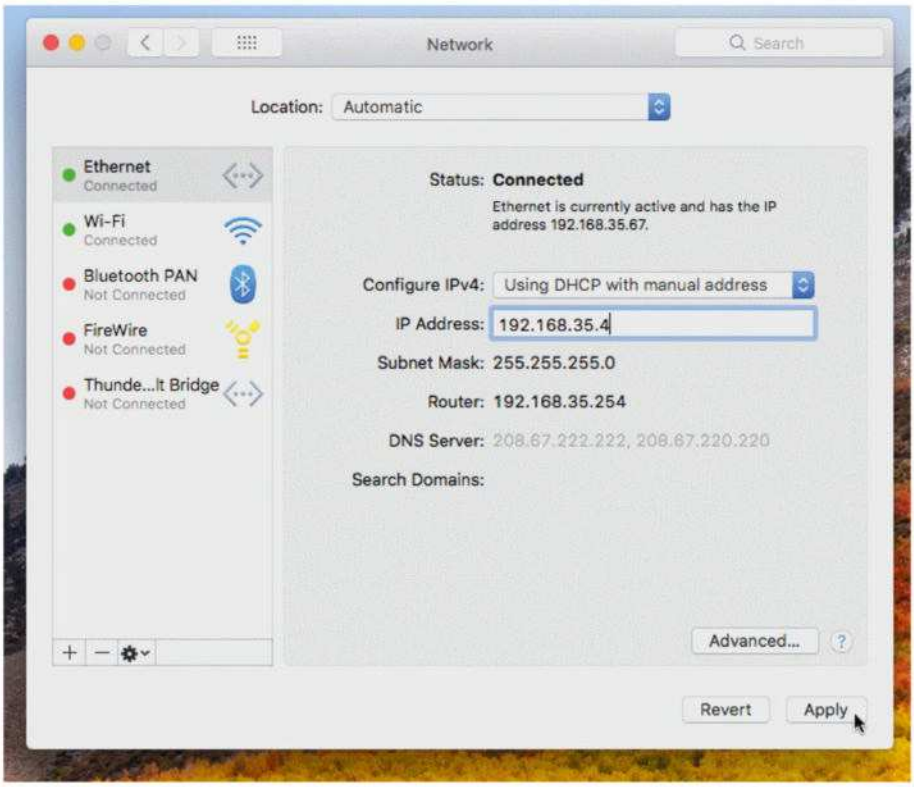
Each packet is labelled in such a way as to make it clear where it's come from and what its destination is. When data is transferred, the TCP part of the process is responsible for ensuring the data is checked for errors during transmission – if errors are found, the data is transferred again.

This model can be broken down into four basic layers: Application, Transport, Internet and Link – see the explanation opposite for a basic breakdown of what happens on each of those layers.

At the local network level, your devices are typically linked and managed through a single device – your router – in what's termed a Local Area Network (LAN). Devices are uniquely identified on your network by their IP address, which consists of four separate digits, each of which can be a number from 0 to 255. The first two refer to the network address and are almost always 192.168. The last two refer to the host address. Of these, the first number (the subnet) is shared between all networked devices, while the final number (host) is what uniquely identifies that device on the network. For example, your Mac might be assigned 192.168.0.2 and your iPhone might be 192.168.0.3.

One IP address on your network – often 192.168.0.1 or 192.168.0.254 – is reserved for your router, and this address is known as the 'gateway', through which all other devices communicate. You'll also see a reference to a subnet mask, which is usually 255.255.255.0 and can be safely ignored.

By default, IP addresses are handed out automatically by your router using a feature called DHCP (Dynamic Host Configuration Protocol), but you can set them manually for devices whose IP address needs to remain constant, though this is unusual in a home setting.



If you want to apply a static IP address to your Mac, select your connection method in System Preferences > Network, click Advanced, choose 'Using DHCP with manual address' and assign one that isn't already in use.

Virtual Private Networks (VPNs) work by 'tunnelling' an encrypted connection through an unencrypted network.

Wireless concerns

Data transferred over wires is generally considered secure, but data sent wirelessly can be intercepted, which is why Wi-Fi networks support various forms of encryption, the most secure of which is currently WPA-PSK2.

One way to secure your internet connection on an insecure wireless network is to use a Virtual Private Network, which effectively creates an encrypted 'tunnel' through which data is sent and received.

Enjoying what you've read so far?
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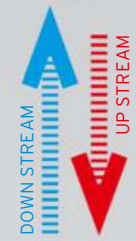
p36

1. Application layer

This layer is split into three main elements: at the top of this layer is the software you're using to access the internet, such as a web browser. Next is the 'presentation' element, where data is translated into a format for sending – for example, if it's to be encrypted or compressed. Finally, the 'session' element determines the type of connection made – HTTP or HTTPS for the web, and SMTP for email, say.



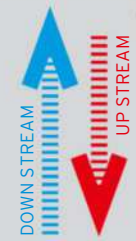
2. Transport layer (TCP)

This manages how the data will be delivered by converting it into 'packets' for sending, then making sure they're safely delivered and reassembled at the other end in the correct order. It also works in reverse for packets received by your computer.

Files broken down to packets

3. Internet (or Network) layer

This is the layer that covers how the data will be addressed and then routed between devices. This means determining where the data is to be transmitted to on its route between your computer and its destination. It's also where the actual delivery of data occurs, using IP packet switching, as described earlier.



4. Link layer

The lowest layer, also known as the network access layer, is where error detection and correction take place as the data is packaged and transported. It's also where you'll find the physical hardware (typically Ethernet or Wi-Fi) that connects your device to your network and, ultimately, the internet.

Networking terms explained

802.11
The protocol for transmitting data wirelessly over different frequency bands, including 2.4GHz and 5GHz. The letter(s) after the number indicates a specific standard that determines the frequency, speed and range. The current standard is 802.11ac.

DHCP (Dynamic Host Configuration Protocol)
A network management tool used by routers to automatically assign unique IP addresses to each device that's connected to a network.

DNS (Domain Name System)
This is a naming system that translates user-friendly domain names – such as apple.com – into their actual public IP address (17.178.96.59 in apple.com's case), making it easier for humans to browse the web. A DNS server supplies this information, acting as a kind of 'telephone book' for the internet.

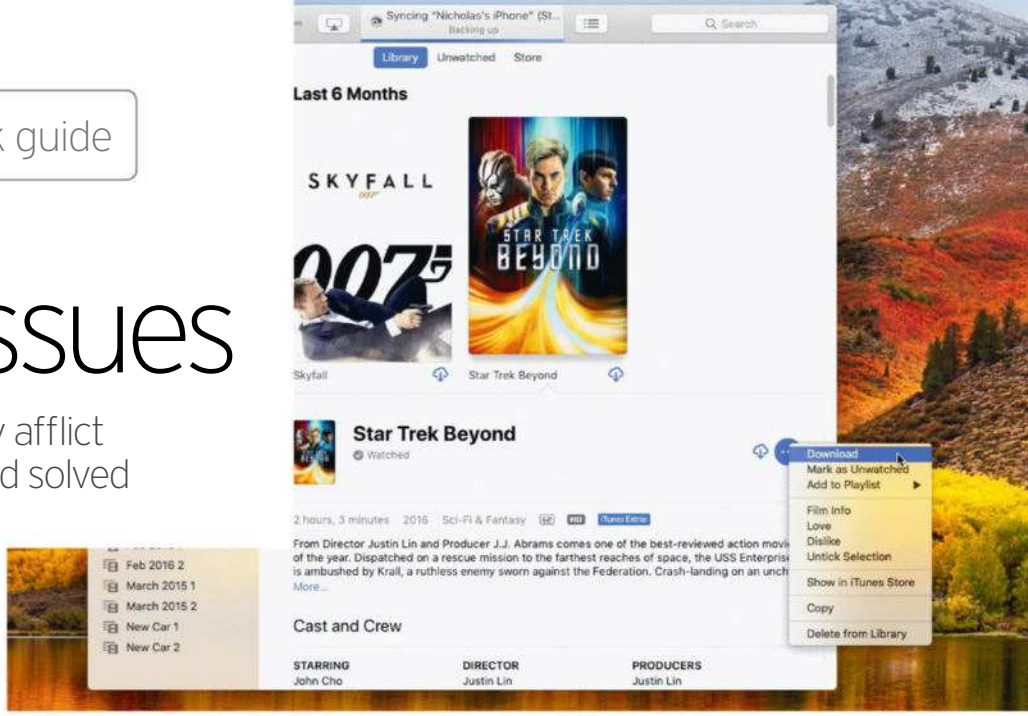
IPv4 and IPv6
These are different versions of the Internet Protocol (IP) standard for routing internet traffic using IP addresses. IPv4 remains the most common, but IPv6 offers a greater pool of addresses and should eventually replace it – at least on the internet.

Public IP address
The IP address that identifies a website or your own network to the internet. Your own public IP address is allocated to you by your internet service provider. Each device on your network is then allocated a private IP address by your router.

Noise
The amount of interference affecting your device's Wi-Fi signal due to range and other devices. The greater the noise, the more likely you'll encounter connection or performance problems.

Network issues

Five problems that commonly afflict home networks, discussed and solved



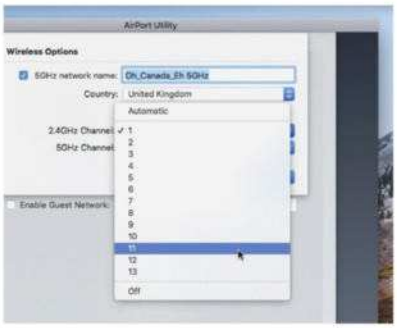
Wi-Fi frequency

Fix congestion issues

These days, many wireless networks overlap due to their number and extended range, which can cause interference that manifests with poor performance and connection issues at shorter than expected ranges. Add in an ever-growing number of devices trying to share a single channel and you can see how problems can occur.

If you have an 802.11ac router that can broadcast on the 2.4GHz and 5GHz bands, which are divided into several narrower channels, try moving some devices onto the less crowded and congested 5GHz band, particularly those close to the router.

2.4GHz networks also transmit over several overlapping channels – 1 through to 11 in the UK – and moving your network to a less crowded one can also have a marked impact on performance. Use Spotlight to find and open Wireless Diagnostics. In that tool, choose Window > Scan. Use the summary page to see which channel is recommended under 'Best 2.4GHz', then use your router's configuration utility to switch it to broadcast on this channel.



In AirPort Utility, you can set Apple's routers to broadcast a separate 5GHz network.

Fix Apple TV streaming issues

Media streaming issues can be traced to poor network performance, often linked to a weak Wi-Fi signal. If your Apple TV is located in a different room to your router, that's likely to be the problem. If the device is connecting using the 5GHz band, try switching it to the 2.4GHz band, which performs better at longer ranges. Failing that, either add a range extender to boost the signal to where your Apple TV is sited or invest in powerline adaptors, which allow you to connect your devices to your network using Ethernet cable, carrying the connection between rooms using your electrical circuit. Wired connections are typically faster and stabler than wireless.

If your router is nearby and you're convinced the signal should be strong enough, there may be congestion from other Wi-Fi networks – refer to the tip on the left to change the channel and fix this.

Your internet connection's speed will also affect streaming from outside your local network. 4K video requires a lot of bandwidth – Apple recommends 25Mbps; with too little, Apple TV may stream as a lower quality. However, we've found that you can force it to use 4K by turning off Quick Start in Settings > Apps > iTunes Movies and TV Shows.

Access shared folders on a PC

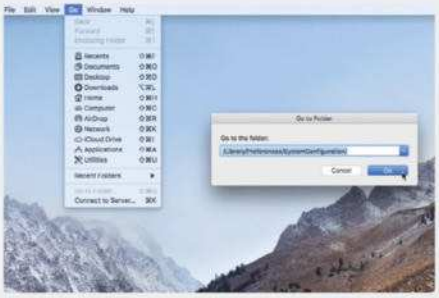
Accessing files from PCs (running Linux or Windows) ought to be straightforward, but sometimes the connection doesn't work in one or both directions. If you're struggling to connect your Mac to a PC's shared folder, open System Preferences' Network pane, select your connection, click Advanced > WINS, and select your Windows PC's workgroup if necessary.

If your PC doesn't show up in Finder under Shared, press ⌘+K to open the 'Connect to Server' dialog. Type `smb://pcname` or `smb://192.168.x.y`, substituting your PC's name or IP address to see if you can connect to it manually. If asked for login details, use those you use to sign in to the PC; if it's a Microsoft account, omit the @email.com part.

If your Mac can connect to one PC but others work fine, the problem lies with that specific PC.

If it's just one specific PC you can't connect to, verify it's sharing at least one folder, and whether other computers can connect to it without any problems.

Completely reset Wi-Fi configuration



1 Locate preference files

Turn off Wi-Fi. In Finder, go to /Library /Preferences/SystemConfiguration and select com.apple.airport.preferences.plist, com.apple.network.eapolclient.config and NetworkInterfaces.plist.

2 Delete and restart

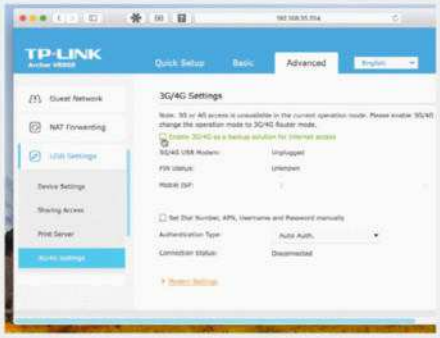
Also select com.apple.wifi.message-tracer.plist and preferences.plist. Drag all five files to a folder on the desktop. Restart the Mac, then switch Wi-Fi back on and see if your problem is resolved.

Back up your connection

Working from home and suffering from a flaky internet connection that can't be upgraded? Investigate using a backup connection in the form of mobile broadband. First, check with your chosen service provider that you're in a good signal area. Second, see if you're able to 'tether' your iPad or iPhone – Apple calls this Personal Hotspot (see bit.ly/prshtspt) – allowing use of its connection in emergencies.

If not, consider investing in a backup 3G/4G modem – some routers allow these to be plugged in to their USB port to use as a backup-only connection when broadband is down.

Remember to limit your usage, as you'll have a fixed quota of data and bandwidth to play with – perhaps use it mainly to warn others you're currently experiencing an outage, or to investigate the likely cause of the problem – and to get your broadband provider's contact information!



Check to see if your router supports a backup mobile broadband internet connection.

Can't connect in the kitchen

If your devices have trouble connecting in a specific room that isn't related to how far you are from the router, the likely culprit is network interference from other equipment, such as older cordless phones or even your microwave oven. This tends to affect the 2.4GHz band most, so switching to the 5GHz network may help, though that band's shorter range may itself pose a problem.

If that doesn't work, consider updating your cordless phone to a newer DECT model (make sure it's DECT 6.0, which avoids interference with Wi-Fi by using the 1.9GHz band). Otherwise, leave your kitchen while using the microwave. Also test other wireless gadgets – radio-controlled cars, for example – and cheap wall chargers by switching them off. If your Wi-Fi signal magically improves, you've found the culprit.

Networking myths disspelled

Save energy by turning off your router

A modem-router is designed to be left on 24/7. Switching yours off may save a small amount of power, but when you switch it back on it will take time to renegotiate your download and upload speeds. Leave it on for fast, stable performance.

Hide your network's SSID

It's said disabling the broadcast of the SSID (the network's name) can help to secure your network, but network traffic can still be revealed with software that detects it.

Enable MAC address filtering on your network

It also seems a good idea to restrict access to your network to known devices, identified by their MAC addresses. But hackers can easily scan for and 'spoof' them.

All free Wi-Fi hotspots are dangerous

Not true. The key thing is whether the hotspot has encryption applied and that it's WPA2-PSK. If it is, it's reasonably safe to use. However...

Encrypted Wi-Fi hotspots are safe to use

Not quite, given the KRACKS vulnerability (see the next page). Disable all services in System Prefs' Sharing pane before connecting, and use a VPN such as hide.me to add an extra layer of encryption.

Avoid using any Wi-Fi hotspot that doesn't have a padlock at the right end of its row – it's risky.

Beef up network security

Make sure your network is protected from outside threats

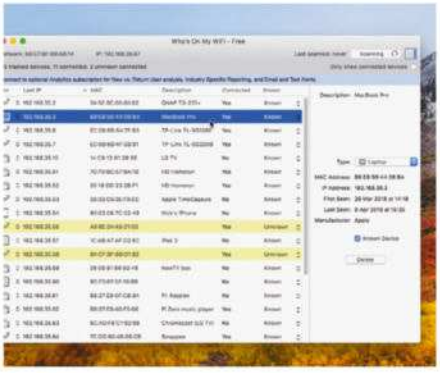
Just how secure is your network? At the very least you should be protecting the Wi-Fi side of things with WPA2-PSK encryption. This is the latest Wi-Fi security measure, scrambling your data and protecting it using a pre-shared key (PSK), which is network speak for a password. But that only scratches the surface of what you need to do. Read on for other tips you should employ to close the door on hackers and other unwanted intruders.

Update your router

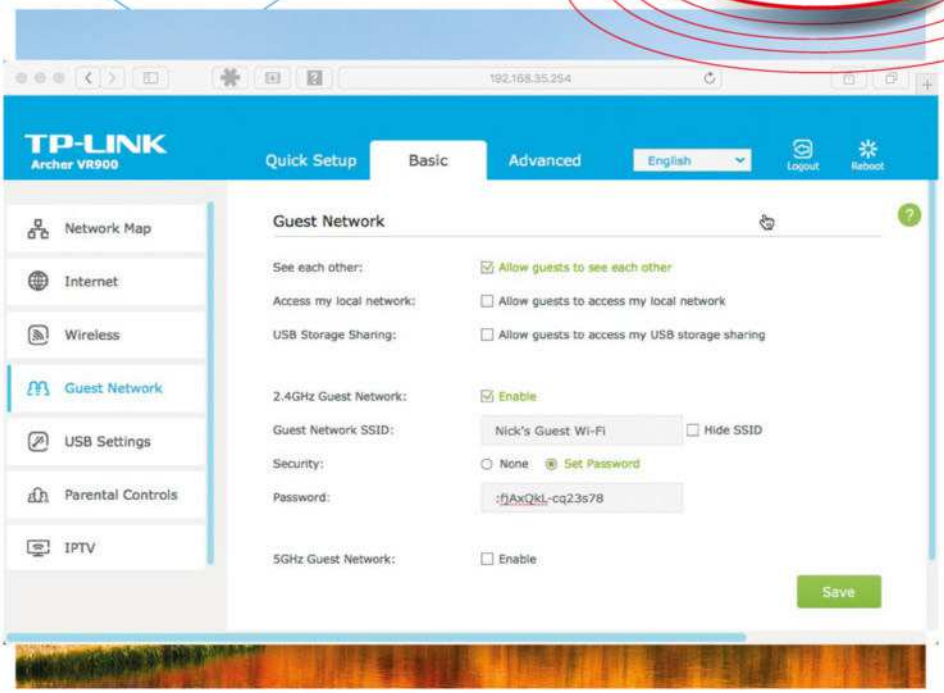
The recent discovery of the KRACK vulnerability has shaken Wi-Fi networking to its core. Familiarise yourself with what it is at krackattacks.com. Step one is to visit your router's homepage and see if a firmware update has been released that specifically addresses this problem – if you have an AirPort Express, Extreme or Time Capsule, use Spotlight to open AirPort Utility (or download the iOS version), which should prompt you with a firmware update – at least version 7.7.9 for 802.11ac models, or 7.6.9 for 802.11n.

You also need to update all your Wi-Fi devices. Apple has already patched OS X El Capitan, macOS Sierra and macOS High Sierra, and iOS 11.1. You can read more about what's in each of Apple's security updates at bit.ly/applesecupd.

Did you know your router might be open to access from the internet? First, sign in to its configuration utility in your web browser and, if you haven't already done so, change the default password to something more secure. Now go to whatismyip.com – see your public IPv4 address? Type this into your browser and see if this takes you to your router configuration login page. If it does, hunt through it for a 'remote access' option and disable it to lock out hackers.



Discover how many devices are connected to your network, whether over Wi-Fi or Ethernet, with a free app like Who Is On My WiFi.



One way to tighten security is to give visitors limited access to your network by setting up a guest network. This provides people with access to the internet, but things like printers and storage are cordoned off.

Who's on your network?

Install Who Is On My WiFi from the Mac App Store (free, bit.ly/wiomw) or Fing for iPad and iPhone (free, bit.ly/fingios) to see a list of devices – wired or wireless – currently connected to your network. Label those you recognise by IP address and mark them as known, and investigate the unknown devices to verify they're legitimate. Keep checking back for new devices. If nothing else, it'll remind you how many connected devices you own!

Another way to protect yourself is to turn on your router's guest network, if it offers one. This gives guests internet access only. Be sure to protect it with WPA2-PSK and give the password to friends to use without exposing the rest of your network to them.

Check whether your shop-bought router supports a feature called VLANs (or 'interface grouping'). This segregates your network via Ethernet port or Wi-Fi network, allowing you to set up isolated networks for specific devices. It can be complicated to implement, and isn't on Apple routers or many supplied by ISPs, so a guest network's often more suitable.

Another option is to close the virtual 'ports' that route data from apps and services between networked devices and out on to the internet. If your router has UPnP (Universal Plug and Play) turned on, apps can open the ports they want, which can be risky. Managing port forwarding by hand is complicated, but periodically check your router's admin tool to see which ports have been opened, removing any you don't recognise or no longer use. It's wise to cross-reference Apple's list of ports used by its software at bit.ly/aplpt.

5 THINGS to do with your network

These days, you're missing a trick if you're only using your network to browse the web, send an email and perhaps share a file or two. Networking has an ever growing list of possibilities, and by choosing the right hardware you can save both money and space in your home, too.

Other network additions can help improve the quality of your life while making sharing that bit simpler and easier, while a feature that's built in to macOS makes it easy to access your computer from wherever you are.

Here are five ways in which you can make better use of your network.

1 Centralised file sharing

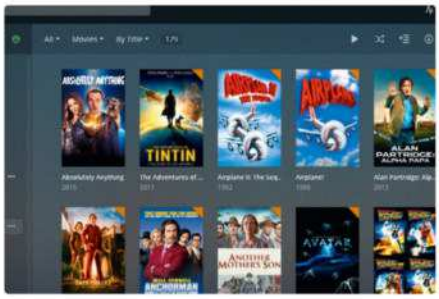
Shared folders on your Mac are only accessible while your computer's turned on. See if your router has a USB port that enables a hard drive to be shared so you can provide a resource that's always on and available to your family.

2 Add network storage

NAS drives give you networked storage, and many can do more, such as run a media server or personal cloud. Get one with multiple bays so its capacity can grow. AirPort Extreme/Time Capsule allow USB expansion – see bit.ly/airdisk.

3 Share peripherals

Why buy printers for everyone when you can share one? If you don't have one with Wi-Fi, Ethernet or AirPrint, see if you can connect a USB printer to your router and share it through that. Apple's AirPort devices allow this – see bit.ly/apprint.



4 Set up a media server

Copy your music, movies and other media to a central location, then set up iTunes as a server using Home Sharing (see bit.ly/hmshrng), or choose a third-party option with broader support, such as plex.tv, to stream over the internet.

5 Remote access

On your Mac at home, turn on Back to My Mac in System Preferences' iCloud pane (see bit.ly/bck2mac) and you can connect securely over the internet from your MacBook to grab files and even remotely control your Mac at home.

How to pick a router

Know what you need

In the market for a new router? Start by making sure it supports 802.11ac for the latest wireless technologies, including faster connections at the same distance.

Check the router's AC rating. The higher the figure, the faster it is, but note the number is a combo of the maximum 2.4GHz and 5GHz Wi-Fi speeds, specified in Mbps – megabits per second. Detachable antennas can help you direct the signal to where reception is weak.

Look for a model with a built-in modem to reduce clutter. Make sure it's compatible with your internet connection – that means ADSL for regular broadband, VDSL for fibre-optic or DSL for cable.

Also, make sure it has sufficient Ethernet ports for your needs, and that they're Gigabit Ethernet if you need them to reliably handle 4K streaming. Finally, pick a model with USB ports for expansion options, such as sharing printers and hard drives over your network.

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p90

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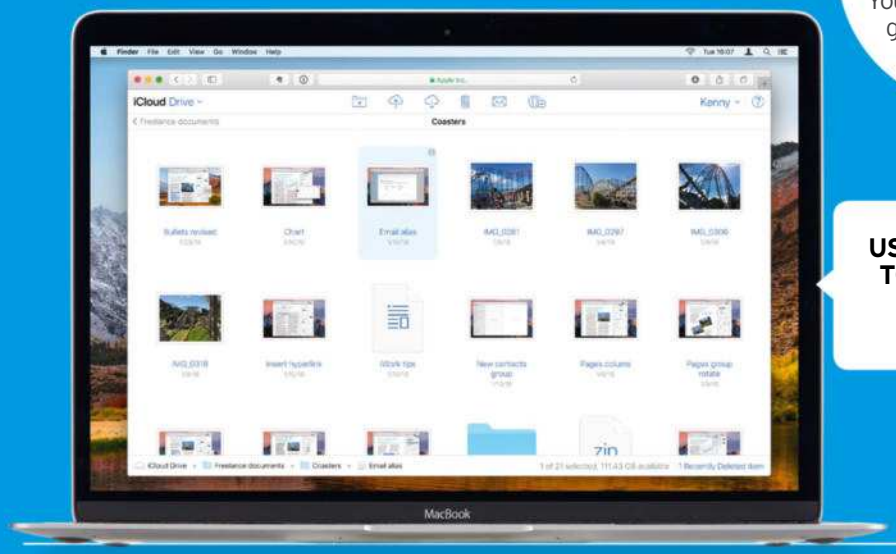
NEW IDEAS

Your in-depth guide to getting more from your Apple kit



USE iCLOUD TO SHARE FILES
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Understand iOS gestures

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.

Master Mac keyboard shortcuts

When you see a shortcut like ⌘+⌥+C, hold all but the last key, then press that one.

⌘ is the Command key, which is also labelled *cmd*.

⌥ means the Option key, labelled *alt* or *opt*.

ctrl means the Control key, labelled *ctrl*, and shown as ^ in shortcuts in the menu bar.

⇧ is the Shift key, which is typically just labelled *shift*.

← means the Delete key, which deletes to the left of the insertion point. Press fn+← to delete to the right.

⇥ is the Tab key, which shifts the focus between *some* controls in windows and web forms. Turn on Full Keyboard Access in System Preferences to jump between *all* controls.

New features from Apple

Make sure you don't overlook these changes in macOS, iOS and watchOS

Arguably the most important change is designed to protect your privacy

With the latest minor updates to its Mac, iPhone, iPad and Watch operating systems, Apple has added brand-new features, and tweaked how some existing ones work. Arguably the most important are changes to the behaviour of AutoFill in Safari, which might at first seem to make the feature less convenient. However, this alteration is all about balancing convenience and data privacy, and has come about as a consequence of some websites and online advertisers abusing features like AutoFill to acquire data through forms before you explicitly submit them.

Remember the recent controversy over Apple imposing performance limitations on certain iPhone models when their battery reached a certain condition? (See MF #323.) With the iOS 11.3 update, you gain control over that inhibitor, though by turning it off you run the risk that your phone will restart at an unwelcome moment – during a call, say.

There's much more to tell you about, so let's get to it. **ALAN STONEBRIDGE**

HIGHLIGHTS IN macOS 10.13.4 ›

1 Safari tab navigation tweak

Key combos ⌘+1 through to ⌘+8 still switch to corresponding tab numbers (from the left). Regardless of how many tabs are open, ⌘+9 now switches to the rightmost one.

2 Safari's AutoFill is cautious

AutoFill no longer populates forms when you land on a page. It's intentionally done to counter nefarious data acquisition. Click in a field and pick an identity to enter in the form.

3 AutoFill security

Also with your protection in mind, if you interact with a password or bank card field on a page that isn't using an encrypted server connection, Safari's search field warns you.

4 Sort your bookmarks

Press ctrl+⌘+1 to reveal the bookmarks sidebar. In it, ctrl-click on a folder. In the Sort menu you'll find new Name and Address options. Your choice applies only to that folder.

Genius tip!

› macOS 10.13.4 introduces support for external graphics cards. Apple's list of recommended chassis and cards is at bit.ly/m10134egpu. Check support with your apps' developers; some issues have been reported.

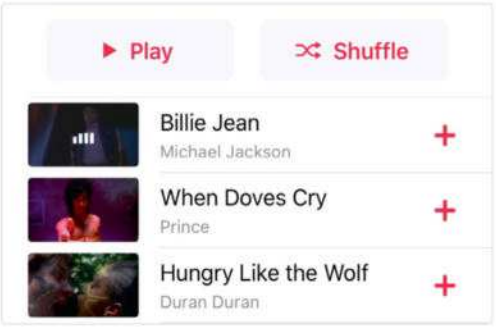
HIGHLIGHTS IN iOS 11.3 >

1 Check iPhone battery health

Go to Settings > Battery > Battery Health (Beta) to see how much of its original capacity the battery can hold. Below might be mention of performance issues – see bit.ly/batthlth.

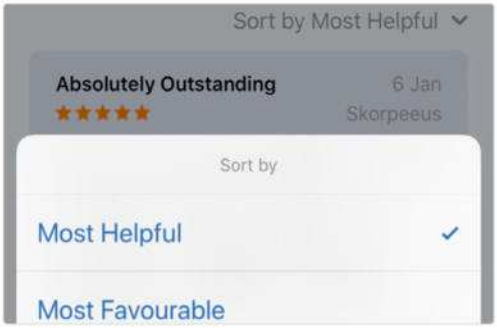
2 App update details

You need no longer tap Update next to an app in the store's Updates tab to see if it'll download over the mobile network (150MB max); tap 'more' to see the update's size.



3 Apple Music curated videos

Plenty of artists still make great music videos (we love OK Go's). If you have an Apple Music sub, in Music go to Browse > Music Videos to explore curated video playlists!

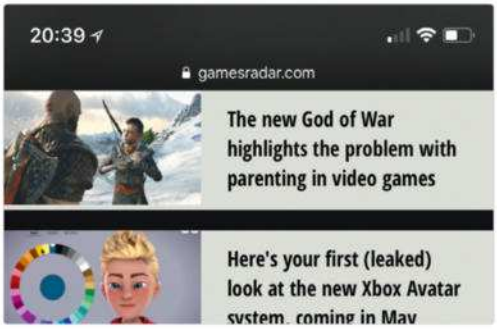


4 Sort App Store reviews

Don't overlook this improvement when investigating apps: next to Ratings & Reviews on an app's page, tap See All, then 'Sort by' to pick most helpful, favourable, critical or recent.

5 Sharing web pages in Mail

When you share a web page from Safari to Mail, if that page can be displayed by Safari's Reader feature, its contents are inserted into the message instead of just the page's address.



6 Smart Invert works better

This is more judicious than its pre-iOS 11 equivalent. It's located in Settings > General > Accessibility > Display Accommodations > Invert Colours, and now works in Mail and Safari, too.

watchOS 4.3

Apple Watch also gets neat tweaks. Here are the best new features

1 HomePod control

Open the Music app and tap the words at the top left until you reach the top level of the app, then tap 'On iPhone'. Pick something to play, tap the AirPlay icon and choose your HomePod.

You can skip tracks and volume by using the app's on-screen controls, or turn the crown while on the Now Playing screen to alter HomePod's volume.

2 Bedside mode

This mode, also called Nightstand mode, is now available when Watch is connected to power and in portrait orientation, not just landscape. The feature can be turned on in the Watch app on iPhone, in My Watch > General.

3 The Siri watch face

This face now shows your progress towards closing Activity rings, and when Apple Music mixes you've synced (in Watch > My Watch > Music) are updated.

Turn photos into paintings

How to use layer masks and brush tips to mimic a watercolour look

IT WILL TAKE
› 15 minutes

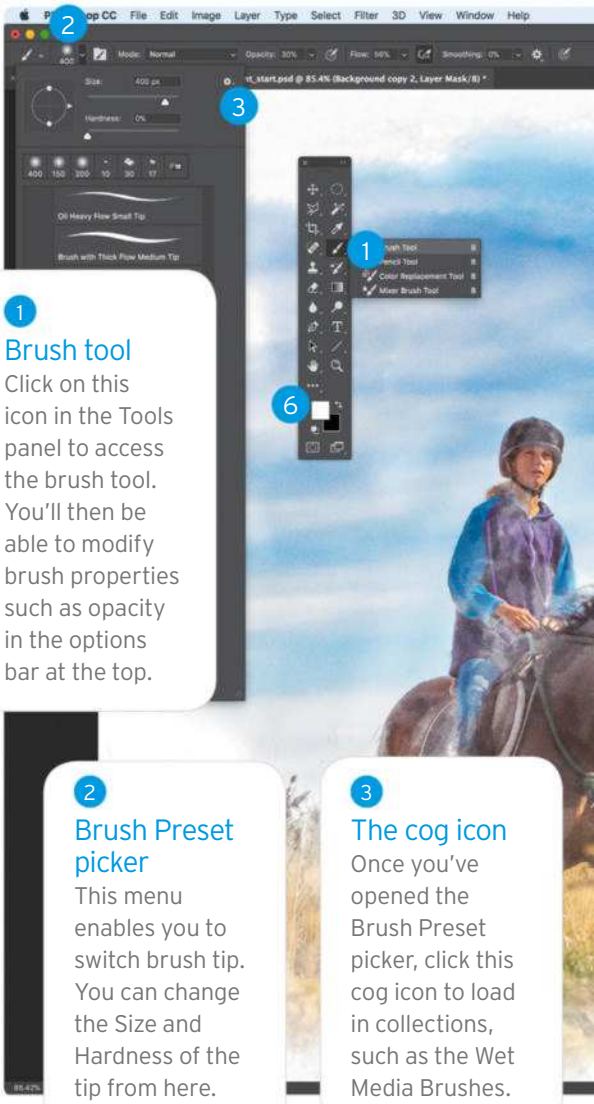
YOU WILL LEARN
› How to build up washes of colour and detail by applying brush tips to layer masks

YOU'LL NEED
› Adobe Photoshop CC and a colourful photo

Photoshop's Filter Gallery is packed full of filters designed to mimic artistic paint effects, such as the Watercolor filter. You can modify filter properties, but your digital art will still look like it has been created by a filter, rather than by an artist's manually placed brush strokes. Here, we'll show you how to create a unique hand-painted effect.

By placing semi-transparent brush strokes on a layer mask you can gently reveal a photograph's colours and tones as washes of colour. When brush strokes overlap they create stronger colours and reveal more detail from the original photo. This process results in a more natural-looking watercolour effect.

In Photoshop CC 2018, Adobe has hidden the brushes best suited to this task, to simplify the Brush Preset picker. So we'll start off by showing you how to restore those to get the required brushes and then use them to create a watercolour look. **George Cairns**

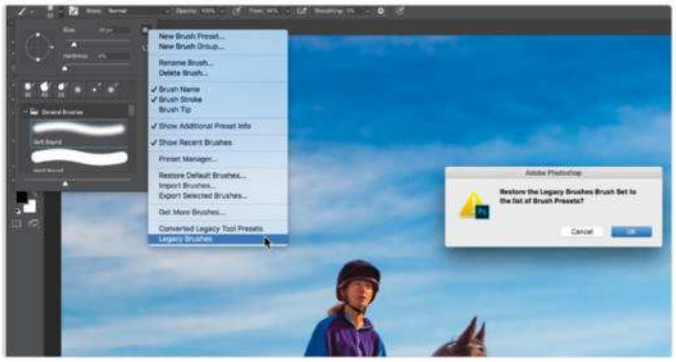


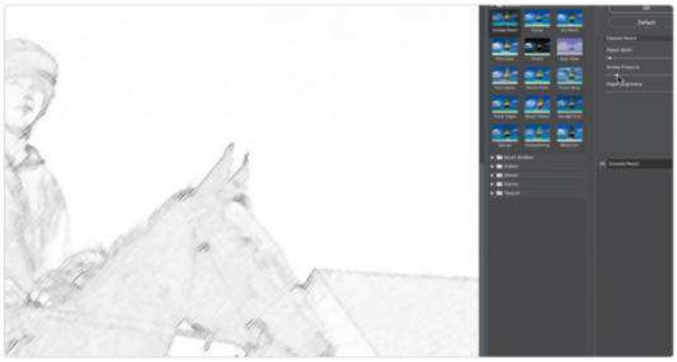
1 Brush tool
Click on this icon in the Tools panel to access the brush tool. You'll then be able to modify brush properties such as opacity in the options bar at the top.

2 Brush Preset picker
This menu enables you to switch brush tip. You can change the Size and Hardness of the tip from here.

3 The cog icon
Once you've opened the Brush Preset picker, click this cog icon to load in collections, such as the Wet Media Brushes.

HOW TO Create realistic watercolour brush strokes ›



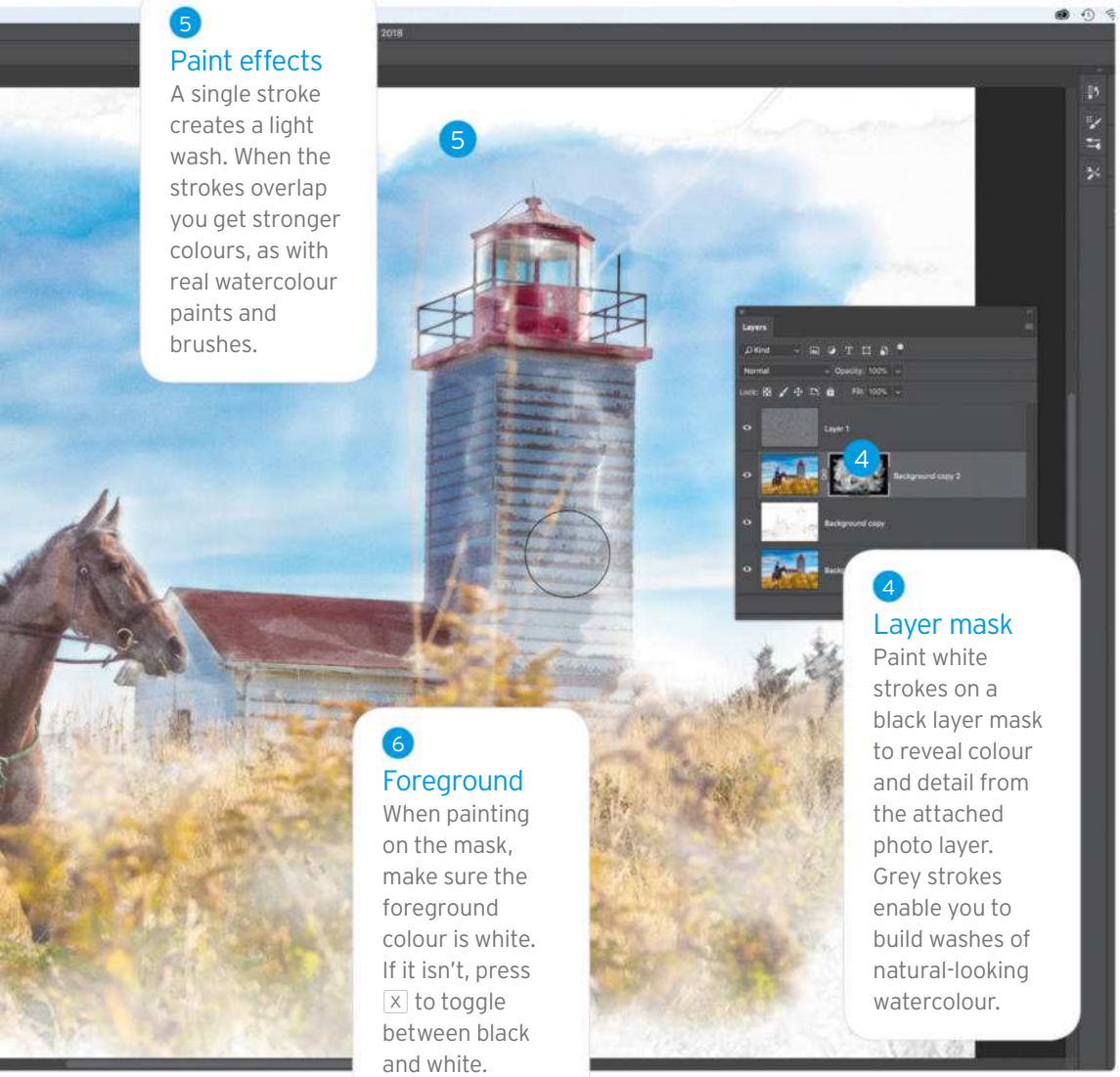


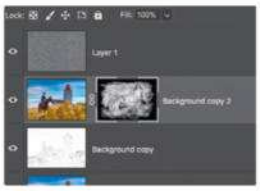
1 Locate the brushes

Open an image that features a colourful subject. Select the Brush tool (B) from the Tools panel. In the options bar, click on the Brush Preset picker. Click the cog icon and choose Legacy Brushes. Click OK to restore the Legacy brush set.

2 Create a preliminary sketch

Go to Layer › Duplicate Layer. Click OK. Choose Image › Adjustments › Desaturate, then Filter › Filter Gallery. In the Artistic folder, choose Coloured Pencil. Set Pencil Width to 2, Stroke Pressure to 2 and Paper Brightness to 50. Click OK.



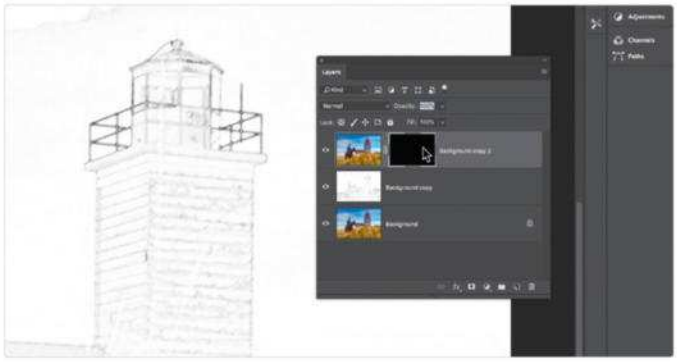


Jargon buster

› **Layer masks** use greyscale tones to hide or reveal details on the adjacent image layer. Black strokes hide the corresponding parts of the photo. White strokes reveal image detail.

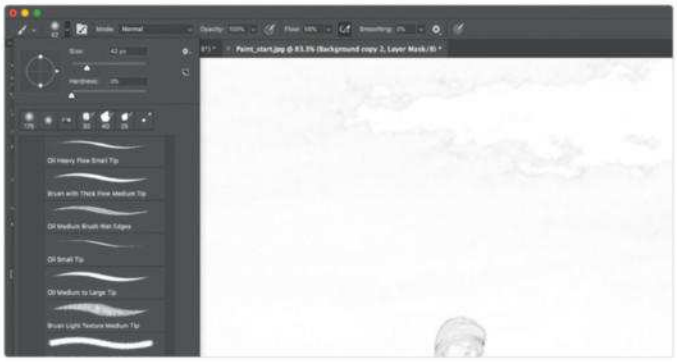
Genius tip!

› Make sure that you click on the black layer mask before painting over the photo. If you accidentally click on the photo layer, you'll paint white or grey strokes onto your picture.



3 Add a layer mask

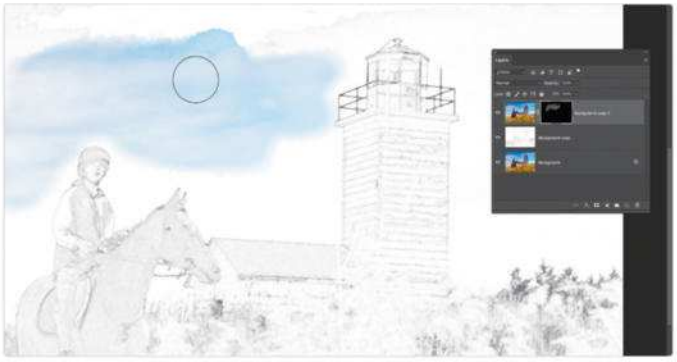
In the Layers panel, click on the original Background layer and press ⌘+J to duplicate it. Drag the 'Background copy 2' layer's thumbnail to the top of the layer stack. Choose Layer > Layer Mask > Hide All. The black mask hides the adjacent photo.



4 Grab a textured brush

Press B to use the Brush tool. In the Brush Preset picker, go to the Legacy Brushes folder. Open the Wet Media Brushes folder – In older versions, access these from the Brush Preset picker's gear icon. Choose Watercolour Light Opacity.

HOW TO Create realistic watercolour brush strokes ›



5 Paint on the mask

Set the brush size to 300 and the Opacity slider to 40%. Click on the black layer mask's thumbnail to target it. Press D for a white tip. Spray the white brush tip over the sky in a single stroke to reveal a wash of blue from the attached image layer.

6 Overlap strokes

Spray more strokes to restore colour to the sky. The 40% opacity tip produces grey strokes on the mask. When these overlap it creates whiter strokes, which create stronger washes of colour, resulting in a more natural-looking watercolour effect.

7 Finish the sky

Keep spraying to reveal more colour and detail from your photo's sky. Leave the edges of the photo unpainted to give your artwork a more realistic 'work in progress' look that you don't get by simply slapping on a filter.

8 Paint buildings

Select the Oil Medium to Large tip. Set its size to 100 and opacity to 40%. This produces a rectangular stroke that suits architectural shapes. Apply overlapping strokes on the mask to again reveal colour and detail from the attached photo layer.

9 Paint in finer details

Select the Rough Round Bristle tip. Reduce its size to 17 and drop opacity to 30%. Brush small white strokes on the layer mask to reveal the texture and colour of key subjects. Brush over important areas multiple times to create stronger colours.

10 Create a paper texture

Choose Layer › New › Layer. Click OK. In Edit › Fill, set Contents to 50% Grey. Click OK. In Filter › Noise › Add Noise, set Amount to 120%, tick Monochromatic and click OK. In the Layer panel, set the blending mode to Overlay and opacity to 40%.

Override your default apps

Make your own choices of web browser, email client, calendar and more

IT WILL TAKE
› 5 minutes

YOU WILL LEARN
› How to override the default apps used for the web, email and files

YOU'LL NEED
› Alternative apps you want to use

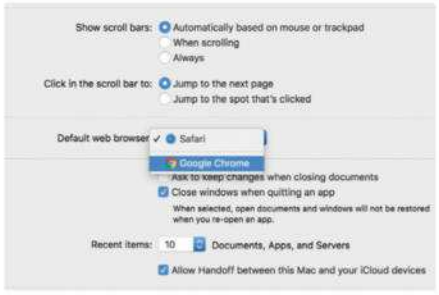
It's heresy, we know, but sometimes Apple's way isn't the best way for everybody all the time. Your favourite sites may shun Safari, or you might want to sync with web browsers on PCs. You might want features Mail can't provide, or to match the apps you use on iPhone. Or you might need more PDF power than Preview can provide.

The good news is that you can change the default handlers for websites, email and files of all kinds. The bad news is that it isn't always that obvious how you go about it.

We're here to help. In this tutorial, you'll discover how to replace Safari with Chrome, say goodbye to Mail, set the default for calendars, and change the default apps for handling particular kinds of files. And if you change your mind and want to go back to the way things were, all you need to do is follow these steps again and specify Apple's apps.

Carrie Marshall

HOW TO Change Apple's default apps on your Mac ›

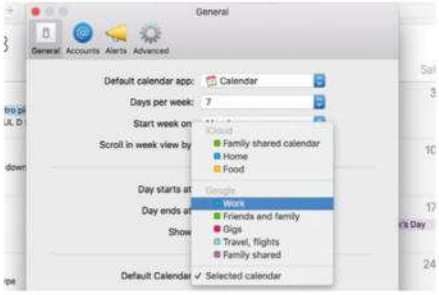


1 Sayonara, Safari

To change the default web browser, download your preferred alternative, then go to System Prefs › General and look for Default Web Browser. Click on this pop-up to select the one you've downloaded as your new default browser.

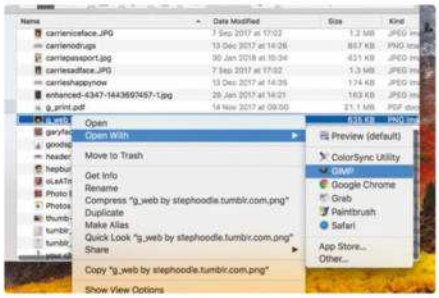
2 No more Mail

This one's odd, because the setting for email isn't in System Preferences. To change the default email client you need to open the Mail app's own Preferences window, where you'll find the option to select another app on the General tab.



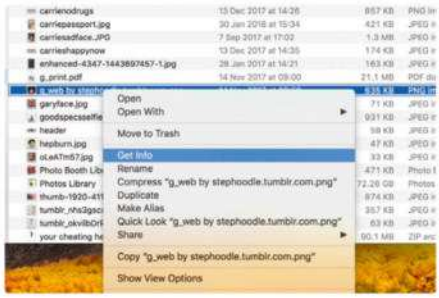
3 Go Google

If you want to use Google Calendar, open Calendar's prefs and click Accounts. To set where events are made by default, whether it's iCloud, Google or elsewhere, go to Calendar › Prefs › General and use the Default Calendar App pop-up.



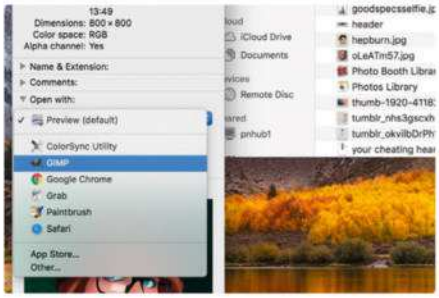
4 Open in an app once

There are several ways to change what files open in which apps. For a one-off override that doesn't actually change the default for all files of the same type, simply ctrl-click on the file, choose Open With and select the app.



5 Always open in an app

Alternatively, if you want a particular kind of file to open in a specific app every time – PDFs in Adobe Reader instead of Preview, or images in your preferred editor, for example – ctrl-click a file of that type and choose Get Info.



6 Edit the default

Towards the bottom of the Info window, you'll see a section marked Open With. Click the arrow to expand that section and select the app you want macOS to use to open all files of this type, then click Change All.

Protect your identity online

Make life hard for online fraudsters with our security tips

IT WILL TAKE
› 15 minutes

YOU WILL LEARN
› The tricks to keep spammers, scammers and trolls at bay

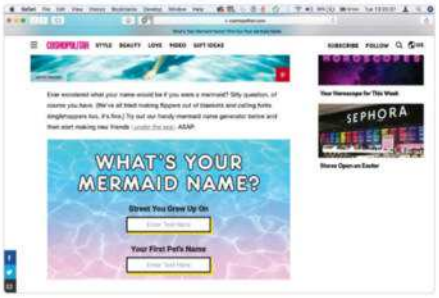
YOU'LL NEED
› A Mac or an iOS device

The online world is complex and full of risks for the unwary. But that doesn't have to be the situation for you, as long as you follow some basic guidelines and stay aware while you surf, search and share.

This tutorial is about minimising the personal data that you put out into the world. The principle is simple: share what you want, when you want, where you want – but nothing more. Many sites ask for personal information. If your account gets compromised, someone could use that data to access other online accounts or even steal your identity. It's not just spammers; trolls looking for ways to harrass people will happily trawl through someone's post history looking for clues about their location, employer, friends and more.

This doesn't mean you have to become a social hermit – it's about being careful. The first tip is to set up two-factor authentication everywhere that offers it, so when you log in from a new device you'll get a verification code on a trusted one. **Keith Martin**

HOW TO Stay safer online ›

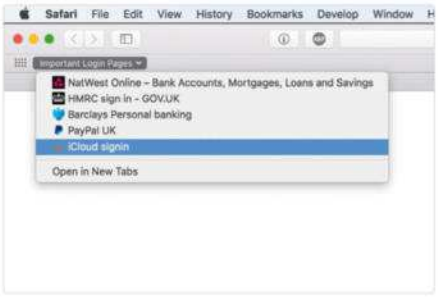


1 Online quizzes

If an online quiz asks for personal information – the street you grew up on, first pet's name, grandmother's name, stuff like that – then either close that tab or lie. Those are classic 'open sesame' security questions.

2 Fake birthday

Don't use your real birthdate in web forms except for banks, credit checks and other official sites. Make one up, but remember it in case it's needed for a password reset. Using '1 April' is good, unless that is your birthday!



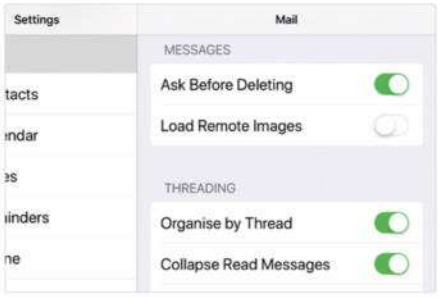
3 Type links yourself

If you want to check an online account for any reason, use your own bookmarks, type the address manually, or use a search engine. Never use a link you found an email in case it's actually well-disguised spam.

CONTINUED... Stay safer online >

4 Shun spam links

A random email offers a link? Leave it alone. If you aren't sure it's bogus, hover over the link (Mail for Mac) or hold a finger on it (Mail for iOS) to see the true destination and *carefully* check it. If it isn't what you expect, trash the email.



5 Remote images

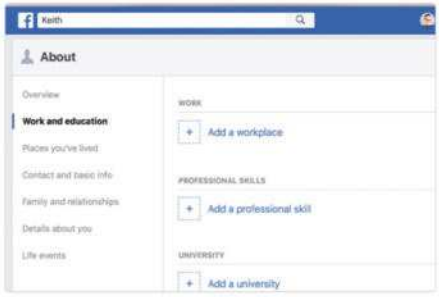
Auto-loading remote images in emails shows you're a potential spam target and logs your rough location. To disable remote content in Mail for iOS, go to Settings > Mail. In Mail for Mac, go to Mail > Preferences > Viewing.

6 User names

When picking a username don't include personal info, such as town or birth year (for example, Andy-Brighton or Jimbo87). That tells someone personal info even if they can't see anything else in your account.

7 Share only with friends

Don't leave your social media profile open for the world to see. If you do choose to keep your posts public, always keep this in the back of your mind when posting and don't share anything that's identifiably personal.

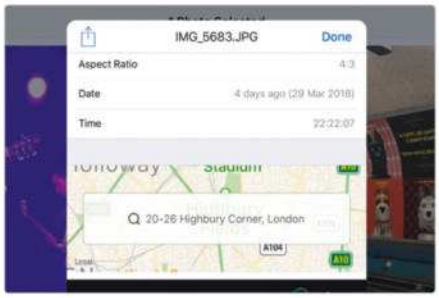


8 Employer names

In social media profiles, we often give details of where we work. Outside of professional networking sites like LinkedIn, this isn't necessary. Consider removing it from your personal account profile. Use a generic description instead.

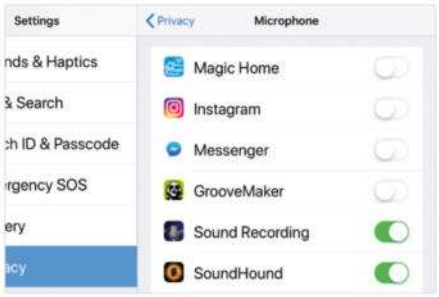
9 Erase private info

Before you post an image anywhere, stop and think: does it contain anything you shouldn't share? You can use the Markup tools in iOS to paint over things, but watch out for the highlighter – it isn't entirely opaque.



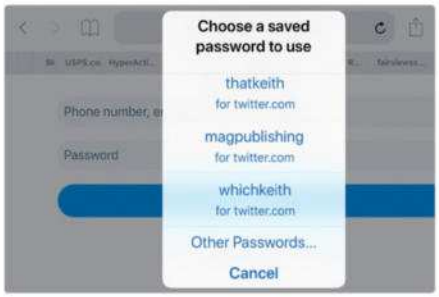
10 Location metadata

On iOS, ImagExif (£1.99, bit.ly/imagexif) adds a Share sheet action that strips out location data from pics before you post them. In Preview on a Mac, choose Tools > Show Inspector, pick the GPS tab and click Remote Location Info.



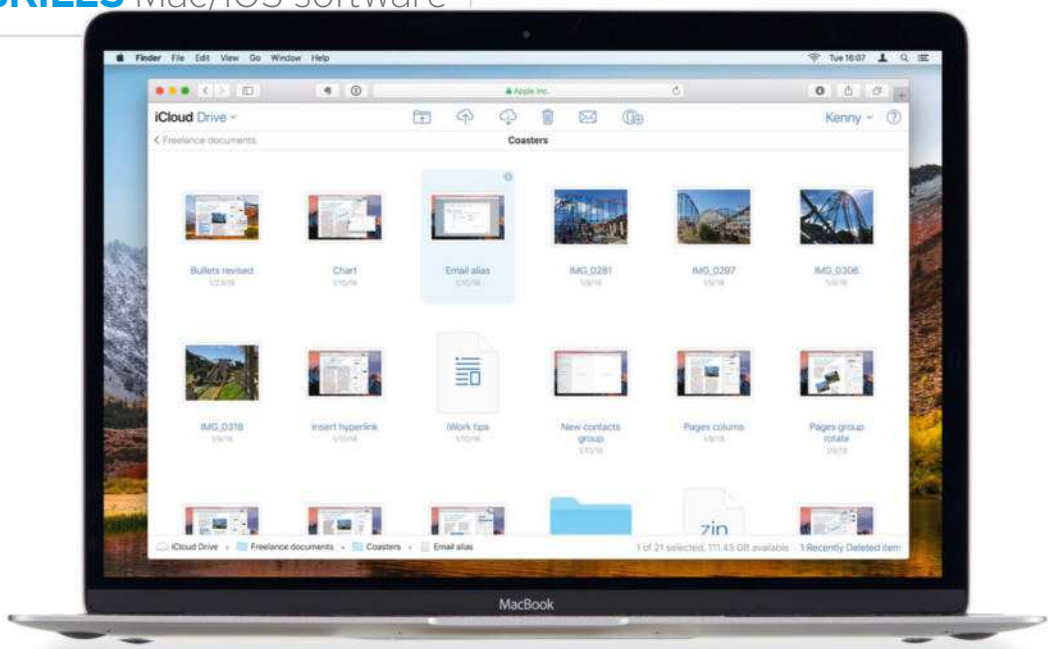
11 Apps and access

Which apps can use your iPhone's camera, mic and other sensitive things? Browse the categories in Settings > Privacy and check. You will almost certainly have granted apps more access than they need for normal use.



12 Better passwords

Don't reuse passwords! Safari and the keychain feature can generate and autofill complex passwords. To prevent data theft, Safari in iOS 11.3 and version 11.1 for Mac do not autofill forms when a page loads; you must explicitly request it.



Share files over iCloud

Make life easier with these handy tips for sharing files with other people

IT WILL TAKE
› 15 minutes

YOU WILL LEARN
› How to share files in macOS, iOS and iCloud

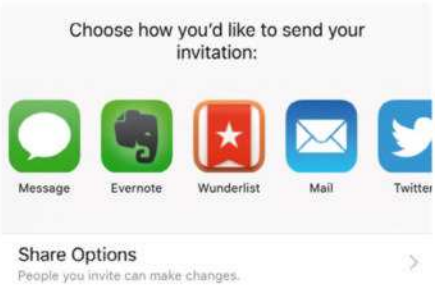
YOU'LL NEED
› A Mac or an iOS device

The features Apple has added to iCloud have been so numerous that many have arrived unnoticed. That's a shame, as just a little time spent getting to know how to use them will reap rewards.

Take, for instance, the feature added in macOS Sierra that allows you to specify that files stored in your Documents and Desktop folders are hosted in iCloud and only those you use most often are stored locally on your Mac (set it up in System Preferences › iCloud › iCloud Drive › Options). The others can be downloaded when you need them, but when you don't, the storage space on your startup disk is freed up. This brings macOS closer to iOS, where iCloud Drive's contents are stored on Apple's servers until you need them.

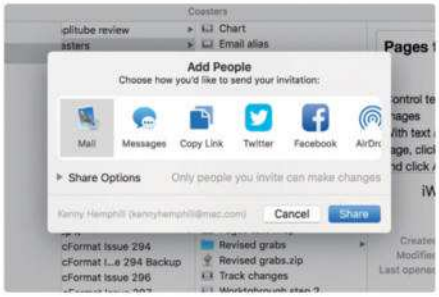
There's a raft of features in iCloud that enable you to collaborate on docs, including granting access rights to anyone or just contacts you specify, and setting permissions to allow other people to edit or just read files. Here's how to use them. **Kenny Hemphill**

HOW TO Share iCloud files with other people ›



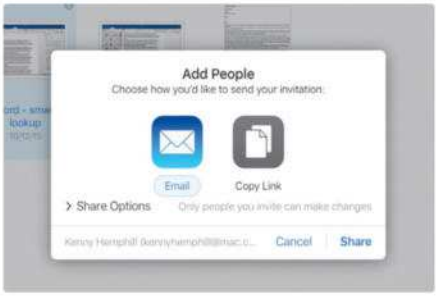
1 Select your file

In iOS, open the Files app, tap iCloud Drive, then Select. Choose the file you want to share. Open the Share sheet and tap Add People (bottom row). Pick how to share, then type the recipient's email address or phone number.



2 Add people

In macOS's Finder, browse to the file in iCloud Drive, ctrl-click on it and choose Share › Add People from the menu. Choose a method to share the file, and type the email address or phone number of the person you want to share with.



3 Add people using iCloud

Sign in at iCloud.com and open iCloud Drive. Find and click on the file to share, then click the toolbar's Add People button. Choose Email or Copy Link and click Share. Type in an email address for the recipient if you're sharing by email.

HOW TO Set access permissions for files in iCloud Drive

1 Share options

In iOS, after choosing a file to share and tapping Add People, click Share Options at the bottom of the panel. Here, set access rights (anyone or just explicit invitees) and whether they have permission to edit or only view the file.

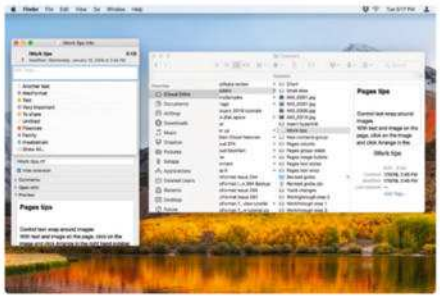
2 Access and permissions

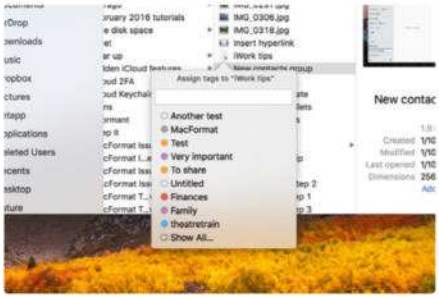
In macOS, follow the process for sharing and, after choosing Add People, click on the arrow to the left of Share Options. Use the pop-up menus to set access rights and view/edit permissions for the specified file and people.

3 Permissions in iCloud

At iCloud.com, follow the steps for sharing and, after clicking Add People, click Share Options, pick the access and editing rights you want from the pop-up menus, then click Share to close the sheet and return to iCloud Drive.

HOW TO Tag files in iCloud Drive





1 Tag a file in iOS

In iOS, select a file in Files › iCloud Drive, then open the Share sheet. At the top of the sheet, tap +Tag. Tap an existing tag to add it, or tap Add New Tag, type a label for it, tap a colour swatch, then tap Add Tag. Tap Done or outside the panel.

2 Add a tag in macOS

In Finder, select a file that's stored in iCloud Drive and press ⌘+I to show the Info window. Click in the Add Tags box at the top of the window and choose a tag from the menu, or type a new one and press ⏎. Close the Info window.

3 Another way in macOS

Or, ctrl-click on a file, then choose a tag lower down the menu, or choose Tags to pick from a longer list or create a new tag. Up to seven shortcuts can be listed in the contextual menu, which you can set in Finder › Preferences › Tags.

Collaborating in real time

iWork apps allow multiple people to work at once ›

Pages, Numbers and Keynote allow several people to work on a document at one time. When you open one of these apps, its document manager displays recently edited documents, including those edited by people you're sharing with. In the document, click on the head and shoulders icon to see who is working on it. When multiple people are working on a document simultaneously, each is represented by a different coloured pointer. Edits are shown in real time. To see changes made by a specific person, click on the coloured dot next to their name.

Make a ringtone

Transform compositions, or other music on your phone, into ringtones

IT WILL TAKE
› 15 minutes

YOU WILL LEARN
› How to use GarageBand to mix and export ringtones

YOU'LL NEED
› An iOS 11 device, GarageBand 2.3 or later, a song to use

The idea behind a ringtone is blindingly obvious – it's to get your attention, alerting you to the fact someone wants to speak to you. The tiny snag is that an awful lot of people never change their ringtones. That means when one phone goes off, you'll sometimes see dozens of people reach for their phone, before realising the call isn't actually for them.

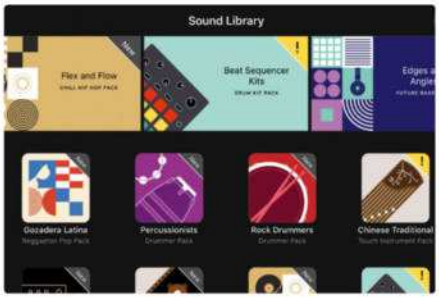
When you're equipped with an iPhone and GarageBand, however, you can ensure this never happens to you by creating your own individual ringtone. And you don't need to be a synth master to do so – you can make use of pre-made loops and smart instruments that do much of the work for you.

If you've been following this series of tutorials so far, you'll already have a song ready, containing several tracks. If not, check out 'Make some noise' on the opposite page, to create something that will enable you to delve into our walkthroughs on mixing, export, and ringtone assignment. **Craig Grannell**

HOW TO Load and preview your song

1 Use iCloud

If you composed your track on an iPad, but want the ringtone on your iPhone, now is the time to transfer it across. Assuming you're signed into iCloud, you should be able to see and download the song on your iPhone.



2 Install kits

GarageBand will recognise if the track uses instruments and loops from the Sound Library that aren't installed. If you see a Missing Sound dialog box, tap Sound Library and download the relevant kits to your iPhone.

3 Play your track

When you're done, open your track and play it. Don't use headphones – at this point, you must think about how this potential ringtone works in the real world, just with your iPhone's speaker, possibly buried deep in a pocket.

HOW TO Fine-tune and mix your ringtone

1 Adjust the tempo

You may discover your track feels a bit too urgent and stressful, or, conversely, boring and slow. In the Settings menu (spanner icon), tap Tempo and try experimenting with different values. (You can always change it back.)

2 Mix your song

In Tracks view, drag the separator bar rightwards to reveal mixing controls. Play your track and adjust volume levels to ensure the end result sounds good and isn't muddy or messy. Mute entire tracks if need be.

3 Edit track settings

Also try adjusting individual tracks – select one and tap the Track Controls button. Scroll down and you'll see EQ effects for changing bass and treble levels, and also master effects. Typically, keep reverb low or off.

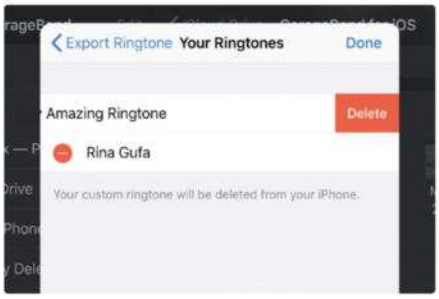
HOW TO Export your ringtone

1 Share your song

When you're done editing, return to the My Songs browser. Tap Select and then your saved song. Tap the Share button to bring up the Share Song sheet. Select Ringtone to begin the process of exporting your song.

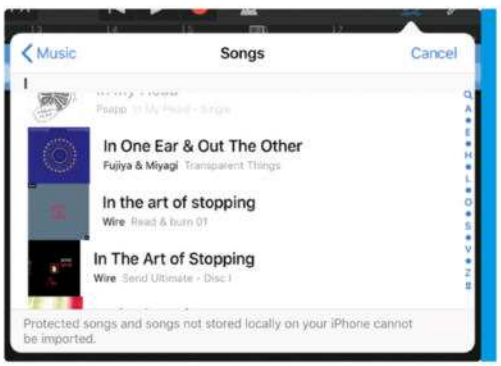
2 Name your ringtone

In the Export Ringtone sheet, tap within the name field and name your ringtone. Tap Export. GarageBand will mix down your song within a few seconds. Tap Use Sound As, and then assign your ringtone accordingly.



3 Reassign ringtones

You can later change a ringtone assignment in Settings › Sound & Haptics › Ringtone. Oddly, removing tones only seems possible in the Export Ringtone sheet. Tap Your Ringtones, then Edit, one of the red minus buttons, then Delete.



Make some noise

Create songs from any audio source ›

GarageBand offers other paths to creating ringtones. You can create a new audio track with a voice recording of you bellowing 'Answer your phone'. If you prefer something a bit subtler, tap the Loops button and use Apple's sounds.

From the Music tab, you can even drag any (non-copy-protected) song that's stored on your iPhone to a track; trim whatever you import by tapping the audio region and dragging its ends. Match the tempo with the original song on new tracks and you can add sounds over the top to make your own personal remix.

Create templates in Pages

Create your own custom pages and use them as templates

IT WILL TAKE
› 10 minutes

YOU WILL LEARN
› How to customise stationery in Pages

YOU'LL NEED
› Pages for iOS or macOS

Pages is a great document creation and editing tool, but chances are you're probably working a little harder than you need to be. If you find yourself putting the same things into document after document, it's time to create a template.

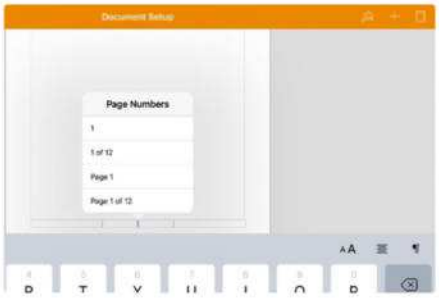
You can't save a document created on iOS into the same device's template library, as you can on a Mac, but you'll see it's possible to create complex ones on the Mac and then copy them over to your iPad. We'll use iCloud for this, but Mail works too. However, there's a workaround when there's no Mac to hand.

You can create a standard layout on iOS, save it and then duplicate the document when you want to use it. That leaves the original untouched and a new copy that contains all the bits you want. In this tutorial, you'll learn how to add crucial elements, such as headers and footers, how to add images and shapes, and how to add effects to images. **Carrie Marshall**

HOW TO Personalise your stationery ›

1 Pick your page

In Pages, create a new document and then tap on the three dots at the top right. Choose Document Setup and you'll see the screen shown here. To edit the header or footer, tap in the appropriate space, or you can leave this blank.

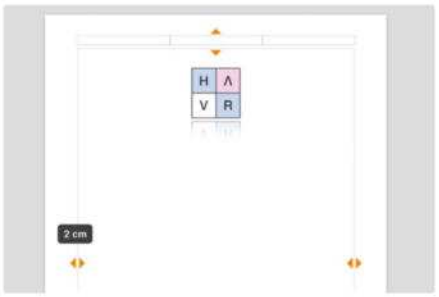


2 Add numbers

When you tap in one of those boxes, you'll see that Pages offers to handle page numbering. You can choose the format and then add any additional text you like. You can also format the text here by tapping the toolbar icons.

3 Change the paper size

If you tap the icon in the top-right corner, you can adjust the paper size. Pages gives you a choice of Letter or A4 in portrait or landscape mode. You can drag the on-page guides to adjust the page's margins.

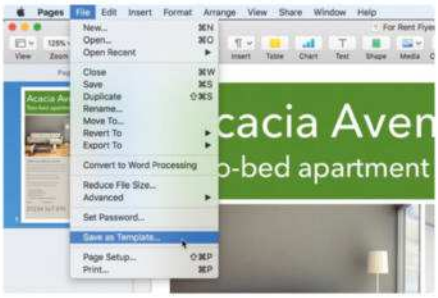


4 Add an image

Tap the + to add an image, table, shape or chart that'll appear on every page. Select an image on the page and tap the brush to open the inspector, where you can adjust transparency and other effects to get your desired result.

5 Save and copy

Return to the main editor, add whatever bits you like and then save everything by tapping Documents at the top. To use your document as a template, hold a finger on its icon for a moment, then tap Duplicate.



6 Do more on a Mac

You can use templates created on your Mac on your iOS device: choose File › Save as Template and save to iCloud. In Pages on iPad, tap Browse instead of Recents and you should see the template. Tap on it and then Add.

Identify fonts

Use WhatTheFont to quickly find fonts

IT WILL TAKE
› 5 minutes

YOU WILL LEARN
› How to use WhatTheFont to figure out the fonts used in any artwork

YOU'LL NEED
› iOS 10 or later, WhatTheFont

Whether you're a jobbing designer, someone who enjoys working on flyers for a local club, or just a typography aficionado, you may at times spot a font you desperately want to identify. If you're armed with an iOS device, WhatTheFont (free, App Store) can help.

As shown in the walkthrough, this app can figure out where text is within an image, and will analyse the typeface of a word to provide you with a list of possible font matches.

But it also has features we didn't have room for in the steps below. First, you don't have to shoot a photo – the button left of the camera shutter lets you load an image already on your device (including ones that you've saved from Safari or Mail). Also, if your image is a bit skew-whiff, tap the rotate button to open a tool that adjusts rotation. Finally, if you don't fancy waiting for the app to locate *all* of the text in your image, tap the selection button and drag out a region yourself for it to check. **Craig Grannell**

HOW TO Use WhatTheFont ›

1 Take a photo

If possible, make sure the target artwork is well lit and flat, and then take a photo of it with WhatTheFont. The app will then analyse the artwork and attempt to outline areas of typography that it finds. Tap one of these to select it.

2 Identify threads

If your selection doesn't contain the entire word, you can resize it. Otherwise, tap the right-facing blue arrow to list possible matches. Note that you may not find the exact font, but should at least get something similar.

3 Add your own text

Tap the area to the left of the pencil icon and you can type your own text, seeing how it looks in all the listed fonts to find which is the best match. Tap any single font to isolate it on the screen, with a link to get it from MyFonts.

Keep fit with your Watch

Make the most of Apple Watch's built-in fitness tools

IT WILL TAKE
› 10 minutes

YOU WILL LEARN
› How to tweak your Move goal, use the Workouts app, and analyse your data

YOU'LL NEED
› An Apple Watch, an iPhone

The three rings are useful activity indicators, no matter how much you're into fitness

Apple Watch has always been a health and fitness device as much as anything else, but Apple has been careful to make sure that those features were accessible to everyone, not just gym rats or runners.

Its status as your healthy conscience starts with the Activity rings – three measurements to keep an eye on, no matter how much you're into fitness. The Stand goal (blue) is designed to push you into standing up and moving around for at least one minute per hour, and to reach that target 12 times per day.

The Exercise goal (green) pushes you to do 30 minutes of semi-vigorous exercise per day. Again, than doesn't mean a half-hour jog – if you walk briskly, it will usually count, and that adds up over a day easily... provided you're doing enough of it.

You can't adjust these goals at all (raising or lowering them to suit you), because they're all about getting you to meet a recommended minimum health standard – it's great if you do more, of course, but the important thing is consistently reaching that milestone.

The last goal of the three Activity circles is Move (red), and this one's more about traditional fitness – it counts calories burned over the day. You can adjust this as much as you want, so you can decide that you'll have to go for a five-mile run (or an equivalent) to get to the target you've set yourself.

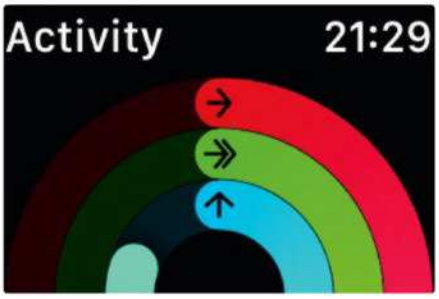
Working out

When you do more intensive exercises, your Watch can still be your partner – use the Workouts app and it will record data such as your heart rate, how long you exercised for, and how many (estimated) calories that period of exercise burned. All that data is fed to the Health app on iPhone, to browse through later.

The Health app can draw data from places other than your Apple Watch. A heart rate monitor chest band, such as the Polar H10, will provide more accurate heart readings than the Watch, for example. You can also get home gym equipment that sends information about your exercise to its companion app, which can then pass it onto the Health app – when you open the accessory's app, it will ask for permission to do this.

You can also add other info that might affect how you interpret your exercise data, such as inputting blood glucose levels, so you can cross-reference when that's had an affect on your fitness over time. **Matt Bolton**

HOW TO Keep up with your targets ›

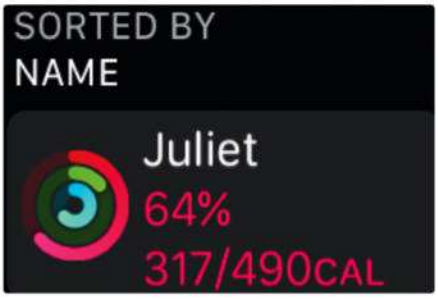


1 The basic Activity rings

To be able to keep up with your daily goal progress, you can add the rings as a complication to any watch face. You'll get a notification when you hit one. You can get specifics by opening the Activity app; tap the complication to do so.

2 Change the Move goal

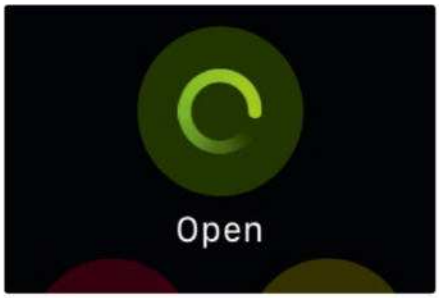
The Stand and Exercise goals are fixed, but you can change the Move goal to push you to burn more calories each day. In your Watch's Activity app, firmly press the screen, then tap Change Move Goal. Set a new goal, then tap Update.



3 Get competitive

In the Activity app on your iPhone, tap the Sharing tab at the bottom. Here, you can invite friends to share their activity progress with you – you'll know when they do workouts or hit goals, spurring you on to raise your game.

HOW TO Use the Workouts feature

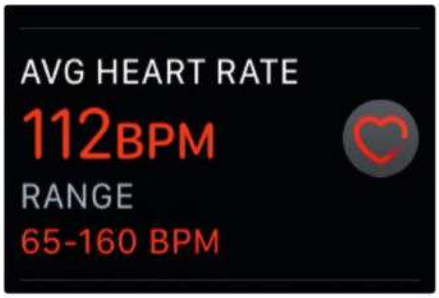


1 Start a workout

Open the Workouts app on your Watch, then tap the appropriate workout (such as Outdoor Run). You can set a target – time, distance or calories – by tapping the three dots, or just tap on the row. You can also use Siri (see below).

2 Workout controls

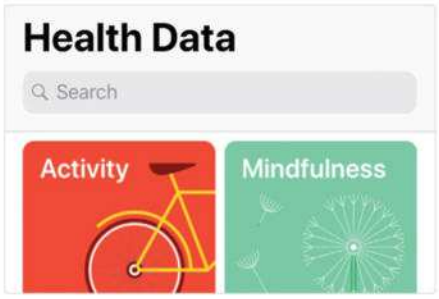
Once you start a workout, a glance at your wrist shows how you're getting on, including your heart rate. Swipe left to right to get controls to pause or end the workout, to start a new session, or lock the screen for swimming.



3 Once you're finished

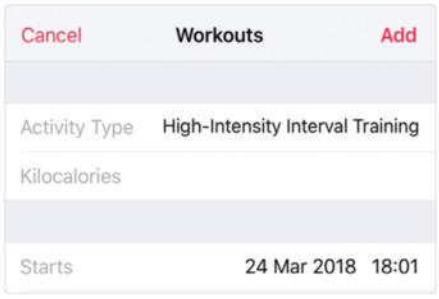
Once you end the workout, you get a little summary of your stats. You can name the workout, which can be useful if you want to look over the data in the future and know that you were cycling a particular route, for example.

HOW TO Make more of the Health app



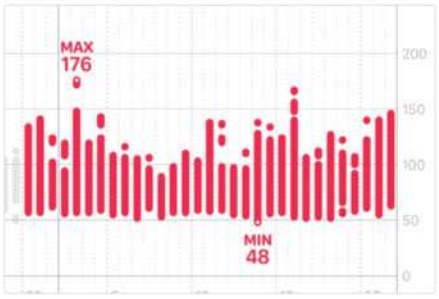
1 Add a workout manually

If you exercised without your Watch on (or if you just forgot to start a workout), you can add data for it in your iPhone's Health app. Tap Health Data > Activity, than scroll down and tap the Workouts bar. Tap the plus button at the top right.



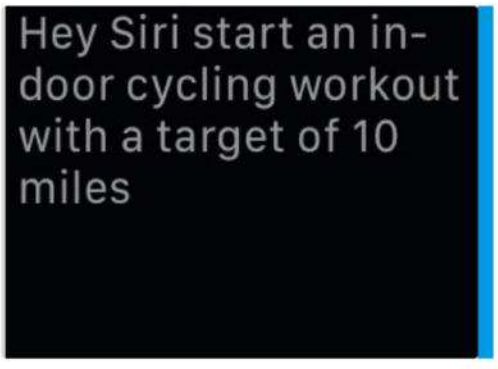
2 Inputting workout info

This brings up a screen where you can choose a kind of exercise, from a longer list than is shown in the Workouts app. You can enter calories burned and distance, but both are optional. Set the length of the workout, then tap Add.



3 View in the Health app

Obviously, the Activity app tracks your fitness, but the data feeds through into the Health app too. Try tapping Health Data > Heart, and look at the graphs over time to see if exercise is lowering your heart rate over time.



A little help from Siri

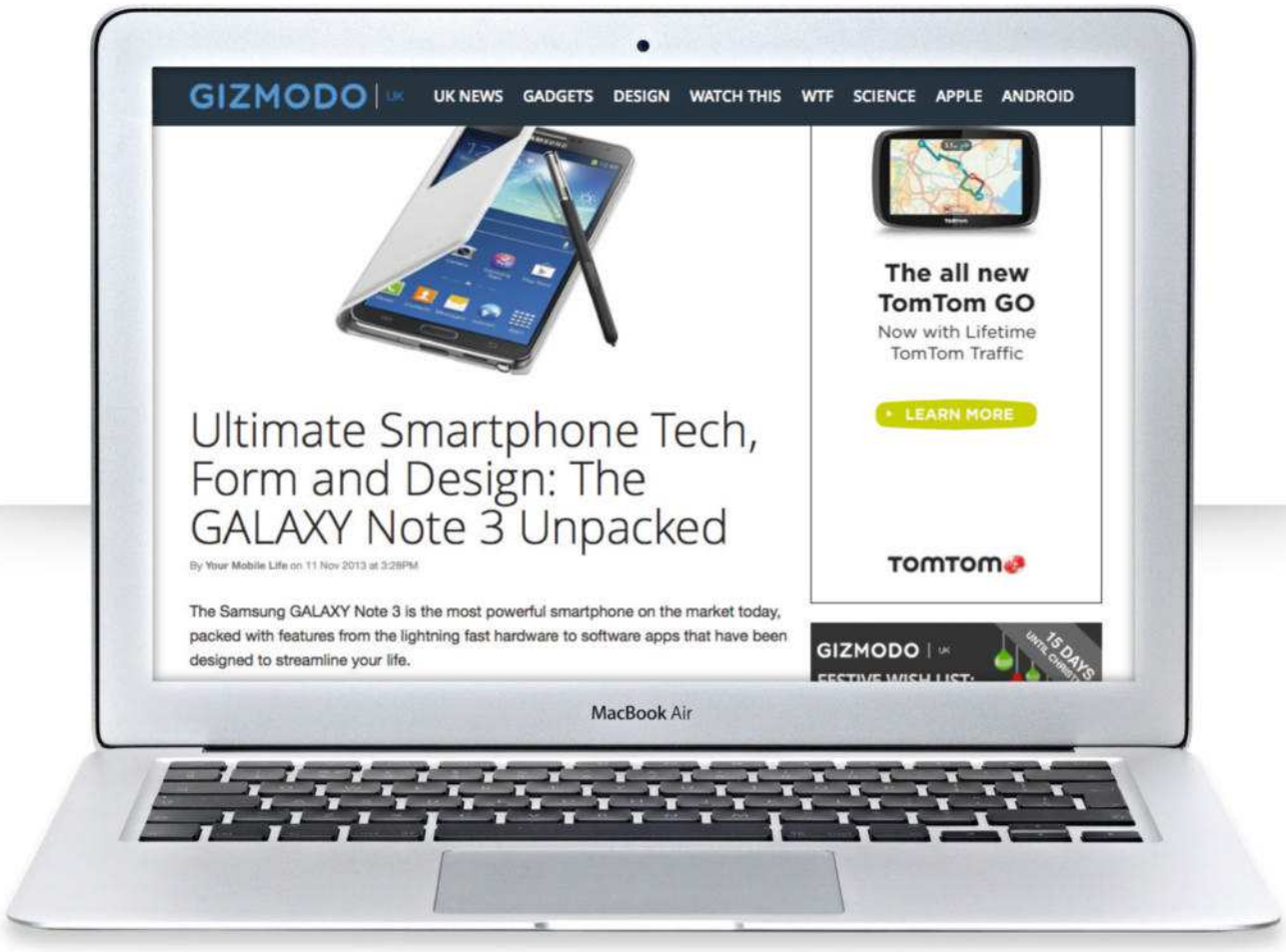
Get a hand from your fitness assistant

You don't have to go tapping around on your Watch to start a workout – just tell Siri what kind you'll be doing. "Hey Siri, start an outdoor run" will start an open-ended Workout of that kind, for example. You can also set the target, though: say the same thing as above, but say "to 10 miles" at the end, and the workout will have that included. Siri also uses its predictive powers to help you reach your Move goals – towards the end of the day, the Siri watch face will suggest something like: "A 20-minute brisk walk will help you reach your goal".

FUTURE

GIZMODO | UK

Not your average technology website



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What's inside

58
UNSIGNED APPS
Is it safe to use an unsigned app?

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iOS SOFTWARE
Swipe away your touchscreen troubles

60-61
macOS
Invaluable insights into irritating issues

62-63
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Are unsigned apps safe to use?

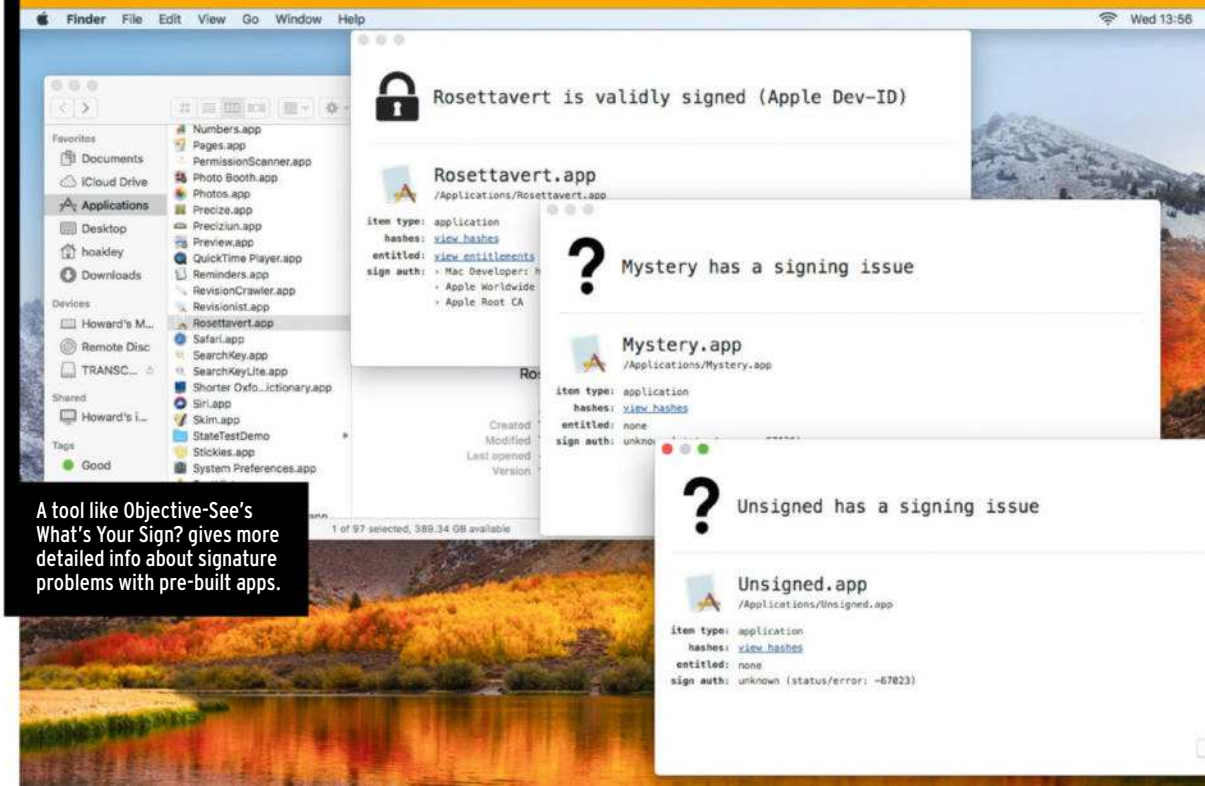
Q **Why are some major apps, such as HandBrake and the GIMP image editor not signed? Are they safe?**

by JACK FOLEY

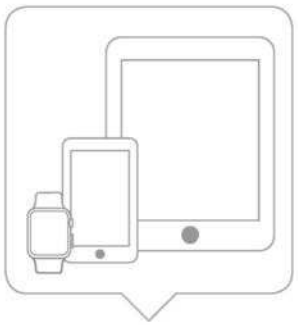
A Code signatures are used by macOS to tell whether apps have been altered since they were signed, either by accident or interference from malware. They don't fit well with open-source software.

To sign an app, developers must register with Apple and pay an annual subscription to have it issue code signatures for their software. Each signature applies to the entire contents of its corresponding .app bundle – the icon that appears in Finder. Once signed, the slightest change to the bundle's contents will cause macOS's Gatekeeper feature to refuse to run the app, if 'Allow applications downloaded from' in System Preferences' Security & Privacy pane is set to one of the first two options. (For protection, avoid selecting the third option – Anywhere.)

Apps can be signed at the time they're compiled from source code. If an app is not signed, Gatekeeper will stop it running in case it is (or has been) altered by malware. You can't sign precompiled apps yourself, but you can bypass Gatekeeper's protection to run one: ctrl-click its icon in Finder, choose Open, then Open again in the confirmation dialog. Beware that this leaves the app open to tampering, leaving your Mac vulnerable – be extremely cautious of allowing this.



A tool like Objective-See's What's Your Sign? gives more detailed info about signature problems with pre-built apps.



iOS software

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

iOS software quick-fire questions

What's best to free up storage on my iPhone?

› In Settings › General › iPhone/iPad Storage there's a detailed breakdown of how space is being used, listed by purpose. Below that, iOS may list recommended actions you can take, each with an estimate of the amount of space it could save. Offloading unused apps – a new capability in iOS 11 that enables you to remove an app but keep its docs and data on your device – and making use of iCloud Photo Library are usually the best options.

How can I customise my iPhone's keyboard?

› Two popular apps are SwiftKey, which offers in-app purchases, and Google's Gboard, which is free but encourages you to use Google Search and to provide usage data. Both have an extensive choice of localised layouts, easy access to emoji, and support using your own custom layouts.

You can drag and drop .ipa files, which are iOS apps, from Finder onto your iOS device in iTunes' sidebar to install them on it.

Can I roll back my version of an app?

Q Now that iTunes on the Mac no longer stores and manages iOS apps, how can I downgrade to an older version of an iOS app?

by TIM FUSSELL

A iTunes 12.7 and later can't download iOS apps or manage those that are installed on iOS devices. Further complicating matters, for a while iTunes has not synced apps downloaded on iOS devices back to the Mac; with iOS 9, Apple introduced a set of techniques called 'app thinning' to save bandwidth and storage by downloading only what is necessary for the device you're using, which would prevent you transferring it, say, from an iPad to a Mac and then an iPhone.

Though iTunes can't access the App Store any more, it can install .ipa files on iOS devices

However, you may still have copies of much older versions of iOS apps available on your Mac from before that time, when you were using an older version of iTunes.

Previous versions of iTunes stored copies of iOS apps under Mobile Applications within iTunes' library folder. If you can't find any there, have a browse through your Time Machine backups and you might find some. They will have the file extension .ipa.

Installing those apps from your Mac onto an iOS device may seem impossible now that your iTunes library has no Apps category. However, even the latest iTunes can install an .ipa file on a connected iOS device.

In Finder, drag and drop the .ipa file for the app you want to reinstall onto your device's icon in iTunes' left pane. The biggest snag with this is that the only apps you can do this with are those downloaded directly to your Mac before iOS 11 was released last September. However, some won't be 64-bit and so will be incompatible with iOS 11, or they may have other compatibility issues with it.

Apple still provides iTunes 12.6.3, which can manage iOS apps, at bit.ly/itunes1263.

macOS

Invaluable insights into irritating issues with the inner workings of your Mac

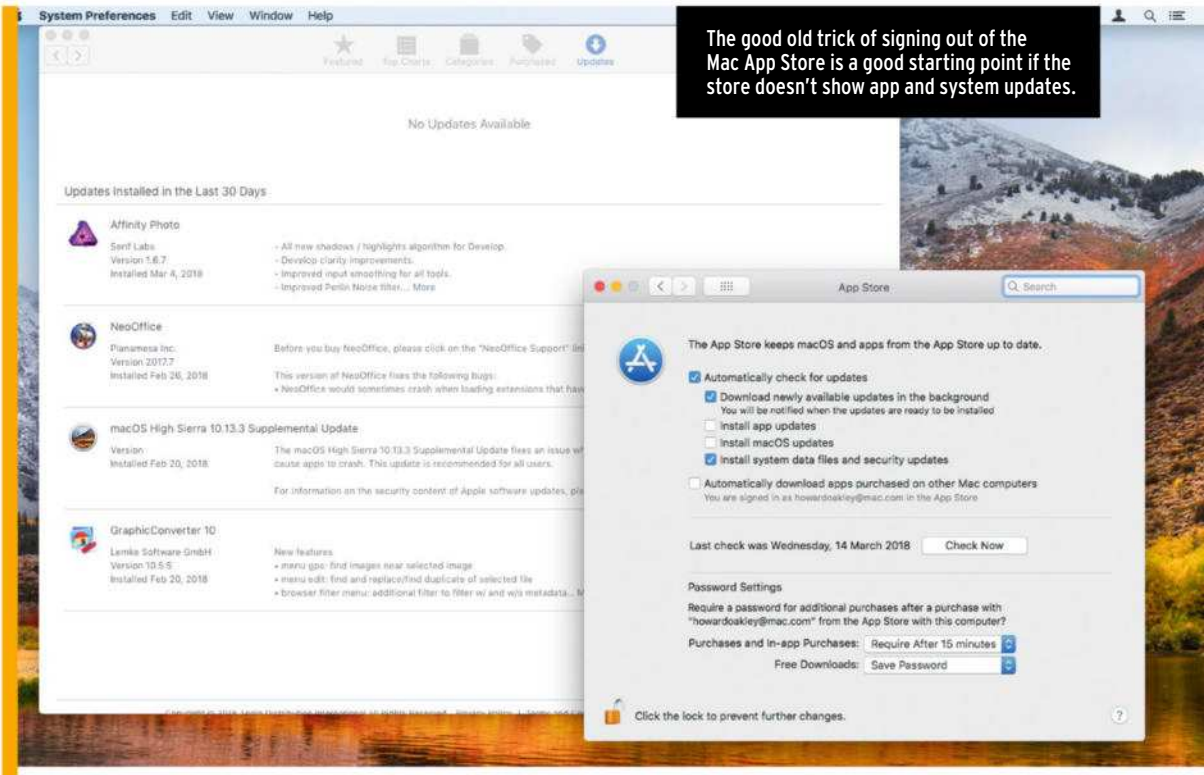
macOS quick-fire questions

Why won't iCloud Drive keep large files on my Mac?

It's due to Optimise Mac Storage in iCloud Drive's preferences. When turned on, it allows macOS to remove local copies of files stored in iCloud Drive and not used recently, if it needs extra space. Their icons remain in place, and copies of the files are kept on Apple's server. They will redownload if you try to open them.

How can I preview a folder of files?

The preview in Finder's Column view is often too small. Instead, you can select the files to inspect and press the spacebar to open Quick Look; use its buttons or the arrow keys to step through the files. Many common types can be viewed this way due to plugins provided by macOS or with apps.



The good old trick of signing out of the Mac App Store is a good starting point if the store doesn't show app and system updates.

My App Store is broken!

Q **Since upgrading to High Sierra, I can't download or update apps from the Mac App Store, and I don't receive any system updates either. How can I get these to work again?**

by DENNIS OATES

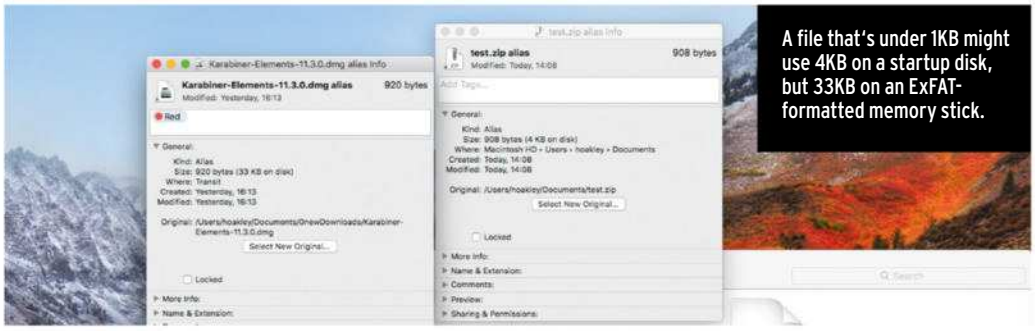
A Check in System Preferences' iCloud and App Store panes that you're signed in using your correct Apple ID. Also confirm in the latter that your Mac is at least set to automatically check for updates.

If those are correct but the store still isn't working, try signing out of it and iCloud and signing in again. The underlying cause is most likely that your upgrade to High Sierra didn't work correctly and needs to be repeated. Before doing so, ensure you have a good recent backup of the internal drive, in case you need to restore files from there.

If you kept a copy of the 'Install macOS High Sierra' app, open it to install High Sierra again over the top of itself. There's no need to erase the disk, and your current data will be retained. The installer will fix problems with system files that may be your trouble's cause.

If you no longer have the installer, because the only way to obtain it is from the Mac App Store, your current installation can't download a fresh copy while the problem persists. In this case, hold ⌘+R at startup to enter Recovery, then choose the 'Reinstall macOS' option.

If that doesn't fix the problem, you can hold ⌘+⌥+R at startup; the option to install macOS then installs the latest version for your Mac, even if it's newer than what you're using.



A file that's under 1KB might use 4KB on a startup disk, but 33KB on an ExFAT-formatted memory stick.

Thumbnails are traditionally added as resource forks. You don't need them now due to Quick Look previews.

Photos take up unexpected space

Q When I check the size of a folder of photos, Finder might show it as using 100MB. When copied to a USB memory stick, it shows up as requiring more space – perhaps even 110MB. Why?

by IAN DAVIDSON

A There are two reasons for memory sticks appearing to use more space. The size of storage units used on flash memory can waste space. On a hard drive, say, these are normally 4KB, but on a memory stick they can be 32KB or more.

Your software may also be adding thumbnails, as extended attributes, which aren't included in Finder's counts. When you copy files to a memory stick, those thumbnails are copied into hidden files, and can add up to a significant amount. Many image-processing apps can disable the addition of preview images, which are often unnecessary on Macs. To save storage, make use of this feature.

macOS quick-fire questions

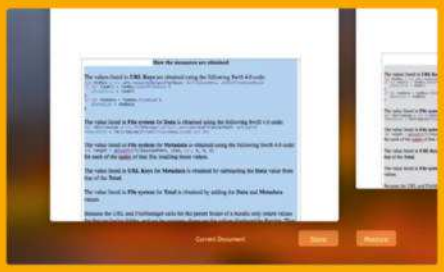
Why does Disk Utility's First Aid feature warn about overallocation?

Disk Utility may report overallocation on APFS disks that contain more than one volume, when the total size of volumes exceeds drive capacity. This is normal for APFS, and is a warning rather than an error.

How can I remove a file from my Time Machine backups?

With your backup drive connected, open Time Machine (from its menu bar icon or by opening the app in /Applications). Locate and select the file, then click the cog in the toolbar and choose 'Delete all backups of'. Don't delete items using Finder or Terminal; doing that could make your backups unusable.

HOW TO Recover lost content using Versions



1 The Versions browser

If an app supports Versions, its File menu will contain a 'Revert to' submenu. Open a doc and choose File > Revert to > Browse All Versions. The browser shows the current version on the left; go to the part from which content is missing.

2 Find what's missing

Click the right window to bring the previous version to the front, then scroll to the relevant part of the doc. If what's missing isn't in this version, step back through older versions. When found, select the text and press ⌘+C.

3 Bring it back

Click the current version on the left and place the insertion point where the missing content should go. Press ⌘+V to paste it there. To leave the browser, click the Done button at the foot of the screen. Press ⌘+S to save this as a new version.

Mac software ›

Shine a spotlight on sagacious solutions to your most maddening Mac maladies

Mac software quick-fire questions ›

How do I download 4K films in iTunes?

› Although you can buy 4K films on your Mac or iOS devices, Apple TV 4K is the only Apple device that's currently allowed to download or stream at that quality – not even Retina 4K or 5K iMacs allow it. HDR content is supported on second-gen iPad Pro models and iPhone X, 8 and 8 Plus, but at 1080p quality.

How can I reduce the amount of space used by Messages?

› In Messages, ctrl-click a conversation in the left pane that you know contains media or other files. Choose Details from the contextual menu; the popover that appears displays all media and files exchanged in that conversation. You can hold ⌘ and click multiple items to select them, then ctrl-click one of your selections and choose to delete those items.

Missing calendars

Q When I replaced my old iMac, the shop transferred all my data to my new one. Several colour-coded calendars have disappeared in the process, and I can't find them on the new Mac. I don't use iCloud. Where have they gone?

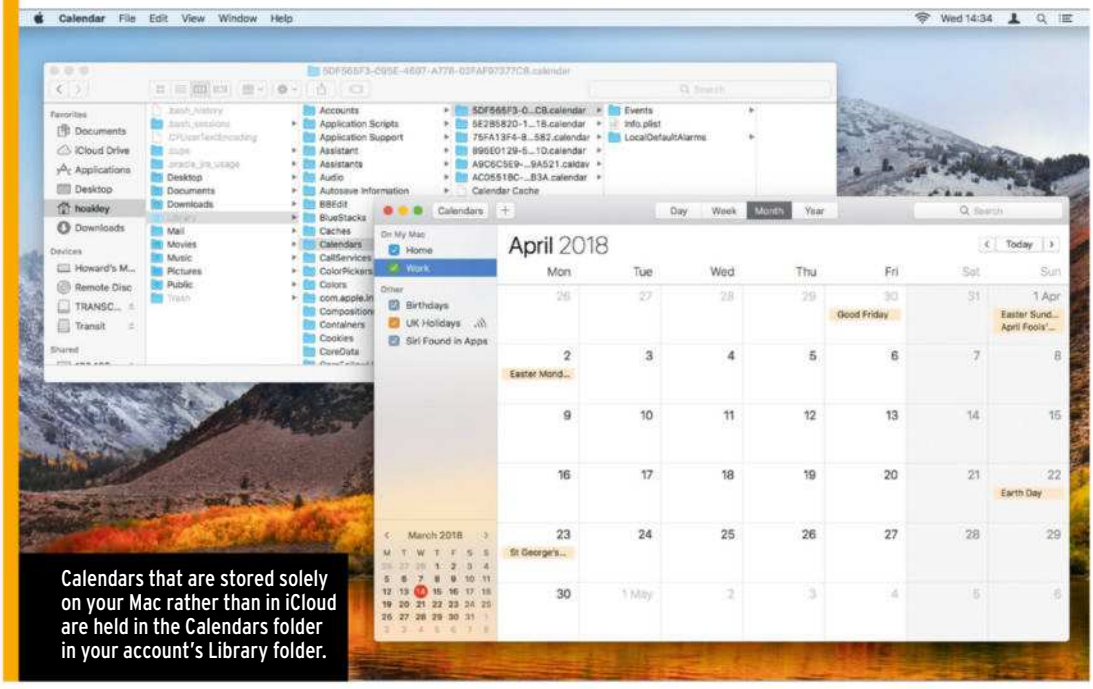
by PETER WHICKMAN

A Data for calendars is stored in ~/Library/Calendars, ~ meaning your account's Home folder. When the shop migrated the contents of your old Mac to the new one, that data should have been copied across and appear in this folder.

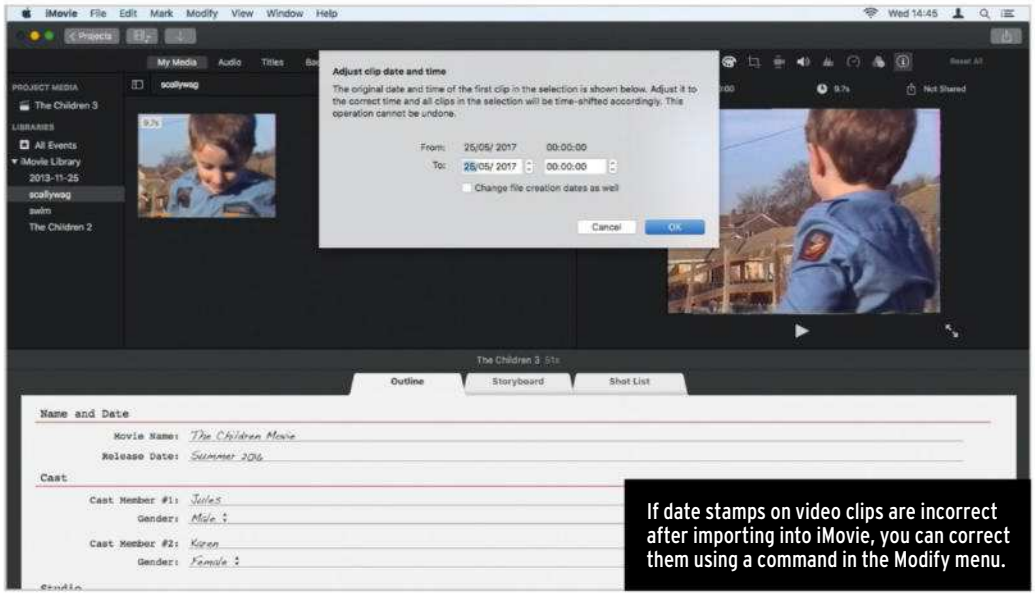
If you have a recent Time Machine or other backup of your old Mac, you should be able to restore the calendars from it. Quit Calendar, If you back up using Time Machine, open that app,browsetoyourHomefolder,press ⇧+⌘+. (full stop) to reveal hidden items, and open the Library folder that was just revealed. Select the folder named Calendars, which contains all your local calendars. Navigate back through time until the missing calendars' files appear. Select them and click Restore. When you get back to the desktop, reopen the Calendar app.

If you don't have a Time Machine backup of your old Mac, only a copy of what was on it when you upgraded, perform the same task manually by copying and pasting files from that into your account's Calendars folder.

There are advantages to putting your Calendars in iCloud, most notable being easy access to them on all your devices. Although the local backups you make of your Mac will include your calendars, you should ensure that you keep offline backups of them; iCloud itself shouldn't be treated as a backup as changes, including damage to files, will propagate across all devices you connect to it.



Calendars that are stored solely on your Mac rather than in iCloud are held in the Calendars folder in your account's Library folder.



If date stamps on video clips are incorrect after importing into iMovie, you can correct them using a command in the Modify menu.

Video file size discrepancy

Q When I import video clips from my camera's SD card to iMovie on my iMac, their dates and times are set to that of the import, not when they were shot. Is this a bug?

by DANIE FOURIE

A Normally the date stamp of each clip is set by the camera at the time of shooting, but some people using recent versions of iMovie have complained of the problem you describe.

Check your camera's documentation to see if this is an option you need to set. Also, verify that the camera's date and time are correct. If the camera is setting the info correctly, you may be able to work around problems in iMovie by changing the way you import clips. Rather than going straight from the SD card, copy to a folder on your Mac, and import them from there into iMovie.

If that doesn't resolve the issue, iMovie provides an easy way to adjust clip dates and times – look in its Modify menu.

Mac software quick-fire questions

How can I stop Keynote saving huge versions?

You can't, and the more you save your work, the more will be saved. Delete individual versions in the Versions browser. VersionsManager (free with in-app purchases, corecode.io) gives better control, including deletion of many versions at once.

How do I know which Photos library I'm currently using?

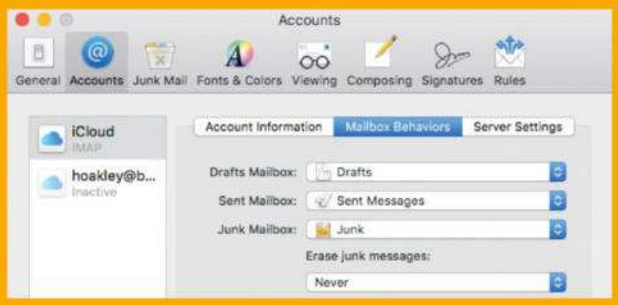
Photos can create and manage multiple libraries, but opens one at a time. The one in use is listed in its General preferences. To switch libraries, hold ⌥ when opening Photos from Finder, then choose one. That which is labelled System Photo Library is the only one you can use with iCloud Photo Library.

Phantom drafts

Q When I open Mail, I often see a message that it's saving over 800 drafts, taking up almost 3GB. I don't have any drafts, so why does this appear?

by IAN SLEIGHTHOLM

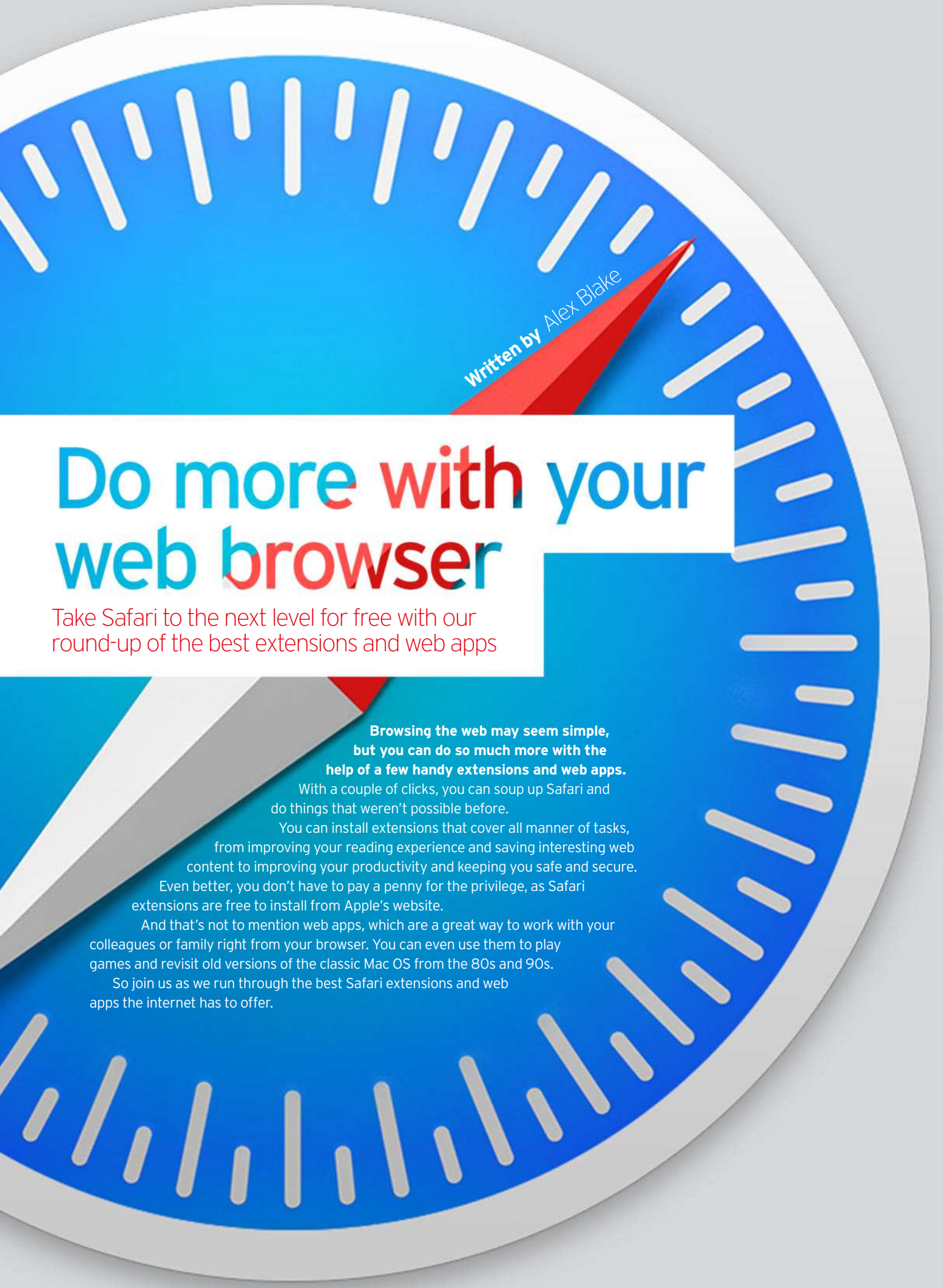
A Open Mail's preferences and click the Accounts tab. For each account that's listed here, check which mailbox is set as the location for storing draft messages. Normally this will be a dedicated Drafts mailbox within the corresponding account. Using this information, you'll need to compare the contents of those mailboxes in Mail with the corresponding locations in Finder.



Mail's preferences show the location of the Drafts mailbox for each account, which should correspond to an item in ~/Library/Mail.

Open a Finder window and press ⇧+⌘+G, type ~/Library/Mail and then press ⏎. In the location that opens, dig through the folders to find the files that correspond to each email account's drafts mailbox (if that's listed as Drafts in Mail, it'll be called Drafts.mbox, for example.). That's the one that should contain your unfinished messages. If you have none, there'll only be Info.plist here; otherwise, you have drafts after all.

If a repair is needed, quit Mail, shut down any other Macs or iOS devices that use the same email account, and ensure you have a recent backup. Reopen Mail. In Mailbox > Erase Deleted Items, choose the account the problematic mailbox belongs to. Select the Drafts mailbox in the left pane and then choose Mailbox > Rebuild. That should clear out any old crud left there, and hopefully your Mac won't keep saving drafts.



Written by Alex Blake

Do more with your web browser

Take Safari to the next level for free with our round-up of the best extensions and web apps

Browsing the web may seem simple, but you can do so much more with the help of a few handy extensions and web apps.

With a couple of clicks, you can soup up Safari and do things that weren't possible before.

You can install extensions that cover all manner of tasks, from improving your reading experience and saving interesting web content to improving your productivity and keeping you safe and secure.

Even better, you don't have to pay a penny for the privilege, as Safari extensions are free to install from Apple's website.

And that's not to mention web apps, which are a great way to work with your colleagues or family right from your browser. You can even use them to play games and revisit old versions of the classic Mac OS from the 80s and 90s.

So join us as we run through the best Safari extensions and web apps the internet has to offer.

What is an extension?

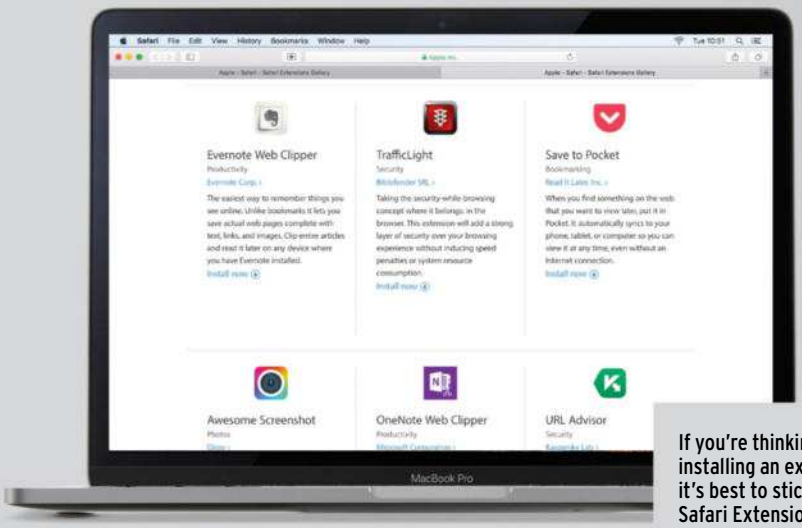
You may have heard about extensions for Safari before without really knowing what they do or how they work. Simply put, an extension is a small piece of code that enables Safari (or your web browser of choice) to do extra tasks that it ordinarily would not be able to do.

For example, you might install one that lets you save pages to read later (with extra features beyond Safari's Reading List) – particularly useful if you expect to struggle to get online later.

Extensions aren't just limited to Safari, or just to your Mac. Other web browsers such as Chrome and Firefox have extensive extension libraries on offer, so if you prefer those browsers then you're not missing out.

You can also install extensions for Safari on your iOS device, where they are acquired from the App Store – just search for the extension you want and download it to get started. Some iOS extensions are enabled from the Share sheet. Open up that sheet, tap More at the right end of a row, then turn on the extension in the list provided.

Other iOS extensions may require a different setup process – make sure you read the instructions on the App Store or the extension's website so that you're in the know.

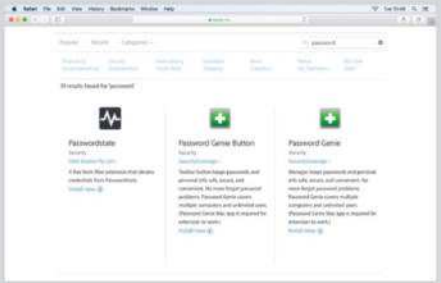


If you're thinking of installing an extension, it's best to stick to Apple's Safari Extensions Gallery.

HOW TO Install extensions on a Mac

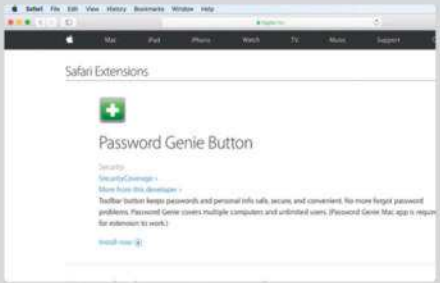
1 Get started

You can download extensions from safari-extensions.apple.com or from third-party developers' websites.



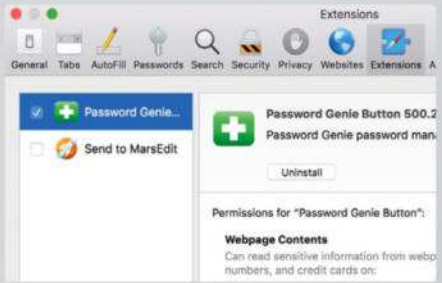
2 Find what you need

Use the gallery's search field (top right) to search for the specific extension you want, or browse by category.



3 Install an extension

When you're ready to install an extension, it's super-simple: just click 'Install now' and the download will begin.



4 Manage in preferences

You can disable or remove the extensions you've installed by using the Extensions tab in Safari's preferences.

Are they safe?

You might be wondering whether it's a good idea to install third-party code onto your Mac, especially when that's combined with going online. In almost all cases, though, they're safe.

When looking for extensions, it's a good idea to take the same approach you may well take with Mac apps and stick to the official source. It's called the Safari Extensions Gallery, and every extension there is signed and hosted by Apple, so you know what you think you're installing is what you're getting. Those extensions are updated automatically, so you'll get the latest fixes without having to lift a finger.

You can download extensions directly from third-party developers on their own websites, but it's worth nothing that these come without the security guarantee that you get with those hosted on Apple's website. As such, you should ensure that you trust the developer before you download and install an extension this way.

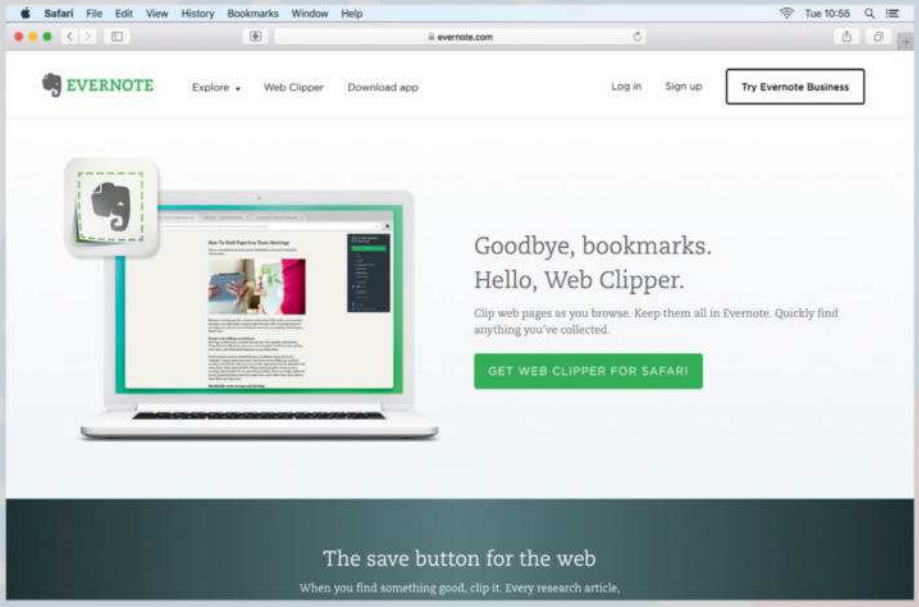
Reading material

Save all your favourite web content with these handy extensions

Everyday life means it can be hard to finish what you've started reading on your Mac. You've got to get to a class, the kids need looking after, or there are a million other things that you need to do first. In short, life gets in the way.

If that sounds familiar, fear not. There are plenty of Safari extensions that let you save articles (or anything you like, really) so that you can return to them later. One of our favourites is Save to Pocket (bit.ly/svtpckt). It lets you save content to a reading list, and if you have the app on your iPhone or iPad you can access it there too. It also lets you access this content even when you are offline.

If you just want to clip items from the web without forming a reading list – like a pasteboard of ideas – Evernote Web Clipper (bit.ly/vrntwb) is a good addition to Safari. It adds a simple button that you use to save anything from a web page to your account, and it lets you add highlights to clipped items so you can draw attention to certain areas.



There are a number of handy extensions for saving and reading web content. Evernote's Web Clipper allows you to collate snippets of information gleaned from the internet, and then access it on any of your devices.

Read all about it

Finding good articles to read and save in the first place can be difficult, though, with the sheer number of news sources out there. If your Facebook and Twitter feeds are clogged up with all manner of articles vying for your attention, the problem is compounded.

It might sound a little old hat, but you may find a solution in the form of an RSS reader extension. A good one is Feeder (bit.ly/rsstlfdr). It allows you to read RSS feeds from your favourite websites just by clicking the extension's button. The extension tells you when feeds have updated with new stories, and you can just mark them as read if you don't actually feel like reading them.

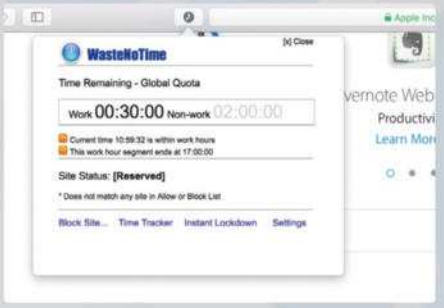
But with all this reading, your eyes might feel the strain. If you find that's true when you read on your Mac in the evening, try out the Nightlight extension (bit.ly/nghtlght). It's a quick switch to darken web pages – so if you're reading black text on a bright, white background,

Productivity

While your Mac can be a great tool for getting work done, it can also be a huge hindrance. All those distractions right at your fingertips can make it hard to concentrate on the task at hand.

But it doesn't have to be that way. With a few good extensions, you can keep distractions at bay and work much more effectively than before.

These are our top four picks. They'll help you get more done and keep your mind focused on your browser, all with minimum effort.



WasteNoTime bit.ly/wstntmtrckr

WasteNoTime is perfect if you often get distracted. It tracks which websites you spend the most time on, can lock down your web access and block sites when you've been on them for too long.

TinEye bit.ly/tnymgsrch

Seen an image and want to find out where it's from or who it's by? Install TinEye, ctrl-click the image and send it to TinEye, which perform a 'reverse image search' to find its origin.

Recently closed tabs

Accidentally closed a tab you didn't mean to? Just click and hold the + button at the top-right corner of a Safari window to bring back any recently closed tab. You can also do this from the History menu.

RSS feeds like Feeder might now sound a bit retro, but they allow you to tailor what news you get.

If your eyes need a break, Nightlight can reverse your display so that text becomes white on black.

Nightlight can reverse the colours, giving your eyes a break. You can make it turn on automatically, or operate between certain hours. You can whitelist websites to ensure that they never get darkened, or tell Nightlight to ignore your current tab but darken other pages. It can even give images a darker shade.

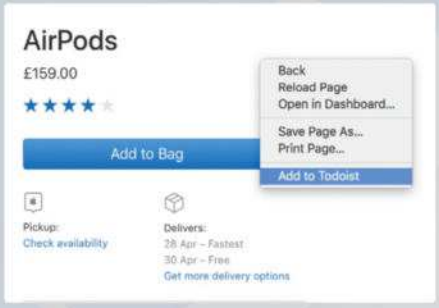
Of course, you might want a useful web tool when it comes to writing, not just reading. In that case, make sure you grab the Grammarly extension (bit.ly/grmmrlysfr). It checks your spelling, grammar and general style as you write, highlighting errors so you can correct them on the go.

From Mac to iOS

The problem with finding a great iOS app when you're on a Mac is getting that app onto your iOS device. After you've found it on your Mac, you then have to search for it again on your iPhone or iPad.

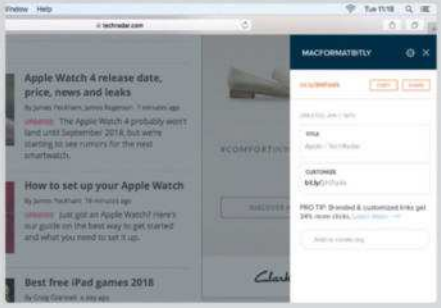
Lookmark (bit.ly/lkmrkitns) is a great way to avoid that kind of problem. It's a simple extension that lets you save any iTunes content – whether that's a movie, an app, an album or something else – to your account in the form of a 'lookmark'. Once it's saved, you'll get a prompt on your iOS device to download it. There's no need to look for it again, as the Lookmark iOS app will take you to iTunes to download it.

It has a few other useful features, too. You can tell the Lookmark iOS app to only download content when you're on Wi-Fi, thus saving on your data allowance. There's also a paid-for version of the app – Lookmark Premium – which alerts you to updates and price drops.



Todoist bit.ly/tdstqckdd

If you struggle to stay organised and get stuff done, try Todoist – it lets you quickly create and manage to-do lists. Note that you'll need the (free) desktop app as well for the extension to work.

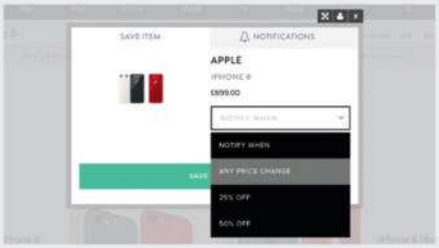


Bitly bit.ly/btlyshrtnxtn

Sending long, unwieldy links can be a pain and look ugly to boot. It's better to use an extension like Bitly, which shortens links to a more presentable form. You can customise the links, too.

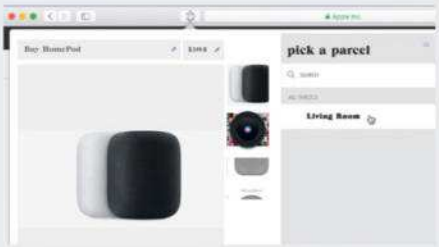
Shopping

Buying stuff on your Mac can be tricky, and keeping track of offers, bargains and shortlists can give anyone a headache. These extensions are the antidote.



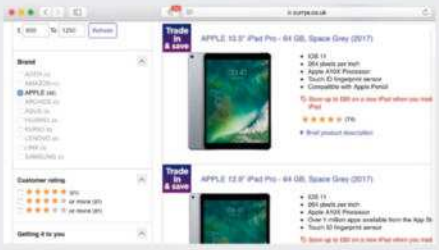
Shoptagr bit.ly/shptgr

If you want to make a shortlist of ideas before you buy, try Shoptagr. It lets you tag products, tells you when prices fall, and you can access it across devices.



Parcel bit.ly/prcltbs

Instead of having a million shopping sites open, Parcel can consolidate them into one tab. You can then sort them into categories and track budgets, too.



Honey bit.ly/hnycpns

Honey automatically applies coupons when you go to buy something, shows you the cheapest seller on Amazon, and gives you cashback on things you buy.

Genius tip! After using a site's own search bar, you can search that site more quickly. Type its name and keywords, then use the shortcut in Safari's suggestions.

Customise Safari's toolbar

You may find that an extension you've installed adds a button to Safari's toolbar. The more buttons are added, the more congested the toolbar can become.

There's a simple fix for that. Choose View › Customise Toolbar to remove or rearrange any button.

Also, an extension may provide a toolbar button but not make it visible for you. Use this feature to check what's available – the toolbar is helpful to ensure you don't forget about extensions you've installed.

You can also add buttons for Safari features that aren't shown by default, such as one for selecting part of a page to keep it visible in Dashboard. The iCloud Tabs button lists tabs left open on your other devices, without having to scroll down to them in the tabs overview.

Built-in features

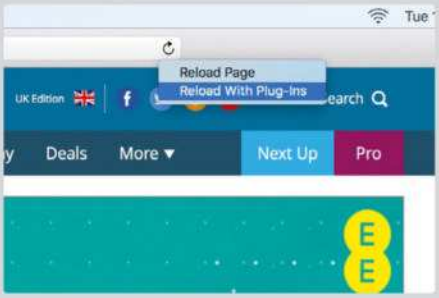
Don't miss these shortcuts to help you browse better

Maximise to fit

Hold ⌥ and click a window's green button and the window will resize to what is thought to best fit its contents. To force a window to fill the desktop, hold ⌥ and double-click a corner.

Extension management

The Extensions tab in Safari's prefs tells you, from a privacy standpoint, what your extensions can do. Also, to ensure you get the latest versions, ensure the checkbox at the bottom left is ticked.



Show hidden content

If you're using a content blocker and want to view something that's been blocked, click and hold the Reload button in the search field, then choose Reload Without Content Blockers.

Quick notes

There's a speedy way to make a note of pages you want to look at later if you don't feel you need Pocket or Evernote: just drag and drop the page's address from Safari into Notes or Reminders.

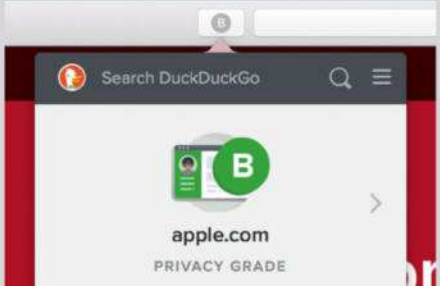
Security and privacy extensions

If there's one thing you really need to guarantee when using Safari, it's your security. It's easy to get complacent when using a Mac, but they are still vulnerable to attacks if you don't take good enough care.

A strong option is TrafficLight by BitDefender (bit.ly/traflght). It gives you real-time protection that actively blocks suspicious websites and those known for peddling malware and phishing attempts. It also shows you if a website is trying to track you.

If you're not so keen on tracking in general, DuckDuckGo (bit.ly/safddgo) will be right up your street. Its search engine doesn't track your browsing habits, and it also comes with built-in privacy features like encryption and a privacy grading system for websites.

DuckDuckGo blocks trackers and ensures you get encrypted connections to pages on major sites.



Finally, we all know how tricky it can be to remember all the passwords you use on the web. That's compounded if you use hard-to-guess passwords that are meant to be more secure. Luckily, LastPass (bit.ly/sfextlast) can help out.

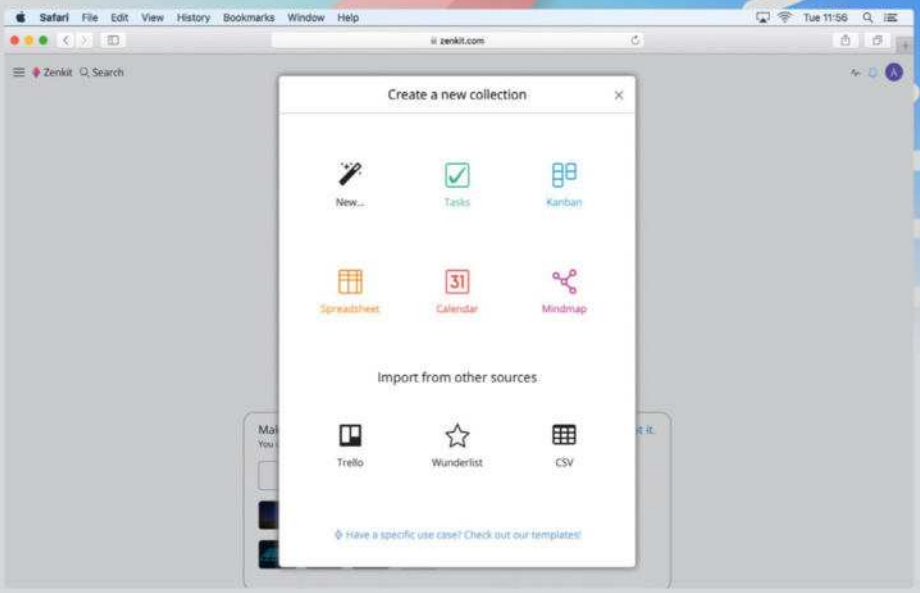
The idea is that you create a single strong but memorable password to act as your master password, then LastPass automatically generates complex ones for all the accounts you use. All you need to do is remember the master password and LastPass does the rest.

Try out web apps

No need for downloads – these apps all work in Safari

Web apps can give you another great way to do more with your browser. If you use iCloud.com, Google Docs or Office 365 then you'll have used powerful web apps before. They can do an awful lot of different things, but they're essentially Mac apps that run in your browser.

If you like image editing but shy away from the price of apps like Photoshop, there are plenty of online image editors that you can use for free. One of the best examples is Pixlr Editor (pixlr.com), which gives you layers, masks, clone stamps, selection tools and much more. If you're not ultra-serious about editing your photos, it may be the only tool you need.



Web apps offer flexible options for working. A web app like Zenkit (pictured) can really simplify your workflow. This comprehensive project managing app allows you to create lists, tables, mind maps and more.

Work on the web

A lot of website management tools work in the form of web apps. For example, Big Cartel (bigcartel.com) lets you construct an online shop from Safari.

Web apps really excel when it comes to collaborative working. There's no need for everyone to buy and install the same Mac apps – they just need a web browser. Web apps work across different platforms too, from Mac and Windows and sometimes even iOS and Android.

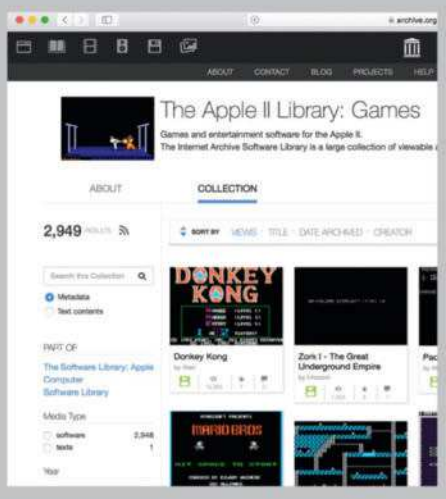
For instance, MindMup.com lets you create mind maps that you can share with colleagues.

Another great way to use web apps for your work is with products such as Dropbox (dropbox.com). The web app lets you access and manage your files from any computer, so you can move them around, delete them, share them, and restore deleted files. You can also view a file's version history and restore a particular version.

Finally, Zenkit (zenkit.com) is an excellent all-in-one web app that helps you plan a project from start to finish. It includes list-making and table-creation functions, a calendar, a mind map tool, and a Kanban tool – a way of improving and managing your workflow.

With all these different web apps, you may never need a Mac app again!

Web apps are essentially Mac apps that run in your browser, so they're particularly versatile



Classic Mac apps

You can even relive the days of Mac OS 8.6 through web apps – just head to VirtualDesktop.org and give it a spin. And if you're done with working, you can take a trip down memory lane and play classic Mac games in Safari.

The Internet Archive has a whole section dedicated to old-school Mac games at bit.ly/macintarc, including Frogger, The Oregon Trail and Dark Castle. It also has software such as MacWrite for you to try, and even Mac OS System 6 and System 7.

Enjoying what you've read so far?

Why not subscribe – you'll get a great free gift, too! *p36*

LOVE YOUR MAC

EDITED BY **LUIS VILLAZON**

REUSE OLD KIT

Inspiring ideas for revamping old Apple kit

What's inside

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Luis decides it's time for a clear-out

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SELLING ON
Sprucing up old Macs in the hope of some second-hand sales

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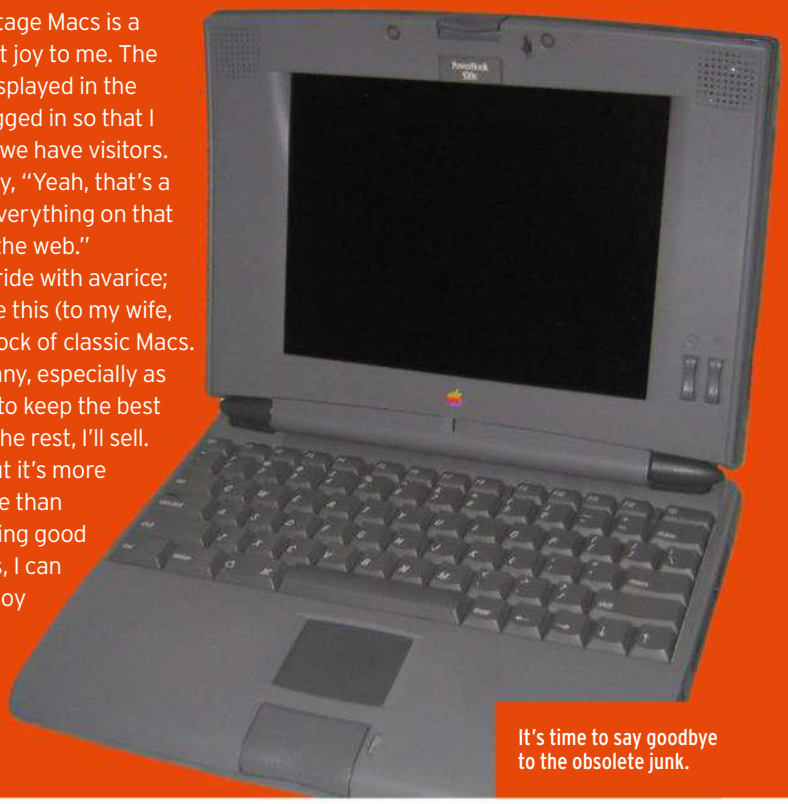
Sell your vintage Mac

My collection of vintage Macs is a source of constant joy to me. The nicest ones are displayed in the sitting room, discretely plugged in so that I can fire them up whenever we have visitors. "Oh, this?" I say insouciantly, "Yeah, that's a working PowerBook 520. Everything on that shelf above it is older than the web."

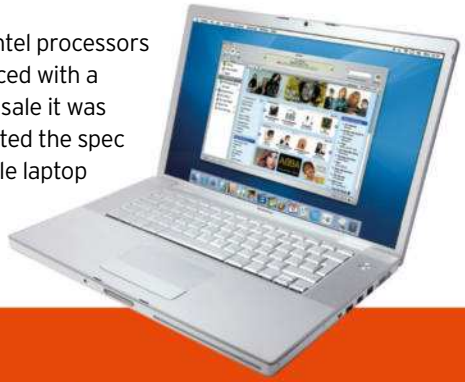
But don't confuse my pride with avarice; I am not a hoarder. To prove this (to my wife, mainly), I am pruning my stock of classic Macs. Thirteen is probably too many, especially as most don't work. I'm going to keep the best one. Or two. (Three max!) The rest, I'll sell. They're not worth much, but it's more environmentally responsible than dumping them. And by finding good homes for these computers, I can give others a chance to annoy their spouses as they indignantly explain the difference between obsolete junk and a design classic.



It's time to say goodbye to the obsolete junk.

CLASSIC APPLE KIT: MACBOOK PRO (2006)

In 2006, Apple ditched the PowerBook line and moved to Intel processors for the new MacBook Pro. This laptop was originally announced with a 1.67GHz Intel Core Duo processor, but by the time it went on sale it was upgraded to 1.83GHz. This was the first time Apple had boosted the spec between announcement and launch, and it was the first Apple laptop that offered a choice of processor speeds when ordering. It ran at four times the speed of the PowerBook G4 it replaced, and had a thinner, brighter screen too.



Cash in the Classic

Old Macs hold their resale value much better than PCs

The starting point in my Classic clear-out is a Macintosh 512K that *mostly* works. It doesn't actually start, its screen remaining stubbornly black, but there's an intriguing clicking sound when you switch it on. This might be a fan blade hitting a loose wire, or it could be the floppy disk drive trying to dislodge decades of rust. This Mac might appeal to someone who wants to scavenge it for spare parts, or perhaps just wants a cheap one to use for a case mod.

Plausible deniability

To prep it for sale, I gave the outside a thorough scrub to get the worst of the dirt off it (see this issue's How To) and replaced one of the case screws that had gone missing years ago. I deliberately didn't open up the case, because there was nothing to be gained from that. A photo of the inside won't help anyone to decide if the motherboard is working, but if I were to discover it's full of rust or dead mice, I'd be obligated to include that in the description. To be clear, I'm not trying to hide a problem that I know is there. It's just that the hassle of opening and cleaning the interior won't be rewarded by increased resale value.

The exterior photography, on the other hand, does make a big difference to the salability of an item. Although I haven't sold any old Macs on eBay before, I have bought quite a few. There is a huge psychological difference between seeing a photo of a Mac on a concrete floor, in the corner of a garage, surrounded by paint cans and plastic bin liners, and a Mac on a polished, walnut veneer dining room table. The photo tells a story of how well this Mac has been treated throughout its life, as well as the all-round upstandingness of the person selling it.

So I cleared all the junk from our nicest table and photographed the Mac in a warm, natural light. The main image for the listing is a three-quarter profile shot from slightly above. This is a flattering angle for anyone, because it hides a double chin. Then for balance, this was followed with police mugshot style photos of each side, as well as the rear and top. I also took a close-up of the rear plate

For sale: classic Mac, much used.

Quick-fire questions

Is it better to sell a whole Mac or dismantle it and sell as separate parts?

You will usually make more money by breaking it up. A single EMI shield for the floppy disk of a Mac SE/30 is currently listed on eBay for £10.66, and this is basically just a bent piece of foil. But it will take much longer to find buyers for each piece, and some components may never sell. If your main motivation is to clear out the garage or loft, selling a whole Mac is a better strategy.

Should I include the keyboard and mouse?

This is only worth doing if you are selling a working Mac. Anyone bidding on a broken Mac wants it for spares or a case mod and isn't really interested in the keyboard. These can be listed separately and will sell quickly for £20 or so.

You should only sell Mac parts individually if you place little value on your time!

This Mac has already been sold at auction at least once before.

Honesty really is the best policy for eBay – your most valuable asset is the feedback score

with all the model number information, and close-ups of two nasty scratches on the case.

Priced to move

I listed it on eBay as 'Vintage Macintosh 512K Computer M0001D Parts or Repair 1984 Classic Mac'. There's a lot of redundancy in that description, but you never know what search terms people will use. My description is also fairly verbose, basically pointing out every blemish and scratch. Honesty is always the best policy in life, but this goes double for eBay because your most valuable asset is your feedback score. I have 100% positive feedback since I joined in 2003, and I'm not about to risk that over a few quid for a second-hand Mac.

Egregious scratches like this one won't stop your Mac from selling, but make sure you point them out.

Now, eBay wanted me to start the auction at £22, and said that 'items like this one' usually sell for £45-£80. But I'm not convinced its algorithm correctly considers subtleties in a description. Like the fact that it doesn't work, for example. Anyway, my main motivation was to get this thing out of my house, not wring every last penny from the sale. So I started the auction at 99p and added a Buy It Now price of £29.99. I set the auction for 10 days, rather than the default seven, so that it will run over two weekends, which is when most impulse buying happens. Then I clicked the List button and settle down for the waiting game.

Forty minutes later, my phone chimed to say the Mac had been sold. The buyer was three miles from me and collected later that afternoon. I got them to sign a receipt, they paid by PayPal, job done. Was this a fluke? Did I just get really lucky? The next day I prepped a non-starting and fairly rusty Mac SE/30 the

HOW TO Restore the finish on an old Mac

1 Scrape

To remove old sticky labels, turn the Mac so that the sticker faces up, then lay a wet flannel or dishcloth on it for 20 minutes or so. Make sure the flannel isn't so wet that it's actually dripping. The bulk of the sticker should come away with some gentle scraping from a blunt knife or spatula.

2 Remove

Remove all four T8 screws from the antenna plate grille and slide it back to clear it. You don't need to undo the cable, just fold the plate out of the way. Use a spudger or a flat screwdriver blade to pry the drive cable connector from the motherboard and slide the drive out. Peel the black tape from the cable connector.

3 Scrub

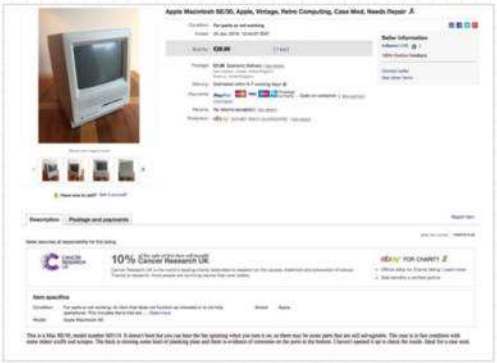
More stubborn stains may need scouring. Start with a nylon scouring pad and a little soapy water. Take off as much as you can, then switch to isopropyl alcohol. This will partly dissolve the nylon scourer, but will rinse away and won't harm the Mac. Just wipe it over with an alcohol-soaked cloth when finished.

same way and listed it for the same price. It sold in two hours. This time I had to post it, but I have lots of cardboard boxes and bubble wrap in my garage, and eBay generated the barcoded shipping label for the courier, so it was barely any extra effort. And the buyer was evidently happy to pay the £7 shipping fee, on top of the £30 for the Mac.

Shipping disaster

Evidently, I was undercharging. I listed the next Mac (which starts up, but has a garbled screen) for £40. It also sold in a couple of hours. I was torn between creeping the price up by £10 each time until I found what the market would stand, and just listing the rest of the Macs in one go for £40 a pop.

And then I got an eBay message from buyer number two. He hadn't received his Mac SE/30 yet. The courier company claimed to have made three unsuccessful delivery attempts, but the buyer insists he was in for at least two of those days and no one rang the doorbell. And so began a huge saga wherein I had to email, phone and webchat back and forth with the courier and eBay's courier booking service. Nothing would persuade them to make a fourth delivery attempt and instead they returned the Mac to me. I had to then rebook the delivery (with another courier company). This one delivered on time but, in the process, cracked the front



Donating a percentage of the proceeds to charity is the right thing to do, and might make people more likely to bid.

bezel of the Mac, because the parcel had crossed the length of the country thrice and the packaging was giving way. I had to refund the buyer and claim partial compensation through the booking service's insurance.

Selling old Macs is a hard way to make a living. Prepping, photographing, listing and shipping each one takes at least three hours, even if nothing goes wrong. That's better than minimum wage, but not by much. It is however, much, much better than just taking them to my recycling centre to be ground up and melted down. So far, I have found happy new owners for five classic Macs, and even if they end up as glorified iPad docks or plant pots, they are still being celebrated for the design classics they are. I consider the £145 I have made as a sort of rehoming fee.

Selling old Macs is also a great way to get rid of that huge roll of bubble wrap you have lying around!

Next issue!

What can you do with seven classic keyboards after you have sold the computers they were connected to? Luis has not just one great idea, but two!

Have Your Say

We want to hear your opinion on what we're covering in MacFormat and how well we're addressing your needs as an Apple fan.

Take part in our reader survey at

bit.ly/mfsurvey2018

The closing date of this survey is Friday 15 June, 2018

Time is running out!

APPLE HOME

EDITED BY **CLIFF JOSEPH**

LIVE SMARTER

The smart home is here – live the Apple dream today!

What's inside

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SMART GARDEN
Be proud of your garden again, without having to lift a finger!

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SENSORS & SAFETY
The smart garden party: clever watering, mowing and lighting, and home security, too

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GARDEN GADGETS
Five of the best outdoor accessories

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They say the British are a nation of gardeners, and there's plenty of smart tech that can help you care for your garden now that spring is upon us

We've just been through a pretty long, cold winter with, bizarrely, snow falling as late as Easter in some parts of the country. But now that the sun is finally starting to shine again, it's time for green-fingered gardeners to roll up their sleeves and tackle a few outdoor chores once more.

There's an increasing range of devices that can help out in the garden these days, such as soil sensors that enable you to monitor the health of your plants and make sure they get plenty of TLC. But the best garden devices are the ones that make your life easier, such as smart sprinkler systems that water the lawn for you, and robot lawnmowers that zip around the garden all by themselves.

So here's our guide to the garden tech that can do all the hard work, while you soak up the sun (hopefully).

If you're in need of a bit of help in the garden, smart gadgets can help maintain your lawn and plants.

Get started with the smart GARDEN

Spring is in the air at last, so it's time to check out the latest tech designed to help out in your smart garden

After the winter we've just been through, your garden is probably feeling a little under the weather, so it'll take some extra care and attention to restore it to its former glory.

A good starting point for any smart garden is a soil sensor that can measure details such as temperature and moisture, and send notifications to your mobile device to let you know when your plants need attention.

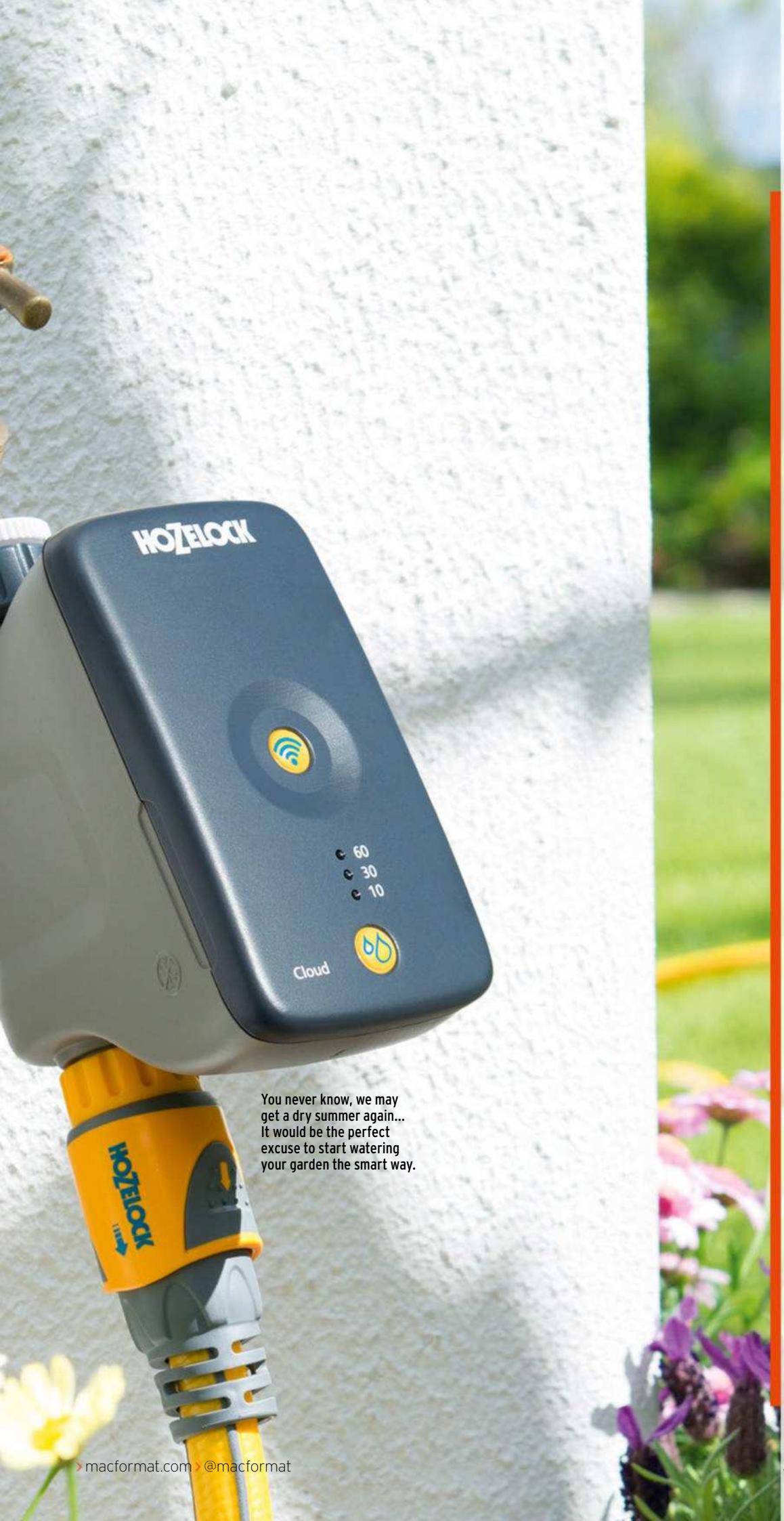
Oddly, while there are a number of soil sensors available in the US, few of them are currently on sale in the UK – Edyn and PlantLink even seem to have vanished from Amazon UK in recent months. Parrot made a Flower Power sensor a couple of years ago, but its website says this product is no longer on sale. Similar products are available online if you (ahem) dig about. The Xiamo Mi and Flower Care 2 smart soil sensors are both currently priced around £20.

The main option for gardeners in the UK is the Koubachi Plant Sensor. Koubachi has now been taken over by Gardena, a German company that is emerging as the new gardening superpower. The original Koubachi sensor can still be found online, but Koubachi is shutting down completely at the end of 2018 so if you want to be sure of technical support – and future app updates – we'd recommend the new version, the Gardena Smart Sensor. You can buy the Smart Sensor on its own for around £110 but, as part of its master plan for global garden domination, Gardena is also selling the sensor with a number of kits that include other devices, such as smart sprinklers and robot lawnmowers, costing up to £1,600.

Gardena's products start at around £30 for its Water Computer, which is a kind of smart valve that connects to your garden hose or sprinkler

Forget toiling away in the garden for hours, get a robo mower to do your dirty work for you.

Here's how to restore your garden to its former glory, without getting your hands dirty



You never know, we may get a dry summer again... It would be the perfect excuse to start watering your garden the smart way.

Explained

Mesh networking

› This isn't a mesh net to protect your plants; mesh networking uses multiple Wi-Fi routers around your home to extend the reach of your network (check out our group test on p90). So, a nearby mains socket can connect a mesh router and give you Wi-Fi out in your garden as well.

Smart garden quick-fire questions ›

What about apps?

› There are dozens of gardening apps available, with one of the top rated being GardenTags. This is a social media app for gardeners, where you can share information or ask for advice from thousands of other gardeners, or use in-app purchases to get personalised advice from professionals such as TV gardener Michael Perry.

Is it safe?

› You don't have to worry too much about accidents with a smart sprinkler, but robot lawnmowers can potentially be dangerous. Check what safety precautions are built in, such as sensors that can spot a person nearby, or a child lock that can prevent a mower being activated by accident.

Philips' latest Hue smart lights include Calla, which lights your path.

SUMMER LIGHTS

Use smart lighting to highlight your hard work

When the work is done, you can relax and unwind in your own personal oasis. To set the mood, Philips has launched a number of new smart lights in its Hue range, which all work with Apple's HomeKit (with the aid of the Hue Bridge, £50). The multi-coloured Calla ($129.99, about £90) bollard light can be used to illuminate paths. And you can dot the Lily spotlights ($279.99, about £200 for three) around your garden for some dramatic lighting to highlight your eye-catching flower beds. The new Hue lights will be available in July, with exact UK prices coming soon.

Smart garden quick-fire questions

What about security?

Most security cameras are designed for indoor use, but there are a number of outdoor cameras that can be used to keep an eye on your garden, too. Netatmo's Presence (£250) cleverly combines a powerful floodlight with a concealed security camera, while Netgear's Arlo Pro 2 is more expensive (£579) but includes two weather-proof cameras for indoor and outdoor use, and even a powerful siren to scare off intruders.

What about the weather?

The weather is becoming increasingly unpredictable these days. To keep an eye on things while you're away, you could invest in a sensor, such as Netamo's Weather Station (£139). This device monitors temperature, humidity, and barometric pressure so that you can schedule watering and other tasks using remote control.

system. The Water Computer doesn't use an app, but it does have a small LCD display that shows you the amount of water being used and provides programming options to control frequency, duration and the schedule. Gardena also sells a more advanced kit called the Smart Water Control Set (around £380) that includes both the Water Computer and a Wi-Fi hub that can connect to the Gardena mobile app, which can be used to schedule watering sessions, as well as providing remote control if you want to check on things while you're away.

Gardena doesn't have the gardening market all to itself, though. Hozelock is a Birmingham-based company that specializes in water and sprinkler systems, and its Cloud Controller provides a similar hose attachment with an app and Wi-Fi connectivity for a more affordable price of around £120.

Robo crop

As for mowing the lawn, there are smart options that can help here, too – even if they are a bit pricey. A number of companies sell robot mowers that can zoom around the garden and trim the lawn all by themselves, while you put your feet up and supervise with the aid of a nice, cool drink. These robo mowers have been pretty expensive in the past, generally starting at around £1,000 and going beyond the £2,000 mark for high-end models designed for large gardens.

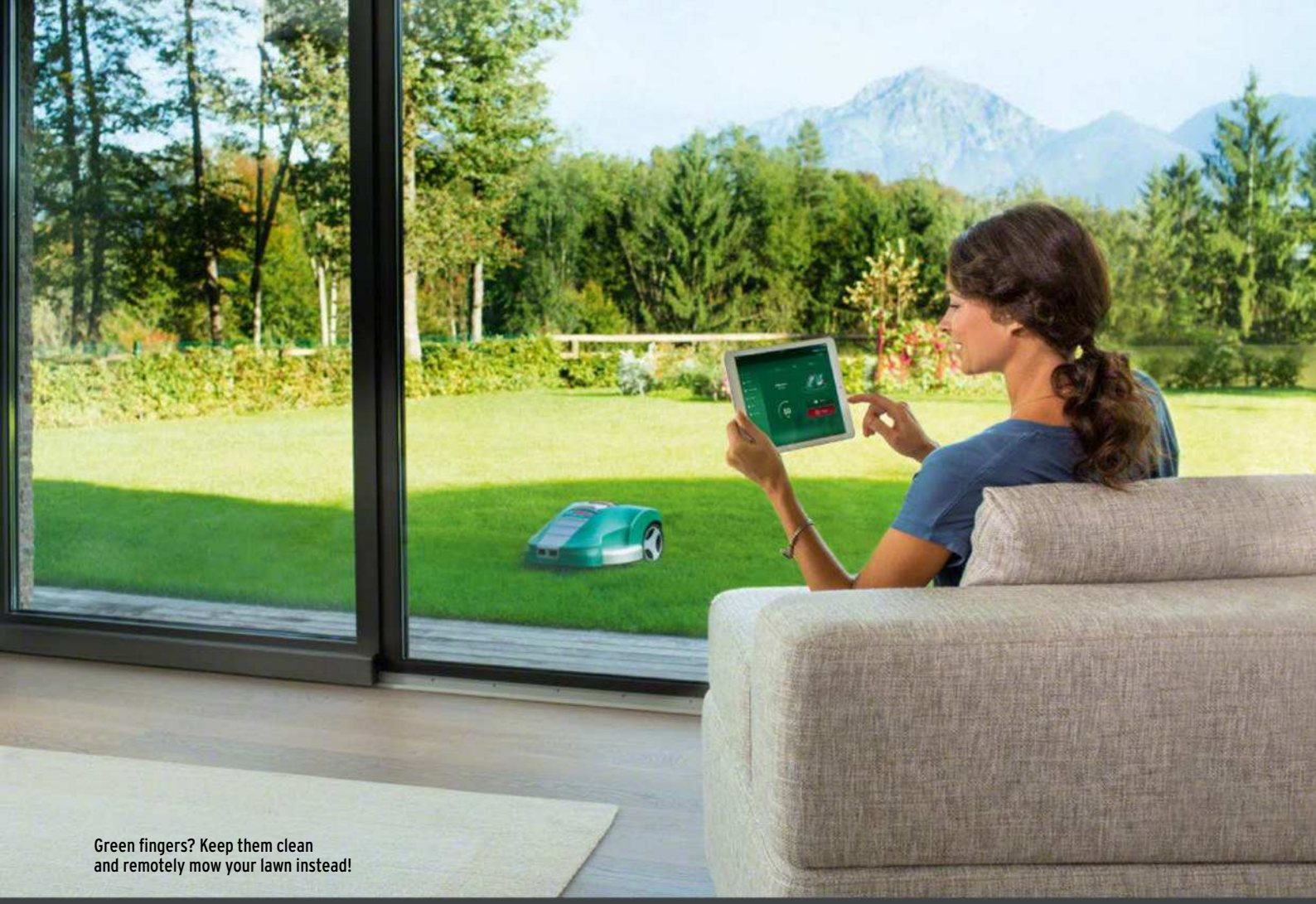
The leading company in this field is Robomow, which recently launched a couple of more affordable models for smaller gardens. The RX12u costs £599 and is 'smart' in the sense that it has built-in sensors that enable it to detect the edge of the lawn and to navigate around obstacles while trimming it.

If you want more control via an iOS app, then you'll need to step up to £849 for the RX20u model, which can be programmed with a mowing schedule and can split your garden into a series of zones for individual attention. There's also a remote control feature that lets you 'drive' the mower from the comfort of a deck chair.

Bosch also makes a range of robotic mowers, but they are a little more expensive, starting at £799.99 for the auto-navigating Indego 350, or £899.99 for the app-controlled 350 Connect model. And, of course, Gardena's in there too, with its Sileno mowers, which start at around £650. However, Gardena, as mentioned earlier, has a master plan to link all its garden gear together via its app, so that you can mow the lawn, check soil conditions, and turn on the sprinkler using just that app. The app even works with devices from other companies too, such as Netatmo's Presence security camera.

So, while Apple, Amazon and Google battle it out for control of the smart home, it looks like there's another battle for our smart gardens coming up in the future too.

In August 2017, Gardena teamed up with Netatmo to enable its app to control more than just its own garden gadgets.



Green fingers? Keep them clean and remotely mow your lawn instead!

FIVE OF THE BEST

The best tech for your smart garden

Smart Sensor Control Set £320

gardena.com/uk

This comprehensive kit includes a soil sensor to keep an eye on your plants, along with a water control that attaches to your taps to control water and sprinkler systems. There's also a Wi-Fi hub for the Gardena app – which can control Gardena's lawnmowers and other devices, too.

Hozelock Cloud Controller £120

hozelock.com

This well-established gardening company is entering the digital age, and its Cloud Controller is an affordable option for controlling your sprinkler or watering system. Just attach the valve to your tap, and the hub to your router for scheduling and remote control using the Hozelock app.

Netgear Arlo Pro 2 From £579

arlo.com/uk

It's a little pricey, but this two-camera security kit is ideal for use in the garden. The cameras are rated IP65 weatherproof for outdoor use, and battery-powered so that you can move them around easily. There's a siren to scare intruders – and a HomeKit update on the way.

Philips Hue Lily ($280, about £200)

meethue.com

This pack of three multicolour spotlights can be placed in and around your flowerbeds to create a really eye-catching display – all controllable using HomeKit and Siri voice commands. You'll need the Hue Bridge (£50) to use Hue lights in a HomeKit setup.

Robomow RX20u £849

robomow.com

Robotic mowers are expensive, but Robomow's latest models finally come in below the £1,000 mark, with the app-controlled RX20u coming in at around £849. This app-controlled mower has a two-hour rechargeable battery, is recommended for lawns up to 200m², and features a child lock for extra safety.

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- Tested: Apple Watch vs fitness rivals
- Save money on your next Mac
- Reviewed: iMac Pro

ISSUE 324
APRIL 2018
- Detox and back up special
- Boost mobile devices' battery life
- Reviewed: Apple's HomePod speaker
- Rated: pro-quality camera apps

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MARCH 2018
- Insider interview: Apple's Phil Schiller
- 67 tips to make great iWork docs
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APPLE CHOICE

EDITED BY **ALEX BLAKE**

BUYING ADVICE

Our authoritative reviews help you make more informed choices

ASUS BLUE CAVE
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The prices quoted for products are correct at the time of writing and are the best we can find from a reputable online dealer, excluding delivery.

★★★★★
A brilliant thing in all regards, and worth every penny

★★★★☆
Strongly recommended; any flaws are only minor concerns

★★★☆☆
Worth considering, though there may be better options

★★☆☆☆
Notable flaws; look at alternatives as a priority

★☆☆☆☆
A waste of your money and everyone's time; do not buy!

The **MACFORMAT** Awards

Awarded to a five-star product we believe is truly exceptional in its category. Given solely at the discretion of the Editor.

Given to a hardware or software product that might not be the very best in its category, but is noted for affordability.

Our group test winner gets this award for being the best of its kind when pitted against other comparable products.

9.7-inch iPad

Take note: it now supports Apple Pencil

Reviewed by **MATT BOLTON**

› **From £319** › **FROM** Apple, apple.com/uk
› **FEATURES** 9.7-inch, 2048x1536-pixel Retina display, A10 Fusion chip with M10 coprocessor, 32GB or 128GB storage, Wi-Fi only or Wi-Fi + mobile connectivity

Apple Pencil support works well; for taking notes, it feels responsive and accurate

Alan says...

› I own a 12.9-inch iPad Pro and agree that it's a shame this model lacks TrueTone. If you want an iPad for taking notes rather than creative tasks, it's a good choice. However, if you want the benefit of pressure sensitivity with Apple Pencil, get an iPad Pro, as that feature isn't supported in this iPad.

Last year, Apple introduced its most affordable 9.7-inch iPad to date – the £339 fifth generation. It had no bells and absolutely no whistles – its case even copied 2013's iPad Air, rather than the thinner look of the 10.5-inch and 12.9-inch iPad Pro. But that didn't matter, because it had a great price, was reliable, had a nice Retina display, and was as fast as you needed. For a family tablet, full of games and apps that make good use of a large screen, it was ideal.

A year later, that model is still more than good enough for that job, so we didn't think it would be updated so soon – but here we are. The new model works with Apple's Pencil stylus, and features an A10 Fusion chip (as seen in the iPhone 7), rather than the A9 processor (found in the iPhone 6s). That's it, bar £20 being sliced off the price, so it now starts at a tidy £319 for a 32GB model.

It means that, if you already have last year's model and are wondering whether to upgrade, the answer is: not really. But if you've got an older iPad or are looking for your first one, let's go into what you get here.

Pixel pinch

Perhaps the most important part of any tablet is its screen, and though this one's 2048x1536-pixel display is far from cutting edge, it's really good. It's definitely the biggest area of difference from iPad Pro, though. It lacks the Pro's wide colour gamut – a bit of a shame if you have an iPhone 7 or later, which can take photos in that colour space. It isn't the end of the world, though, since the screen is still bright and colourful.

You also don't get HDR support, unlike on iPad Pro. Again, we prefer to have this for watching movies, but it doesn't have as much impact on small screens as on a TV, so it feels like a reasonable trade-off at this price.

The pixels don't feel as close to the surface as the iPad Pro's either, but again, this is the difference between mid-range and premium. That's the gist – even aside from size, the Pro's screen is that much more luxe across the board in ways that justify its extra cost, but the one found here is definitely good enough.

That said, there is one missing feature of the screen we're frustrated about: the lack of TrueTone, Apple's technology that adjusts the screen's colour temperature to match the ambient lighting of your surroundings, so that white on the screen looks like a sheet of paper would in the same light. TrueTone makes an iPad so much more pleasant to use, especially if you're using it before bed, and if you've ever used it, switching to a device that lacks it feels like a big step backwards. With this tablet being aimed more at families (and especially kids), we feel that a feature that helps to alleviate eye strain, especially around bedtime, would be a really valuable addition.

The latest 9.7-inch iPad retains the same body used by last year's model and even 2013's iPad Air.

Apple Pencil support works well. When you're writing notes, it feels responsive, accurate and slick. Inevitably, iPad Pro has it slightly beat, thanks to its screen refreshing at up to 120 times per second, compared to 60 here. So, sketching with fast movements reveals a tiny bit of lag in the lines appearing on the screen, whereas it seems instantaneous on second-gen iPad Pros. It'll only annoy if you're planning to do high-level art – if that's your bag, you should look at a Pro anyway.

Performance

Performance and responsiveness everywhere else are also great. The A10 Fusion chip isn't quite as powerful as iPad Pro's A10X, but we had no speed issues in web browsing, editing docs, gaming, or GarageBand and iMovie.

Multitasking features of iOS are well supported, so you can have apps side by side, or have one floating for quick access, without any slowdown. The 9.7-inch screen doesn't make for a dual-app productivity powerhouse, but we found it fine for researching in Safari on one side and writing in a doc on the other.

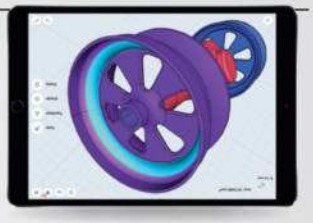
Battery life is solid, due to a big capacity and a phone-level processor. Apple claims 10 hours, as usual for iPads, which is fairly conservative in light use with the screen lower than full brightness. Conversely, a long game of Civilization VI will mean a lot shorter life. On standby, a couple of per cent is lost each day, so there's rarely the frustration of it being dead when you want to watch YouTube.

Speaking of video, while the iPad is fine overall, its speakers are a bit weedy, and they work in stereo only in portrait orientation. Though clear enough, there's a disappointing lack of oomph; another trade-off at this price.

The front and rear cameras are unchanged from the last model, meaning they're fine. They work well enough for FaceTime, pick up surfaces nice and clearly in augmented reality apps, and image quality is decent. They're nowhere near as good as what you'll find in the latest phones, but they do the job.

The £319 model's 32GB of storage is also solid. If you'll primarily use the iPad to watch video and browse the web, and perhaps play a few games, that amount of storage should be plenty. If you're likely to fill it with photos and your own videos, £409 for 128GB is a reasonable upgrade price.

HEAD TO HEAD



THE SPECS	9.7-inch iPad (6th-generation)	10.5-inch iPad Pro
PRICE	From £319	From £619
STORAGE	32 or 128GB	64, 256 or 512GB
CHIP	A10 Fusion	A10X Fusion
DISPLAY RESOLUTION	2048x1536 pixels, 264 pixels per inch	2224x1668 pixels, 264 pixels per inch
DISPLAY QUALITY	60Hz refresh rate	Variable refresh rate (up to 120Hz)
CAMERAS	Rear: 8-megapixel, f/2.4 aperture Front: 1.2-megapixel, f/2.2 aperture	Rear: 12-megapixel, f/1.8 aperture Front: 7-megapixel, f/2.2 aperture
VIDEO RECORDING	1080p (1920x1080 pixels)	4K (3840x2160 pixels)
SPEAKERS	2 (stereo in portrait orientation only)	4 (stereo in either orientation)
BATTERY LIFE (WI-FI)	Up to 10 hours of browsing/video/music	Up to 10 hours of browsing/video/music

Mac FORMAT

VERDICT

Pencil adds to the cost, and there's room to improve, but this is still the best mid-range tablet.

★★★★☆

- ⊕ Great performance
- ⊕ Supports Pencil
- ⊖ No TrueTone display
- ⊖ Speaker setup

Asus Blue Cave

Comprehensive network control

Reviewed by **ALEX COX**

› **£179.99** › **FROM** Asus, asus.com/uk › **NEEDS** 802.11ac Wi-Fi (up to 1,734Mbps), Gigabit Ethernet, Asus AiProtection device security, parental controls, file and print server

Asus Blue Cave is an aesthetic marvel and boasts a good range of features, including great security options.

What Blue Cave lacks in broadcast strength, it makes up for by being a smart cookie

Well, we have to wonder: did the name come first, or did the design follow? Did one of the hardware engineers at Asus wake up from a surreal dream?

One thing's for sure, Blue Cave, with its toroidal cavern gouged through the middle, is pretty unique-looking for a router. As far as we can tell, there's no practical reason for this design, but it certainly gives Blue Cave a visual edge over its competitors.

Around the back, the design isn't as radical. There's a Gigabit Ethernet port to hook up to your modem, four Gigabit ports for other connected devices, and a USB 3.0 (Type A) port for additional expansion. There is also a physical off switch and a hidden WPS button for easy device connection.

Snappy channels

In terms of performance, we've tested routers with more powerful distance coverage, but Blue Cave's dual radios, which broadcast on distinct 2.4GHz and 5GHz networks rather than meshing the two together, are notably snappy. We had no trouble streaming 4K video over Wi-Fi, and didn't experience any notable lag when gaming.

Among the ports on the back is a USB-A port, which you can use to share a printer or storage on your network.

What Blue Cave lacks in sheer broadcast strength, it makes up for by being one smart cookie of a router. From the very beginning, it shines over many of its competitors, with a straightforward set-up process, a super-simple task that you can do with the Asus Router iOS app. Granted, the app itself isn't the prettiest, and it feels a little rough around the edges, but once you're up and running, it's thorough enough and is regularly updated. You can also control the router using Amazon Alexa.

Family management is one of Blue Cave's strong points, with Asus' AiProtection enabling you to collect devices into groups, then apply usage restrictions to manage what those groups are able to access and when. The app makes it easy to set schedules and to view reports on internet activity.

You can also add per-device bandwidth limiting, to prevent someone hogging all the data. In addition, there's security built in from TrendMicro, which adds a layer of protection to everything on your network, including notoriously vulnerable Internet of Things devices. Blue Cave also makes the most of the various functions of that aforementioned USB port with built-in FTP and Samba file sharing, and its own print server.

Mac FORMAT VERDICT

› Blue Cave's extra gimmicks make it more than the sum of its parts.

★★★★☆

- ⊕ Great throughput
- ⊕ Additional protection
- ⊕ Interesting design
- ⊖ Some dead spots

ION360 U

Stream 360° video from your iPhone

› **£299.99** › **FROM** ION360, uk.ion360.com
› **FEATURES** 360° photos and video, live streaming, charging case

The ION360 U makes it easy to shoot 360°, but the price is high.

Mac FORMAT VERDICT

› Easy to use for photos, video and streaming, but image quality is lacking.

★★★☆☆

⊕ Easy 360° streaming
⊖ No image levelling

The popularity of 360° photos and videos is growing, and so is the associated list of gear. The ION360 U aims to stand out by being a 360° camera, a case, and a top-up battery, all in one.

Its twin lenses capture half of the 360° scene each, and the ION360 app does a reasonable job of stitching it together. The app offers 360° photo (3840x1920 pixels), video (at 4K), and streaming modes; with a few taps you can be streaming 360° media live to Facebook or YouTube.

It's easy to use, but there are flaws. First, there's nothing included to protect the twin bulbous lenses or to mount the case on anything, so it's at risk of scratches in your pocket, and you'll have your hand looming large while shooting. True, you can buy extras that deal with these issues, but they really should be standard at this kind of price point. There's no levelling applied to shots, so you need to keep things dead upright or you'll get oddly tilted scenes. The shots aren't the sharpest, but are okay for casual shooting.

Overall, it's a clever idea and the hardware is well made, but a protective case should be included and image quality could be better. KEITH MARTIN

CalDigit TS3 Plus

A dock with ports aplenty

There's a pleasing selection and arrangement of ports.

› **£349** › **FROM** CalDigit, caldigit.com
› **FEATURES** 14 expansion ports, up to 85W power to charge MacBook Pro

Mac FORMAT VERDICT

› Despite the price, this is our Thunderbolt 3 dock of choice due to its generosity of ports.

★★★★☆

⊕ Eight USB ports!
⊕ A costly investment

For generosity of ports, CalDigit's new dock wins by a whisker over the previous best from OWC (MF #321). Here you get 14 ports for connecting peripherals and accessories to your Mac, plus a Thunderbolt 3 port that supplies up to 85W to a MacBook Pro, so it can even charge a 15-inch model.

The dock's front side has the same USB-A and discrete 3.5mm headphone and mic jacks as the non-Plus model, and adds a 5Gbps (USB 3.1 Gen 1) USB-C port and an SDXC card reader.

On the back, CalDigit has removed the niche eSATA ports of the previous model and doubled the USB-A ports to four. There are still Gigabit Ethernet, DisplayPort 1.2 and a passthrough Thunderbolt 3 port (enabling connection of one 5K or two 4K displays), and two new ports: S/PDIF optical audio output, and a 10Gbps USB-C port (USB 3.1 Gen 2) – great for high-speed SSDs.

The price is high, but a spare MacBook Pro power adaptor would normally cost around £100 with a cable.

However, don't mistake those words and the dock's compact size as meaning this is also an alternative to a plain power adaptor; the dock's external power supply adds a fair bit of bulk to it. ALAN STONEBRIDGE

SC-GA10 Smart Speaker

Google finds a home with Panasonic

› **£229.99** › **FROM** Panasonic, panasonic.com
› **FEATURES** Bluetooth, Google Assistant, multiroom support

Inside is an ingenious driver stack that looks like it should be on stage at a Lilliputian Glastonbury

Mac FORMAT VERDICT

› A great-sounding Bluetooth speaker with an intellect to match.

★★★★☆

⊕ Great performance
⊕ Premium build quality
⊖ The mic array can be unresponsive
⊖ A little low on power

Panasonic's SC-GA10 could be a game-changer: this Google Assistant-based wireless speaker can not only hold a tune like more traditional Bluetooth speakers, it sounds better than some of them.

With Chromecast built in, the speaker can receive audio directly from apps like Deezer, TuneIn, Google Play and Spotify. The GA10 can also merge into a wider Chromecast multiroom speaker network.

The speaker's finish, from metallic base to fabric cover, is reassuringly premium. It's also surprisingly big for a desktop speaker. It stands at 284mm tall and weighs 1.7kg. And that's without the external power brick.

This is essentially a wireless speaker, but you also get a 3.5mm stereo input jack, and there's Bluetooth, which may occasionally be more convenient than Wi-Fi or streaming from the internet directly. The touchpad on top controls volume and input selection.

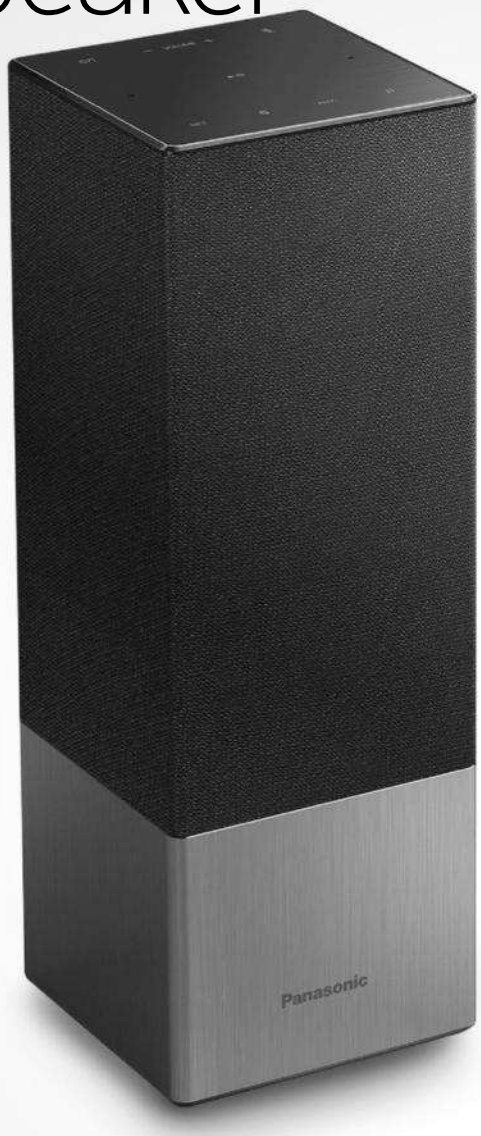
Setting up is brilliantly simple. You'll have your Google Assistant online and yakking shortly after downloading the Google Home app. Panasonic's Music Control app can be used for direct control, and offers bass and treble adjustment.

The sound of musicality

The sound stage is wider and more insistent than you might expect from the vertical design, thanks to custom diffusers spreading the output of the tweeters. The SC-GA10 doesn't just go loud, however – it has punch and musicality. The mid range is smooth, while treble is given the headroom to shine. It's also fast enough for rhythmic bass.

Inside the speaker is an ingenious driver stack that looks like it should be on stage at a Lilliputian Glasto. Two offset 2cm soft dome tweeters sit atop an 8cm woofer; a contorted bass reflex port has been tuned for richness and balance. The speaker can't really distinguish instruments spatially, an inevitable consequence of its form factor.

The power output of the speaker is rated at 2 x 20W, but this rather undersells its performance. It can fill the average living room with energy and clout.



Say goodbye to remote control. Although you will have to speak up if your music selection is at high volume.

The SC-GA10 is one of the best sounding smart speakers currently available. It's immeasurably better than (the admittedly cheaper) Google Home. The problem, though, is that the speaker often turns a deaf ear to voice commands when playing music. It's as if its noise-cancelling microphone array just can't cope with volume.

When it won't respond to "Hey Google" hails, you'll have to fumble around for the on-body controls, or go to Panasonic's own app, and this rather spoils the illusion of futuristic control. STEVE MAY

CHOICE

The internal motors keep the camera balanced in the different tracking modes.

Osmo Mobile 2

Cinematic shooting becomes a reality

› **£129.95** › **FROM** DJI, dji.com › **FEATURES** Video stabilisation, ActiveTrack subject tracking, USB port for phone charging

DJI makes some very advanced camera and drone technology for professional film-makers, but its latest offering is significantly more affordable. Osmo Mobile 2 is a smartphone 'gimbal' – a device that allows a camera to rotate smoothly in many different directions.

The handle of the device contains its battery, which is charged over Micro-USB and can last for up to 15 hours' of use A secondary USB port enables you to charge your phone from Osmo Mobile 2's battery.

Mount your phone using the adjustable and secure grip, download the DJI Go app, then pair your phone with the unit. You also have to calibrate the unit with your phone, to let it know where the weight is distributed.

Osmo Mobile 2 works in basic mode with any camera app, but its full functionality is reserved for the DJI Go app. You can manually orient the phone in portrait or landscape mode (after disabling orientation lock in iOS) and the hardware will recognise it and react accordingly. Once the devices are linked using Bluetooth, the phone automatically turns to face you. Move the whole thing around and it maintains smooth, cinematic sweeps, continually adjusting to keep things balanced.

There are several modes available – upright, underslung, flashlight and portrait, into which the unit switches based on how you position it.

Joy to use

There's a four-way joystick on the handle for precise control of the phone's orientation, and a zoom control for wider or tighter framing. The Record button triggers the camera, and inside the GO app there's a ton of options for video quality, active tracking, slow motion or time-lapse recording, pitch lock to maintain level during movement, and even manual controls for ISO, white balance and shutter speed. Captured media can be exported to various sites, as well as via a Share sheet to iCloud Drive, Google Drive and other locations.

DJI highlights the Osmo 2 Mobile's usefulness for self-broadcasting and that's certainly one of its strengths. As a film-making tool, however, it's a more serious proposition, with its ability to provide very smooth panning shots, track a subject as you move, and eliminate shake and sudden movements. The effect is almost magical, and cinematic in ways you wouldn't believe from a smartphone. If you're shooting with an iPhone on a budget, this will absolutely give your productions a more professional feel. HOLLIN JONES

Mac FORMAT

VERDICT

› An affordable way to get amazing cinematic shots on your iPhone.

★★★★☆

⊕ Smooth camera motion
⊕ Copes with movement
⊕ Advanced controls
⊖ App forces sign in

MacBook bags

Carry your notebook in safety and style

Working on the go with your MacBook means that protecting it is an absolute necessity. You don't want to spend a load of money on a beautiful notebook, only to have it bashed and bruised when you carry it around.

To help you give your MacBook the protection it needs, we've rounded up four different bags that can help protect your precious computer. We've gone for a mix of different types, with backpacks, tote bags and messenger bags all making an appearance. So, read on to find out which is the best option for you and your MacBook.

Samsonite Pro-DLX 5 15.6in

› £195 › **FROM** Samsonite, samsonite.co.uk
› **FEATURES** RFID-blocking pocket, 23 pockets

› **If backpacks aren't your thing but you still want great protection and plenty of pockets, the Samsonite Pro-DLX 5 is a good choice.** It's incredibly spacious for a briefcase bag, with so many pockets you probably won't know how to fill them all. The MacBook pouch is lined with foam bobbles, and there's a (removable) strap if you prefer using it as a messenger bag.

★★★★☆

STM Goods Trilogy

› $79.95 (about £56) › **FROM** STM Goods, stmgoods.com › **FEATURES** Waterproof outer material, 14 pockets

› **A good MacBook backpack doesn't have to break the bank.** The STM Goods Trilogy is supremely comfortable and looks great, with lovely highlights and design flourishes. Your MacBook is held just off the bottom of the bag to protect it from bumps and bruises. Space can get tight if you like to carry a lot, but if you're looking for a bargain bag with looks to kill, it's hard to beat.

★★★★☆

Knomo Harewood

› **£199** › **FROM** Knomo, knomobags.com
› **FEATURES** RFID-blocking pocket, 11 pockets

› **The Knomo Harewood is about as stylish as MacBook bags get.** It's a tote bag with optional backpack straps, and the classy styling shows design was a priority for Knomo. However, that flair comes with a price and at the expense of pocket space – it's not the most capacious of bags. Still, each bag's unique ID could help you reunite with it if you lose it.

★★★☆☆

Targus City Smart Slipcase

› **£39.99** › **FROM** Targus, targus.com
› **FEATURES** Optional shoulder strap, 5 pockets

› **If the Samsonite is up your street but a bit too costly, the Targus City Smart Slipcase might be just the ticket.** The outer padding is solid, although the bag is much lower on the pocket count than some of the other options in this test, so if you're something of a hoarder then you might want to look elsewhere. Still, it's a very affordable option if you baulk at the Samsonite bag's price.

★★★☆☆

MESH NETWORKS

A mesh network takes home networking to the next level of reach and simplicity

Reviewed by **ALEX COX**

MESH NETWORKS **ON TEST...**

- BT Whole Home Wi-Fi **£189**
- Google Wifi **£329**
- Linksys Velop **£399.95**
- Netgear Orbi Pro **£479.99**
- TP-Link Deco M5 **£229.99**
- Zyxel Multy X **£249**

There's no question about it: mesh networks are hot right now. It's not just marketing hype – though their manufacturers no doubt love the fact that they can charge a little more for home networking hardware. It's a real change in the way networking operates that makes a massive difference to coverage and speed.

Mesh networking is a fairly simple concept. Rather than relying on a central router, which can be difficult to extend, mesh uses individual nodes, each of which shares a signal with the others through what's called a backhaul channel. Add a new node to your mesh network, and it simply joins that behind-the-scenes channel – as long as one of your nodes is close enough to talk to it, your network can go further.

Your devices seamlessly connect to the node that has the highest signal strength

If you have Ethernet strung through your home, you'll often be able to use that as a backhaul, enabling faster communication and freeing up radio space for more traffic.

Above the backhaul channel, typically, comes a collection of cutting-edge Wi-Fi radios. Each member node of a mesh network looks after its own little area of space – your Mac, your phone, and your other devices simply and seamlessly connect to the node that has the highest signal strength from wherever they are.

There are some downsides, however. A standalone router doesn't need to do between-device intercommunication, so you'll suffer slightly more lag with a mesh. You'll need to plug in a number of devices around your home, marginally upping your power bill and tying up sockets. And the initial cost is quite high as you're essentially purchasing a bunch of routers at once – although the difference isn't always that extreme.

Things to consider...

What you need to know before getting started

1 Home size

Do you really need a mesh network? If you're living in reasonably close quarters, the answer is probably no. Mesh networks are best suited to larger homes, or those built of particularly dense materials that cause Wi-Fi dead spots.

2 How many nodes?

If your Wi-Fi does need the range extension that mesh offers, how many nodes will you require? Check the specs of the mesh network you're looking at – there'll generally be a suggested range per node – and compare it to your home's dimensions.

3 Current kit

If your router is currently working fine, don't jump on the mesh bandwagon if you're looking for speed; while mesh networks are efficient, you won't find a big speed boost unless you're currently struggling along on an outdated version of Wi-Fi.

4 Available sockets

Your nodes will each need powering, so they must be placed close to a power outlet. This isn't a huge deal, since nodes are generally pretty flexible about where you place them, but they'll need good communication with other nodes wherever they go.

5 Cheaper options

Throwing everything away and replacing your kit with a mesh network will certainly offer up results, but a Wi-Fi extender, or some cheap Powerline adaptors, may be all you need to quash those dead spots. Think carefully.

How we tested

› To make the test fair, given the differing number of nodes included with each system, we set up two nodes of each in matching positions, in a three-floor house with known signal dead spots. One node was then moved close to the front of the house to measure signal distance outdoors, and signal strength was tested from predefined points. Each was set up and configured using its respective iOS app.

Higher...

Ubiquiti Amplifi

amplifi.com

£370

› Not much tops the Orbi Pro's price. Ubiquiti's AmpliFi system, which includes a router and two socket-mounted nodes (with adjustable antennas), comes pretty close though at £370.

...or lower?

Netgear WN3000RP

netgear.co.uk

£19.99

› Netgear's socket-mounted extender isn't mesh, and it's not the fastest with its single 802.11n radio, but it's only £20 and will cover an awkward dead spot.

Test 1 Getting connected

How hard is it to hook up?

The set-up process is something mesh, in general, does well. None of the products tested here are particularly difficult to connect. Some are more involved than others, but the contrast isn't huge. Linksys' Velop, for example, is one of the slickest we've seen – plug it in, open the app, and it's all hooked up in a couple of minutes.

On the other hand, Google's initial process can take a while, but adding additional nodes is fuss-free. The Deco, Orbi and Multy X use Bluetooth to create that initial connection, which simplifies things, and BT's on-disc connection details and coloured LEDs make for a slick setup, though not every initial connection was as trouble-free as it could have been in our testing. The Multy X, in particular, put up a fight, taking an hour of fiddling and resetting before it finally acquiesced, despite its straightforward instructions and seemingly basic installation method.

TEST RESULTS

BT Whole Home Wi-Fi	★★★★☆	Netgear Orbi Pro	★★★★☆
Google Wifi	★★★★☆	TP-Link Deco M5	★★★★☆
Linksys Velop	★★★★★	Zyxel Multy X	★★★☆☆

Test 2 Power rating

The quest for a super signal

Power, in mesh, is a little relative – when you're distributing the load, you don't really need a lot of individual muscle. So while Google's AC1200 radios might look 'weak' when compared to the AC3000 combos of the Multy and Orbi nodes, there's not a huge speed difference, even when loading up the network with a couple of 4K streams. Google's programming and load balancing are top-notch, but the power dip translates into a slight lack of reach.

BT's many communications channels – the setup uses a 4x4 MIMO radio combo – means it blazes along even without its own dedicated backhaul; Zyxel's nine-antenna, dedicated backhaul setup gives the Multy X impeccable performance and reach; and Velop flies when talking to the wireless card of a modern Mac. Even the TP-Link Deco, a shred less strong in terms of numbers, is powerful enough.

TEST RESULTS

BT Whole Home Wi-Fi	★★★★☆	Netgear Orbi Pro	★★★★★
Google Wifi	★★★★☆	TP-Link Deco M5	★★★★☆
Linksys Velop	★★★★★	Zyxel Multy X	★★★★★

Test 3 Complexity

Simple Wi-Fi or something more?

Everyone does mesh a little differently. BT's solution, for example, is a bridge. This means it doesn't actually do any of the heavy lifting – you need to hook it up to your existing router to manage DHCP and the like, then each of its nodes works as an access point. Netgear's Orbi system has a specific node that manages routing, and satellite nodes that communicate with that.

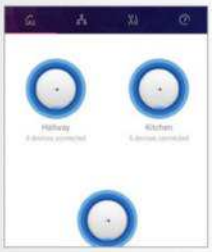
The rest can attach any node to your modem – but you'll lose access to Ethernet connections you might already have hooked up to your current router, which might necessitate a little reorganisation of your network, particularly if you're currently running a smart hub or a network printer. Realistically, though, no mesh network is particularly complex. It's a much smoother ride than trying to extend a network with traditional Wi-Fi repeaters, but it pays to know what's different.

TEST RESULTS

BT Whole Home Wi-Fi	★★★★☆	Netgear Orbi Pro	★★★★★
Google Wifi	★★★★★	TP-Link Deco M5	★★★★☆
Linksys Velop	★★★★☆	Zyxel Multy X	★★★★☆

Test 4 Security and app

Because control is important



Mesh is generally app-controlled, and that gives you access to more than just a few stats. TP-Link's Deco app gives you an extra layer of network-wide antivirus protection, which may provide some peace of mind, and parental controls are a common feature on everything but the Orbi Pro – though bear in mind that it's slightly more business-minded than the standard Orbi, which features 'Circle with Disney' parental controls, so you can at least get a little deeper with your network traffic control.

BT's Whole Home Wi-Fi app isn't brilliant, and TP-Link's effort is a little more confusing than the others, whereas Zyxel's well-designed app gives good access to its security features. Google and Linksys shine in this department with a pair of excellent apps. Neither provides a huge amount of depth or control, but for fire-and-forget mesh, they're comprehensive enough.

TEST RESULTS

BT Whole Home Wi-Fi	★★★☆☆	Netgear Orbi Pro	★★★★★
Google Wifi	★★★★☆	TP-Link Deco M5	★★★☆☆
Linksys Velop	★★★★☆	Zyxel Multy X	★★★★☆

THE WINNER
Linksys Velop

An easy-to-use and super-fast system

Velop's columns use colour-coded LEDs to indicate their status.

Linksys' Velop is, as far as we're concerned, the top home mesh network on the market today – it's no wonder Apple has started selling it through its own storefront. The individual nodes are elegant and don't take too much surface space, the setup process is flawless, and the app, despite offering relatively few controls, is perfect for what Velop aims to achieve: utter simplicity. It also manages to top the rest of the networks on offer, bar the business-class Orbi Pro, in terms of range and power, coping with whatever we could throw at it.

That's not to say Velop is without its flaws. Its relative lack of Ethernet ports could be a curse if you'd rather keep your smart home bridges in one place, although a cheap Ethernet hub would solve that problem in a flash. While we love the look of the individual nodes, many of its rivals manage to be less conspicuous. There are also cheaper mesh networks and, as our final scores below show, there's surprisingly little to be lost by investing less.

The individual nodes of the Linksys Velop are elegant; the setup process is flawless, and the app is perfectly simple

Paul says...

I keep considering mesh networking for our home, but our main computing use is gaming, and none of us want to put up with the latency. I think if you have a very large house, and perhaps often work at home, it's more of a worthwhile investment. For our humble abode and video games habit, extenders are a much more appropriate and affordable option.

How do they compare?

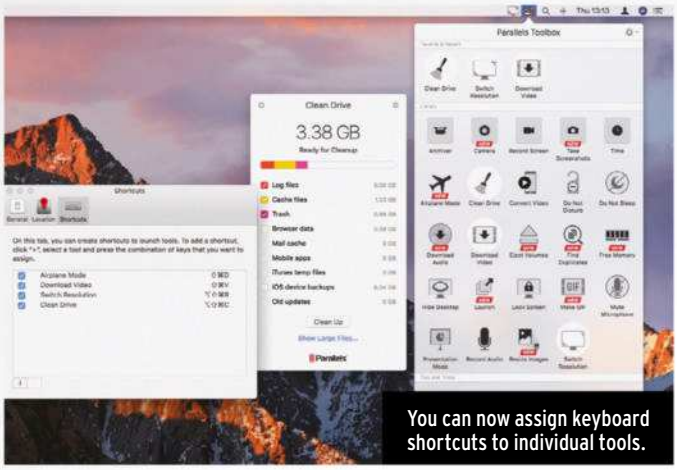
THE SPECS	BT Whole Home Wi-Fi	Google Wifi	Linksys Velop	Netgear Orbi Pro	TP-Link Deco M5	Zyxel Multy X
PRICE	£189	£329	£399.95	£479.99	£229.99	£249
PACKAGED NODES	3	3	3	2	3	2
RADIO	AC2600	AC1200	AC3000	AC3000	AC1300	AC3000
ANTENNAS	4x4 MIMO	2x2 MU-MIMO	2x2 MU-MIMO	3x3 MU-MIMO	4x4 MU-MIMO	4x4+1 MU-MIMO
ETHERNET PORTS	1 per node	2 per node	2 per node	4 per node	2 per node	3 per node, plus modem
DIMENSIONS	7.7 x 16.5 x 16.5cm	10.6 x 10.6 x 6.8cm	7.9 x 7.9 x 18.5cm	17.2 x 8.3 x 24.6cm	12 x 12 x 3.8cm	17 x 5 x 23cm
GETTING CONNECTED	★★★★☆	★★★★☆	★★★★★	★★★★☆	★★★★☆	★★★☆☆
POWER RATING	★★★★☆	★★★★☆	★★★★★	★★★★★	★★★★☆	★★★★★
COMPLEXITY	★★★★☆	★★★★★	★★★★☆	★★★★★	★★★★☆	★★★★☆
SECURITY & APP	★★★☆☆	★★★★☆	★★★★☆	★★★★★	★★★☆☆	★★★★☆
OVERALL	★★★★½	★★★★½	★★★★★	★★★★★	★★★★½	★★★★½

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.

Parallels Toolbox

Tools to fill in macOS's gaps

› **£15.99/year** › **FROM** Parallels, parallels.com
› **NEEDS** OS X 10.10.5 or later



You can now assign keyboard shortcuts to individual tools.

Toolbox is a disparate collection of tools that are accessible via a menu bar icon. Click this and a collection of icons with descriptive names makes it easy to choose from version 2.5's more than 30 tools.

The tools are designed to plug gaps in macOS, and range from Download Video (drag and drop links from YouTube and the like) to adding a menu bar icon for swiftly switching between different resolutions.

The last two updates have added six tools: Find Duplicates, Make GIF, Clean Drive, Resize Image, Free Memory, and Screenshot Page. The purposes of most are obvious – Screenshot Page, say, is for capturing long web pages as a single image in your browser.

Toolbox 2.5 also improves existing tools, and it's now possible to assign keyboard shortcuts to your favourites. This is a little awkward – there's no prompt to warn you that a key combo isn't available; the shortcut simply doesn't appear.

Another less welcome development is that the cost has doubled, which knocks some gloss off the additions. That's a shame, as Toolbox is shaping up nicely.

NICK PEERS

Mac FORMAT VERDICT

› What should be a triumphant update is spoiled by the price rise.

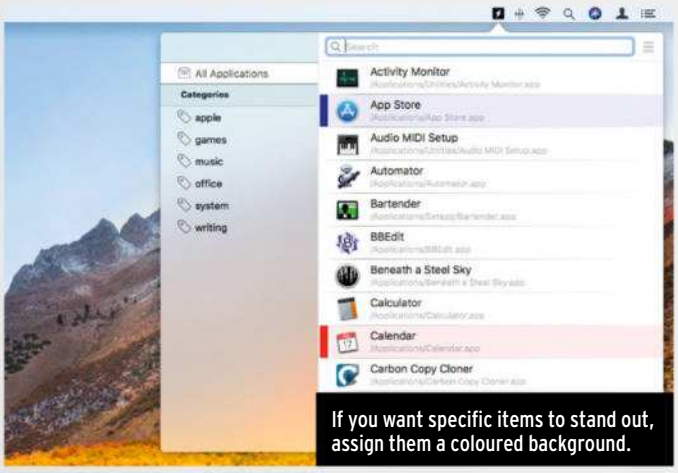
★★★☆☆

⊕ A large selection of tools
⊖ Price increase

Start

Organise and quickly open apps

› **£4.99** › **FROM** Gerald Koeder, start.innovative-bytes.net
› **NEEDS** macOS 10.12 or later



If you want specific items to stand out, assign them a coloured background.

Start brings a bit of order to your Mac apps. Click its menu bar icon (or press your chosen keyboard shortcut) and you get an alphabetical list of apps (assuming Spotlight indexing is on). The list can be filtered by typing a search term for the app you need. Navigate using the arrow keys, and click an app to open it. Easy.

But Start is more than just a list of apps. Using its customisation options, you can add files and folders, which then appear as separate categories in its sidebar. Items can be tagged, too, so you can create groups of apps, or categories to house apps, files, and folders for specific projects.

There are a few issues. Tags must be assigned in Start's preferences – you can't drag items to tag categories when the list is open. Items can't be renamed, which makes adding iCloud folders pointless (as they all end up named Documents). Also, Start can't assign system-wide keyboard shortcuts to items, nor colours to tags rather than just to individual apps. Still, most of these are more feature requests than shortcomings. Where it matters, Start excels.

CRAIG GRANNELL

Mac FORMAT VERDICT

› An efficient, streamlined, and customisable launcher

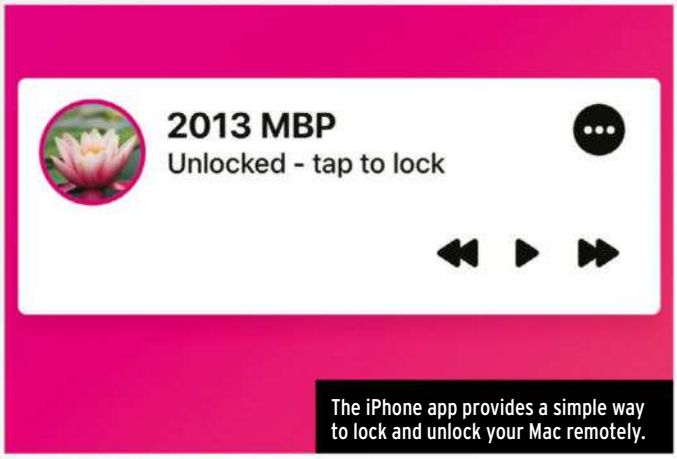
★★★★☆

⊕ Open apps, files or folders quickly
⊖ Can't rename items

Unlox

Easily unlock your Mac

› **£3.99** › **FROM** Kane Cheshire, unlox.it › **NEEDS** iOS 11.2 or later, macOS 10.13, Bluetooth LE on your Mac and iOS device



The iPhone app provides a simple way to lock and unlock your Mac remotely.

Unlox is the name for the latest version of MacID (as Apple objected to the name). The concept remains the same and focuses on remotely locking and unlocking your Mac using your iPhone or Watch.

Recent versions of macOS include a feature for a Watch to unlock your Mac, though it's more simplistic than Unlox. This app gives you multiple options, all of which work over Bluetooth LE. The simplest is the facility to lock or unlock your Mac's screen by tapping the iPhone or Watch app. You can use Touch ID or Face ID on a phone or even a special pattern tapped on your Mac's trackpad to do this. The Watch remains authorised as long as it's on your wrist, so its app just needs a tap. On iPhone or Apple Watch, notifications let you know when locking activity is taking place.

Unlocking is fast and smooth. More interestingly, Unlox can automatically lock or unlock your Mac when you move away or toward it by a specific distance. This is really clever and means you'll never forget to lock your screen when you leave the Mac, or have to enter a password when you come back. HOLLIN JONES

Mac FORMAT VERDICT

› An efficient way to easily auto-lock your Mac's screen.

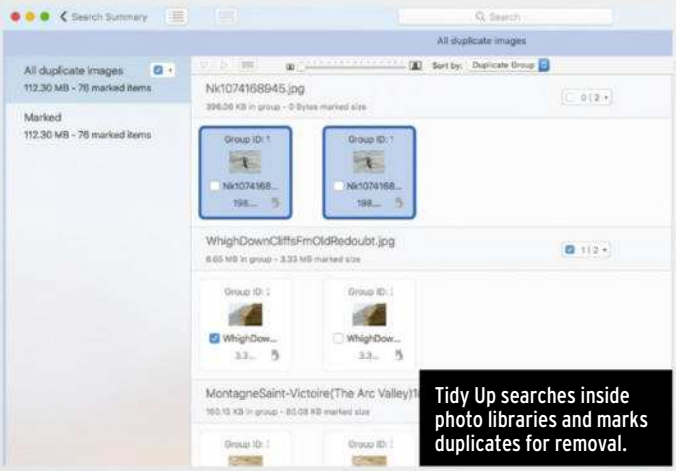
★★★★☆

⊕ Great for security
⊖ macOS now allows unlock via Watch anyway

Tidy Up 5

Clean up your Mac's files

› **$28.99 (about £20)** › **FROM** Hyperbolic Software, hyperbolicsoftware.com › **NEEDS** macOS 10.12 or later



Tidy Up searches inside photo libraries and marks duplicates for removal.

Keeping a busy Mac clear of duplicate and unnecessary files can be a full-time job. Tidy Up 5 aims to keep your Mac clear of that clutter by seeking it out for you and making it easier to delete.

It dresses up a mundane task with a pretty interface that has smoothly animated transitions. It also provides honest information about why a search is taking time. You can pick from Simple and Advanced modes, which request different levels of detail. Simple image search finds identical pictures; in Advanced mode you can find by date, location, and even the camera that was used.

Searches are quite quick. When finished, Tidy Up provides suggestions for removal, showing a preview and the location of each file.

The problem with the app isn't what it does, so much as the damage you could do with it. Tidy Up doesn't remove duplicate images in Photos and other libraries, but marks them for later removal. We still wouldn't unleash it on an important Photos library, though. It'll happily remove files from apps and Time Machine backups, making them unusable. So, use the app's power with caution. HOWARD OAKLEY

Mac FORMAT VERDICT

› Tidy Up is a great housekeeping tool, but use with caution!

★★★★☆

⊕ Excellent interface
⊖ Can 'break' documents

'sodes

A minimalist way to play podcasts

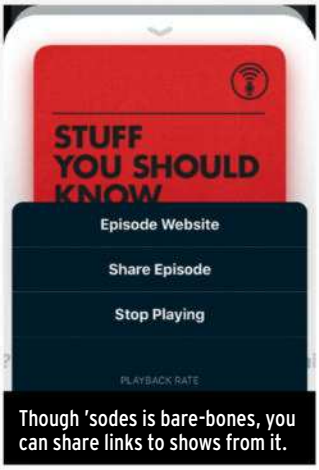
› **£2.99** › **FROM** Nice Boy, jaredsinclair.com/sodes
› **NEEDS** iOS 11 or later

Simplicity is a laudable goal for an app. And 'sodes is minimalist in its pursuit of podcast purity. The app works well in foregrounding the important things – the podcasts.

The app only subscribes to and streams podcasts; there's no downloading capability, so you need to be happy about it potentially burning through your data allowance or always aware of your nearest Wi-Fi hotspot. Search for a podcast by name or address, then add it to your favourites and stream individual episodes. It's kept simple, as are the controls, with just play, pause and skip back or forward (by 15 seconds by default, which can be changed in Settings). You can reset your progress in an episode, or mark it as finished. Episodes you've listened to vanish from the lists. New episodes of casts you've subscribed to are marked as unplayed; the In Progress section houses any podcasts that you're part way through.

The 'sodes app provides clean, intuitive podcast management, and deserves to be used every day. It's just a shame about the lack of downloading, even if that would introduce detail to the interface. **IAN EVENDEN**

The Unplayed section houses new episodes of subscribed podcasts.



Though 'sodes is bare-bones, you can share links to shows from it.

Mac FORMAT **VERDICT**

› A well-made, sleek, and minimal podcast streamer that doesn't handle downloads.

★★★☆☆

⊕ Easy to use
⊖ No downloads

Bring You Home

An imaginative puzzle game

› **£2.99** › **FROM** Alike Studio, bringyouhomegame.com
› **NEEDS** iOS 8 or later

Bring You Home rethinks platform puzzle games by having you manipulate the environment rather than the protagonist.

Said protagonist is Polo, a blue alien who sees his pet kidnapped by villains who then disappear. In pursuit, Polo falls from a window, and lands head-first.

Fortunately for Polo, time then rewinds, and you can save his dignity and face by swiping down to place a cart full of hay; tap play and it breaks Polo's fall. He then finds himself in a jungle. Clambering up a vine, it snaps. This time, there are four options – giant mushrooms, pink beasts with dangly tails to grab, and a spiky plant that might work as a 'ladder'.

The difficulty quickly ramps up. Scenes introduce panels that move, multiple panels and multi-step solutions. Single-screen scenes become complex webs. Sometimes the logic is a touch suspect, and a little reliant on trial and error.

Really, what you're doing is testing a system. Try something, note its effect on the outcome, and figure out some tweaks. Even failure is rewarding, since Polo's demise is often entertaining in itself. **CRAIG GRANNELL**

We're not sure what's going on here, bar our hero getting electrocuted.

Mac FORMAT **VERDICT**

› A wonderful, tactile, inventive puzzle game that is a joy to play.

★★★★★

⊕ Very imaginative
⊖ A couple of annoying levels

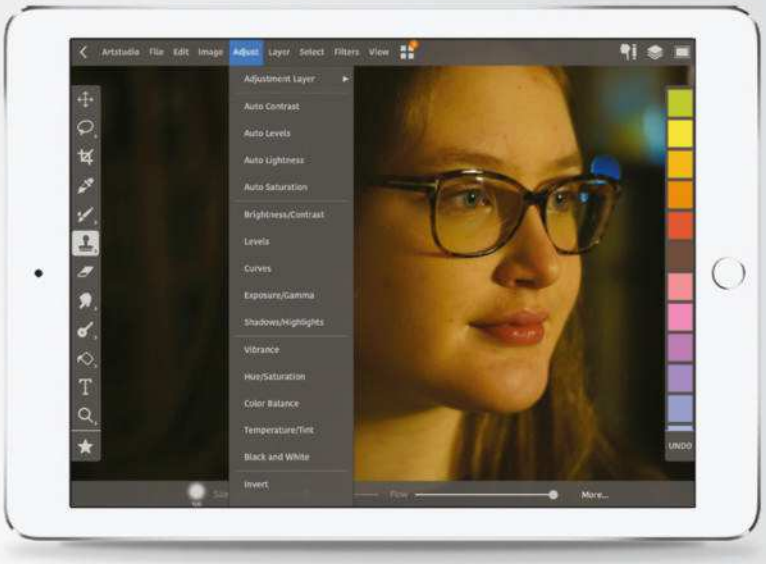
Artstudio Pro

An app of all trades

Reviewed by **ADAM BANKS**

› **£11.99** › **FROM** Lucky Clan, luckyclan.com
› **NEEDS** iOS 10 or later, Apple Pencil for pressure support

If you want just one app for your 'art' needs, Artstudio Pro is decent value



The app offers a good set of adjustments. Nonetheless, photo retouchers will want more than are provided.

Some iPad art apps are dedicated painting apps, others are photo editors with painting tools. Artstudio Pro is both. The Adjust and Filters menus are reminiscent of Photoshop, there's a Layers palette, and the toolbox includes image editing essentials, such as Lasso, Clone Stamp, Sharpen, Dodge, and Burn. Tap the paintbrush icon, though, and – once you've figured out you can access the Brush Editor from the brush tip preview (bottom left) – you have a full range of inks, pencils, chalks and paints, which can be supplemented by importing brushes in Adobe's ABR and TPL formats.

The slider icon at the top right of the Brush Editor gives detailed control over the look and behaviour of each brush, including dynamic response to pressure when using an Apple Pencil, or to velocity when painting with your finger. Whichever you choose, the results are expressive and impressive.

With image adjustments comparable to Pixelmator and artistic versatility rivalling Procreate, there's little to compete with Artstudio Pro except Affinity Photo (which costs £8 more). Like that app, Artstudio Pro also has a Mac version (£38.99). Thanks to iCloud, you can make a new file at your desk and start painting, then pick up your iPad, tap Artstudio's Open Documents menu, and your work's there. The catch is that your custom brushes aren't, until you export and import them. We found the Mac-like nature of the iPad version less than helpful: not only is there a full menu bar – odd on iOS – but the File menu and Open Documents (equivalent to the Window menu) insist on the concept of opening and closing files. Since you can't show multiple windows, this adds nothing to the separate Documents view.

If the screen feels too cluttered, you can tap the top-right icon to hide controls while you're drawing.

Spreading itself thin

We found other aspects confusing, too, including the unusual way of handling layer masks. Some features aren't supported fully enough to make them usable for serious work: selections lack finesse, and vector text has no spacing controls. Photo pros will miss basics like Raw editing, CMYK, channels and paths. Then again, Artstudio Pro's engine coped fine with high-resolution files on our iPad Pro (although some brushes can feel small at large sizes), you can import and export PSD files, and there's a Procreate-like screen-recording mode for painting demos.

If you want just one app for pretty much all your 'art' needs, don't need advanced retouching tools, and are prepared to learn an idiosyncratic interface, Artstudio Pro is decent value, and its painting tools offer plenty of customisation. But Affinity Photo is a more comprehensive image editor, while Procreate makes painting easier.

Mac FORMAT

VERDICT

› A good painting app with useful image adjustment features.

★★★☆☆

⊕ Mostly neat and responsive interface
⊕ Detailed brush editing
⊖ Can feel niggly
⊖ Some features less deep than others

STORE GUIDE

EDITED BY **ALEX BLAKE**

Your complete guide to the best Apple hardware and third-party accessories

Welcome to *MacFormat*'s Store Guide, the place to go to find out about all the Apple kit that matters, whether you're looking for your next iPhone or a powerful new desktop Mac.

We've highlighted the model of each product that's ideally suited to your needs, whether you're a recent convert or a seasoned Apple user. So be sure to check our handy tables to see which Mac, iPad or iPhone is best for you.

We've also handpicked the gold standard in audio, storage, cameras, and many other categories, helping you complement your Mac or iOS device with the best accessories. All of these third-party devices have been reviewed in the magazine.

Mac mini From £479

An update in 2014 brought a £100 price drop to the most affordable Mac, but rises in late 2016 added £80 back on. The mini comes with some interesting talking points: the entry-level model has a 1.4GHz dual-core Intel Core i5 CPU and 4GB of memory, making it one of the lowest-spec Macs around, with a 500GB hard drive and no display.

Higher-end models come with 1TB of storage included (Fusion Drive and SSD options are available), 8GB of memory, a better graphics processor and either a 2.6GHz or 2.8GHz Intel Core i5 for £679 and £949. Those models can be upgraded to a Core i7, but there aren't any quad-core options available at the moment. Expect updates in 2018.

iMac

Ever since the famous Bondi Blue iMac debuted in August 1998, Apple's all-in-one desktop computer has been setting standards in gorgeous design and powerful performance. Apple's innovation was as clear back then as it is today – the iMac was the first Macintosh to drop the floppy disk in favour of USB, and its colourful aesthetic set it apart as a playful pretender in a world of staid beige boxes.

Today, Apple is again pushing boundaries with the iMac, blessing all of its 27-inch models with a massive 5K (5120x2880) resolution and a wide P3 colour gamut. Add in Intel Core i5 and i7 CPUs (configurable from 3.4GHz up to 4.2GHz), a fast and capacious Fusion Drive, and powerful AMD Radeon RX graphics processors, and the 27-inch iMac is *the* desktop system to own. At WWDC in June 2017, Apple refreshed the entire range of iMacs, with discrete GPUs coming to all but the entry-level model, newer Intel CPUs, brighter Retina displays and more Thunderbolt 3 ports.

Choose an iMac

	MODEL	KEY SPECIFICATIONS	PRICE
ENTRY LEVEL	21.5-inch 3.0GHz quad-core Intel Core i5	**MEMORY** 8GB of 2400MHz DDR4 **GRAPHICS** AMD Radeon Pro 555 **STORAGE** 1TB (5,400rpm) hard drive **DISPLAY** Retina 4K (IPS, P3 gamut) **ALSO** Magic Mouse 2, Magic Keyboard	£1,249
UPGRADER	27-inch 3.4GHz quad-core Intel Core i5	**MEMORY** 16GB of 2400MHz DDR4 **GRAPHICS** AMD Radeon Pro 570 **STORAGE** 1TB Fusion Drive **DISPLAY** Retina 5K (IPS, P3 gamut) **ALSO** Magic Mouse 2, Magic Keyboard	£1,929
HIGH END	27-inch 4.2GHz quad-core Intel Core i7	**MEMORY** 16GB of 2400MHz DDR4 **GRAPHICS** AMD Radeon Pro 580 **STORAGE** 2TB Fusion Drive **DISPLAY** Retina 5K (IPS, P3 gamut) **ALSO** Magic Mouse 2, Magic Keyboard	£2,609

UPDATED JUNE 2017
EXPECTED 2018

MacBook

The baby of Apple's laptop family, the MacBook was updated at WWDC 2017 to get Intel Kaby Lake processors and faster SSDs. Weighing in at just 0.92kg, it's Apple's most lightweight laptop but still packs in a 226ppi pixel density in its 12-inch Retina display.

The MacBook is powered by an Intel Core M processor (configurable to Core i5 or i7), which doesn't require a fan to keep cool, so the MacBook runs silently. It also features a Force Touch trackpad, which can trigger different responses as you apply more pressure. All models of the MacBook come loaded with 8GB of 1866MHz memory, which can be boosted to 16GB, and Intel HD Graphics 615 – an upgrade from the previous HD Graphics 515 – and there are 256GB or 512GB flash storage options. There are four colour options: Silver, Space Grey, Gold, and Rose Gold.

Choose a MacBook

	MODEL	KEY SPECIFICATIONS	PRICE
ENTRY LEVEL	12-inch 1.2GHz dual-core Intel Core m3	**MEMORY** 8GB of 1866MHz LPDDR3 **GRAPHICS** Intel HD Graphics 615 **STORAGE** 256GB SSD	£1,249
UPGRADER	12-inch 1.3GHz dual-core Intel Core i5	**MEMORY** 8GB of 1866MHz LPDDR3 **GRAPHICS** Intel HD Graphics 615 **STORAGE** 512GB SSD	£1,549
HIGH END	12-inch 1.4GHz dual-core Intel Core i7	**MEMORY** 16GB of 1866MHz LPDDR3 **GRAPHICS** Intel HD Graphics 615 **STORAGE** 512GB SSD	£1,864

UPDATED JUNE 2017
EXPECTED JUNE 2018

MacBook Pro

Apple debuted the new MacBook Pro in October 2016 with an OLED strip of app-specific controls called the Touch Bar. The Force Touch trackpad was made larger to give more room for gestures, and the keyboard was also updated to have a second-generation version of the butterfly keys from the 12-inch MacBook.

The MacBook Pro range then got a further boost at WWDC 2017, when both the 13-inch and 15-inch models had their processors updated to Intel's Kaby Lake models. The larger of the two also had its graphics card upgraded to give more powerful Radeon Pro options.

You get two or four Thunderbolt 3 ports (depending on the model), which are also compatible with USB-C devices, and through which you can charge the MacBook Pro. The 13-inch and 15-inch sizes remain, although the entry-level 13-inch lacks a Touch Bar.

Choose a MacBook Pro

	MODEL	KEY SPECIFICATIONS	PRICE
ENTRY LEVEL	13-inch 2.3GHz dual-core Intel Core i5	**MEMORY** 8GB of 2133MHz LPDDR3 **GPU** Intel Iris Plus 640 **STORAGE** 256GB SSD **Touch Bar** No	£1,449
UPGRADER	13-inch 3.1GHz dual-core Intel Core i5	**MEMORY** 8GB of 2133MHz LPDDR3 **GPU** Intel Iris 650 **STORAGE** 256GB SSD **Touch Bar** Yes	£1,749
HIGH END	15-inch 2.8GHz quad-core Intel Core i7	**MEMORY** 16GB of 2133MHz LPDDR3 **GPU** Radeon Pro 555 **STORAGE** 256GB SSD **Touch Bar** Yes	£2,349

Apple tips

From Stormfront, your local Apple experts

Apple Pencil

The 9.7-inch iPad now supports Apple Pencil. Setting up a Pencil is as simple as connecting it to an iPad or iPad Pro's Lightning port and tapping Pair on the screen. There are many built-in apps that make use of Apple Pencil, including Pages, Numbers and Keynote, as well as the Notes app, where you can annotate, mark up and create handwritten notes.

Apple Pencil is an extra cost on top of an iPad, but its functionality is a bonus if you prefer using a traditional pen-and-paper approach to jotting down notes, or if you're an aspiring digital artist and want to create natural and expressive artwork without having to make the jump to the more costly iPad Pro.

You can even operate the iPad using Apple Pencil, such as to open apps, select text in emails or docs, or type using the on-screen keyboard, which some people find more accurate than using their (possibly clumsy) fingers.

Ellie Otley, Darryl Elkins
Stormfront.co.uk

iPhone

Apple always had to do something big for the iPhone's tenth birthday, and it's done that with the iPhone X. Sporting a glass back to allow wireless charging and a gorgeous edge-to-edge, OLED, Super Retina display measuring 5.8 inches across, it's big news all over.

Its better cameras don't just mean great photos – they allow for Face ID, the face-scanning technology that is the latest, safest way to unlock your phone (goodbye Touch ID and Home button).

But don't let the new kid on the block overshadow the iPhone 8 and 8 Plus – they're great phones in their own right. They get wireless charging too, plus revamped cameras, a new A11 Bionic chip, and new augmented reality tech.

All new models come in 64GB and 256GB capacities. The pricing for the iPhone 8 starts at £699, the 8 Plus at £799 and the iPhone X at £999.

Choose an iPhone

	MODEL	KEY SPECIFICATIONS	PRICE
ENTRY LEVEL	iPhone SE (4-inch display)	**CAPACITY:** 128GB **PROCESSOR:** A9 **FACE ID** No **CAMERA** 12MP photos, 4K video recording	£449 R
UPGRADER	iPhone 8 (4.7-inch display)	**CAPACITY:** 64GB **PROCESSOR:** A11 Bionic **FACE ID** No **CAMERA** 12MP photos, 4K video	£699 R
HIGH END	iPhone X (5.8-inch display)	**CAPACITY:** 64GB **PROCESSOR:** A11 Bionic **FACE ID** Yes **CAMERA** 12MP photos (dual-camera), 4K video	£999 R

iPad

In March 2018, Apple made a move to capture market share in education by updating the 9.7-inch iPad. It now comes with support for Apple Pencil, and its internals have been boosted too.

The 9.7-inch iPad features an A10 Fusion CPU and M10 motion coprocessor, and comes in 32GB and 128GB storage sizes. The touch sensor in the display now has a higher resolution, allowing it to support the Apple Pencil for the first time. It's also got an 8MP rear camera and a 1.2MP front-facing camera.

On the software side, the iPad adds multitasking features, which are a boon for productivity. You can slide a second app over the right side of the one you're working in, then dismiss it to get back to work. Picture in Picture enables you to watch video in a corner of the screen. There's also Split View, which lets you work on two apps side by side.

Choose an iPad

	MODEL	KEY SPECIFICATIONS	PRICE
ENTRY LEVEL	7.9-inch iPad mini 4	**CAPACITY** 128GB **PROCESSOR** A8 **CONNECTIVITY** Wi-Fi **CAMERA** 8MP **TOUCH ID** Yes	£399 R
UPGRADER	9.7-inch iPad	**CAPACITY** 128GB **PROCESSOR** A10 **CONNECTIVITY** Wi-Fi **CAMERA** 8MP **TOUCH ID** Yes	£409 R
HIGH END	12.9-inch iPad Pro	**CAPACITY** 256GB **PROCESSOR** A10X **CONNECTIVITY** Wi-Fi **CAMERA** 12MP **TOUCH ID** Yes	£919 R

iPad Pro From £619

The iPad Pro comes in 10.5-inch and 12.9-inch sizes, packed with either 64GB, 256GB or 512GB of storage. All models are available with the option of mobile network connectivity. The Pro's A10X chip is the most powerful in any iOS device, and it has an impressive four-speaker sound system, too. Adding the pressure-sensitive Apple Pencil and 120Hz refresh rate makes it a smooth, accomplished drawing tool.

Watch

From £329 (Series 3)

The Watch is Apple's quiet revolution, and it's now the number one watch in the world. Series 3 is meant to cement that status quo. To achieve that, Series 3 lets you make and receive calls from your wrist without your iPhone around for the first time – the sci-fi dream is now a reality. You can also stream Apple Music to it – another benefit that means you can leave your phone at home.

Performance-wise, the processor has seen a 70% speed boost, and the new W2 wireless chip is far faster and more power efficient. All that, yet the case is still the same slimline size.

Apple also introduced new colours and bands, plus a new dark grey colour for the high-end ceramic model.

BEST BUYS... Curated picks of third-party kit

MONITOR
Philips 328P6AUBREB
£396 philips.co.uk

Getting a colour-accurate display used to cost a pretty penny, but this monitor is both impressive and affordable. It hits 99% of the Adobe RGB gamut – great for colour-critical work – and supports 10-bit colour. Throw in a host of ports (including USB-C), an IPS display and a great price, and you have a seriously good screen.

ULTRA HD MONITOR
Philips 328P6VJEB
£551 philips.co.uk

We love this display. At 32 inches diagonally it's big enough to make its 4K resolution worthwhile, and its colour rendering is excellent – 100% of sRGB, 93% of Adobe RGB and 97% of the P3 gamut that Apple's new MacBook Pro uses. It's big, bold, beautiful and superb for productivity and colour work alike.

EXTERNAL SSD
Freecom mSSD MAXX 512GB
£247 freecom.com

This drive is the fastest portable SSD we've ever tested. Freecom claims its write speeds can reach 700MB/sec, but in our tests it blazed past that to reach 713.8MB/sec write speeds and 907.3MB/sec read speeds, thanks to its USB 3.1 Gen 2 capability. It's costly, but worth it if you feel the need for speed.

NETWORK STORAGE
Drobo 5D3
£601 drobo.co.uk

With two blazing fast Thunderbolt 3 ports and a 5Gbps USB-C port to boot, the Drobo 5D3 can provide you with rapid file transfers to and from your Mac. You can load it up with up to five HDDs or SSDs of differing capacities, giving you plenty of flexibility for storage options. It's pricey, but a worthy investment.

WIRELESS ROUTER
Asus DSL-AC88U AC3100
£210 asus.com/uk

This router has an awful lot going for it. The winner of issue 321's group test, the Asus scored an impressive five stars in three out of four categories. It performed brilliantly in our tests, has excellent connectivity (with both Ethernet and ADSL options), and it looks great too. It will keep your network powered for years.

NEW! THUNDERBOLT DOCK
CalDigit TS3 Plus
£349 caldigit.com/uk

The original TS3 gave Macs a new level of connectivity. Now the TS3 Plus offers an incredible 14 ports. The TS3 Plus is quite pricey, but its 10Gbps USB-C port and four USB-A ports (among others), make it our Thunderbolt dock of choice. The Thunderbolt 3 port supplies up to 85W, so it can even charge a 15in MacBook Pro.

PRINTER
Epson EcoTank ET-2600
£179 epson.co.uk

The Eco-Tank ET-2600 has a fairly high cost, but its innovative cartridge-free design will save you a ton of money in the long run. It's got a scanner and copier, plus Wi-Fi and USB connectivity. Replacement inks are cheap, working out at a mere 0.2p per page for mono text, and just 0.35p per page for colour.

IP CAMERA
Netatmo Presence
£190 netatmo.com

The Netatmo Presence is an impressive outdoor security camera. Set in a sturdy housing, it's built to defy the elements. It has a built-in floodlight to deter intruders, and a 100° field of view recorded in 1080p. There's also an SD card included, making it easy to store and access your footage.

MACBOOK BAG
STM Kings
£98 stmgoods.com

Your MacBook needs protection, and the STM Kings backpack is the best way to guarantee that. Winner of MF316's group test, it cleverly suspends your MacBook away from the floor to prevent bumps. With loads of storage, comfortable straps and a snazzy design, it's a great all-rounder.

BEST BUYS... Curated picks of third-party kit

DESKTOP SPEAKER
Kef Egg
£350 kef.com

With rich, warm sound that works with pretty much any genre, the KEF Egg speakers are ideal partners for your Mac. They support high-quality aptX Bluetooth too, making them perfect for wireless playback. Quirky design, solid build quality and support for external subwoofers makes them a great choice.

PORTABLE SPEAKER
Libratone Zipp
£224 libratone.com

Want a multiroom audio system in your home? This little speaker is your best option, hands down. It cleaned up in MF309's group test, scoring five stars in every test category. From top-notch sound to tons of great features, the Zipp is a superb choice. It even boasts AirPlay for great integration with Macs and iOS devices.

HIGH-RES AUDIO PLAYER
Pioneer XDP-30R
£348 pioneer-audiovisual.eu

Love music as much as we do? Then you'll want to get your mitts on one of these. It plays high-res audio files, and absolutely blows MP3 files out of the water. One listen will change the way you hear your audio tracks and, unlike other high-res audio players, it's reasonably priced. It really will rock your world.

IN-EAR HEADPHONES
Pioneer Rayz Plus
£149 pioneerrayz.com

If you own an iPhone 7, you'll know the struggle of trying to listen to music and charge your phone at the same time. These in-ear Lightning headphones solve that, thanks to their built-in charging port. They've also got great audio quality, excellent noise cancellation and will pause your tunes when removed from your ears.

PORTABLE BATTERY PACK
Apple iPhone 7 Smart Battery Case £99 apple.com/uk

Despite that silly-looking hump on its back, the official battery case for the iPhone 7 is rather impressive. It's easy to fit, the buttons feel great, and the soft inner lining protects your phone against scratches. The built-in battery isn't the largest capacity around, yet it has more than enough juice for busy days, and the bump is surprisingly comfy.

ACTION CAMERA
GoPro Hero6 Black
£500 gopro.com

GoPro's latest action cam is a stunner, with 4K video at 60fps and 1080p video at a whopping 240fps for fantastic slow-motion footage. It's waterproof to 10 metres, has improved image stabilisation, wider dynamic range and better performance in low light than its Hero5 Black predecessor, too.

DASH CAM
Transcend DrivePro 230
£150 transcend-info.com

Dash cams help record what happens when you drive – useful if you're in an RTC. If you're in the market for one, this cam is one of the best. Packed with Wi-Fi, GPS logging, Full HD video and a night view as well, you get an awful lot for your money. There's even a free 16GB memory card included in the box.

MICROPHONE
Blue Microphones Raspberry
£164 bluemic.com

Don't be fooled by this mic's small form factor; it punches hugely above its weight. Its close-up sound is intimate and bassy, and brings out the best in any voice. No matter whether you're recording an interview, creating a podcast or just jamming with your band, its clarity and depth makes it easy to recommend.

FITNESS SMARTWATCH
Garmin Vivoactive HR
£240 garmin.com

Packed full of tracking features for a host of sports, and filled with genuinely insightful metrics, this is a fitness smartwatch for nearly any occasion. Its battery will last you days, perfect for the odd weekend hiking trip. With all this, it's not hard to see why it won MF308's group test.

BEST BUYS... Curated picks of third-party apps

PHOTO EDITOR (MAC)

Affinity Photo

£48.99 serif.com

It's hard not to love Affinity Photo. Whether you fancy yourself as a seasoned pro or a photo novice, you'll find this image editor powerful and easy to use. Its interface offers the perfect blend of ease of use and quick access to powerful features, and its useful batch processing is a great addition. An app that packs both power and practicality for less than £50? We're in!

VIDEO EDITOR (MAC)

Final Cut Pro X 10.3

£299.99 apple.com/uk

Apple's Final Cut Pro has always been a good option for video editors, and the latest version makes it even better. It introduces 'roles', which can be colour-coded to make your timeline's components easier to navigate, something that's further boosted by the streamlined interface. This version also supports the Touch Bar and wide colour gamut display on recent models of MacBook Pro.

WEB DESIGN APP (MAC)

RapidWeaver 7

£79 realmacsoftware.com

Ever since Apple stopped updating iWeb, Mac users have been searching for the ideal replacement. Well, look no further – it's RapidWeaver. Don't know how to write HTML and CSS code? No worries, RapidWeaver lets you design visually if you want to. You can build all kinds of page and publish to many different platforms, and extend the app's functions with thousands of add-ons.

WRITING APP (MAC)

Scrivener

About £34 literatureandlatte.com

It's not often that a sequel is even better than its predecessor, but Scrivener 3 is a great example. Version 2 was already good, winning MF319's group test, but version 3 adds so much. Its revamped interface is hugely customisable, its templates are fantastic, managing footnotes is a breeze, and the whole app is light and speedy. If you write, Scrivener is absolutely essential.

UTILITY (MAC)

Carbon Copy Cloner 5

£31.10 bombich.com

When disaster strikes and your hard drive fails, having a backup can be a lifesaver. This app makes creating and restoring from backups an absolute breeze. It comes with a helpful guided restore feature, plus a Cloning Coach that monitors what you do and looks out for potential problems. If you're looking to clone or back up your hard drive, this is the app you need.

SYSTEM ENHANCEMENT (MAC)

Bartender 3

£11.10 macbartender.com

Some apps are so simple and effective that you don't know how you lived without them. Bartender is one: it lets you choose what appears in the menu bar, and when things appear too. You can set triggers, such as an app only appearing when it's updating, and rearrange items. Bartender's settings are clear and concise. It sounds simple, but it'll change the way you use your Mac.

STREAMING SERVICE (MAC/IOS)

Spotify

Free, £9.99 per month (Premium)
spotify.com

Despite strong competition from the likes of Tidal, Apple Music and Amazon, Spotify is our top music-streaming choice. It hits all the right notes, from its fair price to its curated playlists. Its library is one of the largest on the market, and its interface is simple and straightforward to use. And, unlike Apple Music and Tidal, it has a free tier as well.

PRODUCTIVITY APP (MAC/IOS)

Fantastical 2

£38.99 (Mac), £2.99 (iPhone)
flexibits.com

If you find your calendar and reminders are getting out of control, Fantastical is the app for you. It supports natural language entry, so that you can enter events and reminders as you would speak and Fantastical will get to work. It's got a nifty menu bar shortcut, plus a great interface, clever calendar management and a powerful iOS app to boot.

EMAIL MANAGER (MAC/IOS)

Spark

Free sparkmailapp.com

Feeling inbox anxiety? The solution could be Spark, an email app for Mac and iOS. It's centred on a 'smart inbox', which prioritises your emails based on perceived importance – no more losing that vital work email among a sea of spam. You can snooze messages to be reminded about them later, and search your mailboxes by expressing yourself in natural language, too. And to top it all off, it's free.

PHOTO STREAM

GET ON INSTAGRAM

› Share your images with us by using the hashtag #MacFormat and we'll print the best here in the magazine. While you're there, follow @MacFormat (Twitter) and @MacFormatUK (Instagram).

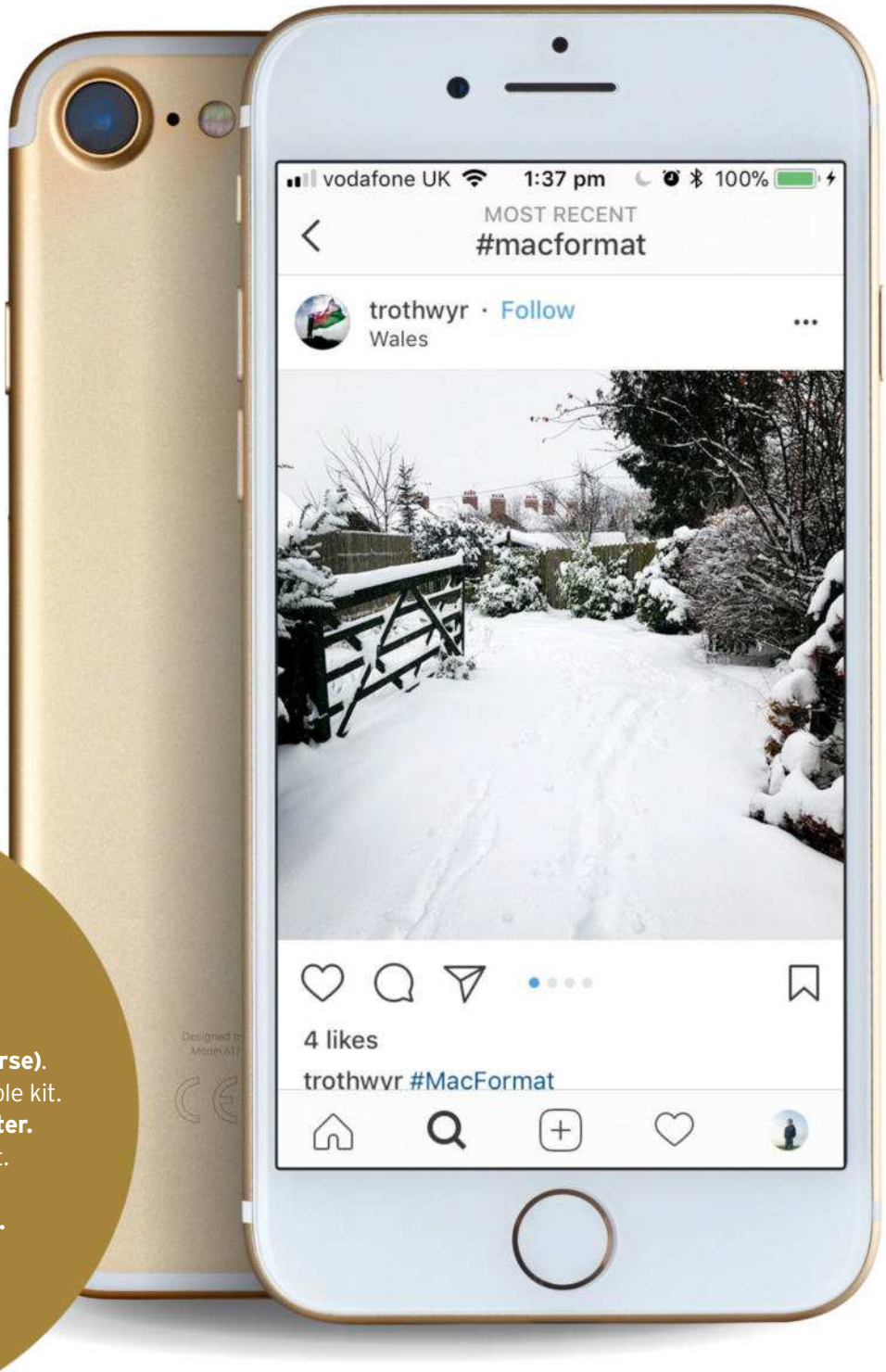
Goodbye winter,

Hello, summer

BY TROTHWYR

We're all in the midst of dreaming of summer holidays, or at least planning a break from the office. But we won't be able to officially move on into summer until we can bid a proper farewell to the most crazy winter/spring we've seen in a long time. We had a few snow days here in Bath – team member Jo even got snowed up in Teignmouth! So thanks to trothwyr from Wales for capturing the cold snap with this lovely 'white blanket' scene!

Share your pics with us using the hashtag #MacFormat on Instagram. In each issue, we'll pick our favourite to feature on this page.



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› **1** Open an Instagram account.
› **2** **Follow @MacFormatUK (of course).**
› **3** Take a picture of, or with, your Apple kit.
› **4** **Share it on Instagram or Twitter.**
› **5** Use the hashtag #MacFormat.
› **6** **Feel the warm glow of an appreciative Apple community.**
› **7** See if you made it onto the pages of this very magazine!
› **8** **Repeat.**

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PRINTED BY
William Gibbons, 28 Planetary Rd, Wilenhall, WV13 3XT
www.williamgibbons.co.uk Tel: 0102 730011

DISTRIBUTED BY
Marketforce, 5 Churchill Place, Canary Wharf, London, E14 5HU
www.marketforce.co.uk Tel: 0203 787 9001

abc 20,117
PRINT 11,831 **DIGITAL** 8,286
Jan-Dec 2017
A member of the Audited Bureau of Circulations

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Productivity boost **NEXT ISSUE**

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Learn helpful tricks and techniques to speed your way to success

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- **Six note-taking apps** fight it out
- **Manage your email** in smarter ways
- **Surf more privately** with a new browser
- **Essential accessories** for your summer travels

... and more!

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ISSUE 327 ON SALE 5 JUNE 2018

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Gone, but not forgotten

The big apps that didn't make the cut

Written by Alex Blake

Apple has made some great apps over the years, but not all of them have survived into the modern era. Some apps were great ideas at the time, but soon became outdated, while others got superceded by even more impressive replacements. Here's a rundown of the most notable apps from Apple that are no longer with us.

1984

In 1984, Apple debuted one of the first computer office suites in the form of AppleWorks. It was spun out to Claris, incorporated GS Works and was then brought back in-house by Apple in 1997.

1984

It doesn't sound much today, but MacPaint was exciting because it could make graphics you could use in other apps. To advertise it, Apple bought up all 39 ad pages in a single issue of *Newsweek*.

1987

Before the World Wide Web, there was HyperCard. It had a graphical interface comprised of virtual cards that could contain text, media or other info. HyperTalk, its programming language, later influenced JavaScript.

1996

First developed in 1996, Shake quickly became the industry standard for visual effects compositing in films. Apple bought its developer Nothing Real in 2002 and later incorporated some features into Final Cut.

2002

The much-loved photo-editing app iPhoto was included with new Macs from 2002 through to 2015, when it was replaced by Photos.

2005

Where iPhoto was for lightweight edits, Aperture was the heavy-duty photo-editing solution from Apple. Ten years later it was discontinued in favour of Photos, which took on some (but not all) of its editing features.

2005

The Front Row app was designed to be a complete media centre for your movies, music and photos. Alas, it was discontinued in 2011 as Apple moved towards streaming media on demand – the default for Apple Music, and 4K movies on Apple TV.

SuperDrives into the sunset

You could argue that Apple ditched optical media too soon, given that many people still watch movies on Blu-ray and now Ultra HD (4K) Blu-ray discs. It bit the bullet a long time ago when it came to its tools for creating video discs, releasing the final versions of DVD Studio Pro and iDVD in 2009 and 2011, respectively. Neither app gained Blu-ray support, and the Mac soon ditched optical drives altogether.

In 2008, Steve Jobs called Blu-ray "a bag of hurt" as it was complex to license. Apple decided to wait and see how the market developed. But, in the end, it has never added Blu-ray playback into Macs, never mind creation tools.

'Sherlocked!'

Before Spotlight there was Sherlock. Though a simple search app, it generated controversy when Karelia Software claimed Apple copied its Watson app when it released Sherlock 3. Since then, 'sherlocking' has come to refer to the practice of Apple releasing an app that's similar to that of a rival.

A very tangled iWeb

In 2006, Apple had a vision for the web, where everyone could easily create their own website in a few clicks.

That vision was manifested in iWeb, complete with widgets letting you embed various widgets, such as YouTube videos and maps. In 2012, iWeb fell victim to changing publishing patterns as people moved to sites like Medium and Tumblr rather than building websites from scratch.

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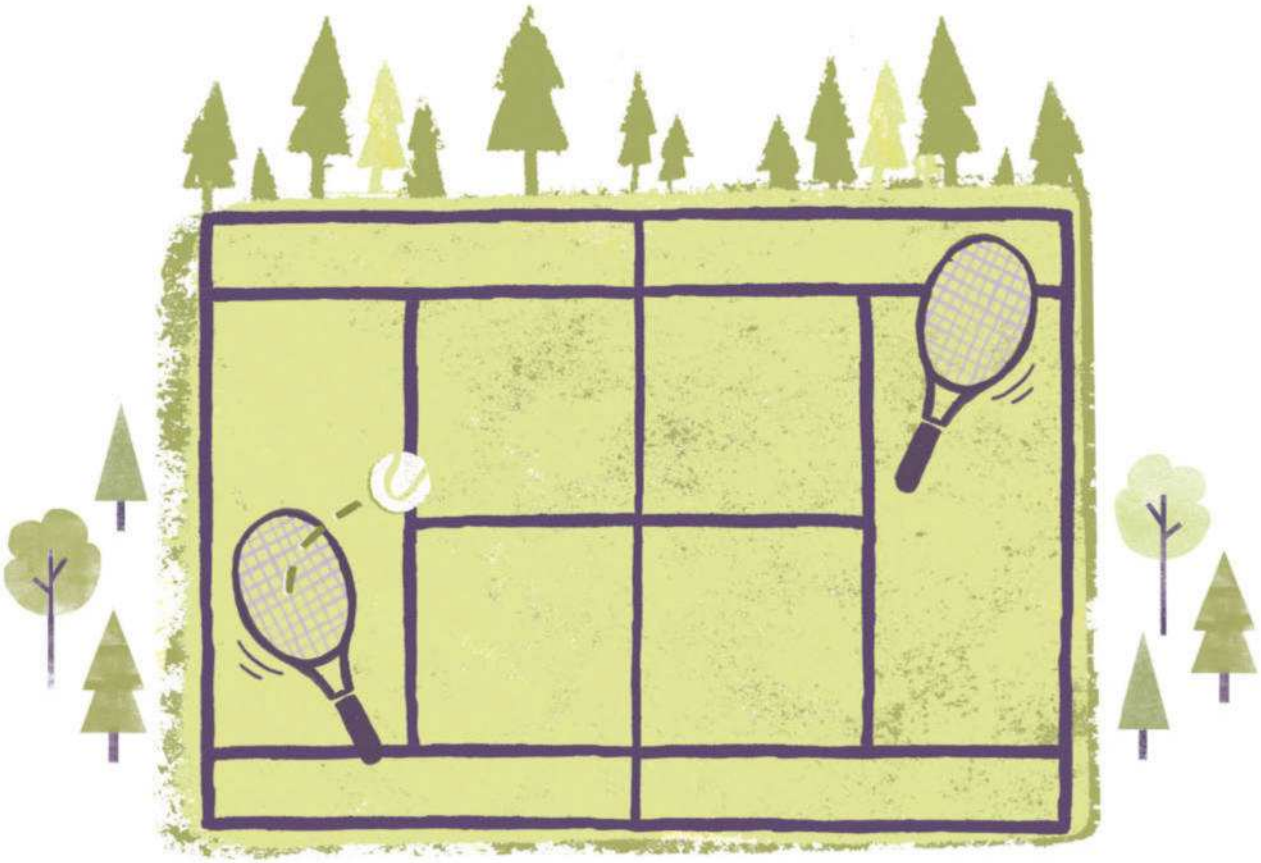

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