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Mac FORMAT



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> Step up the security of your devices and online accounts

WIN!

> An iPad,
Apple Pencil
& Affinity
Photo



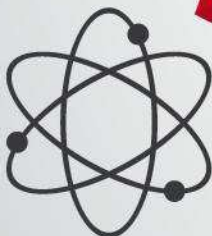
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> Six invaluable
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T3

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› We know you'll be eager to get outdoors and enjoy the world away from screens this summer. But, you have things to do on your Mac and iOS devices - so why not get them done faster with this issue's massive collection of timesaving tips!

For the short time it'll take you to read them, the shortcuts and clever techniques you'll learn will help you to use your Apple kit more efficiently,

with the knock-on effect of getting you away from the digital abyss to spend quality time with family and friends.

Security and privacy concerns have been in the news a lot recently. Well, they never really go away. So, in this issue we also explain the features Apple has baked in to your Mac and iOS devices, and what extra steps you should take to bolster the basics. You'll certainly want your iPhone and iPad, at the very least, to be locked down like Fort Knox when you're soaking up the summer sun!

While you're doing that, you'll almost certainly be taking photos of the great outdoors with a smartphone. The iPhone is excellent for this, but there's always room for improvement. This issue's *MacFormat Investigates* looks at recent advances in phone camera tech. Also check out this issue's round-up of travel accessories for your summer jaunts on page 86. Remember to send us your iPhone snaps, too - see page 104.

ALAN STONEBRIDGE
EDITOR
editor@macformat.com

Meet the team



Jo Membery
Operations Editor

› Jo wants to eliminate any security concerns on her Apple devices, so she can relax in the sunshine on her patio. How else can she truly enjoy her G&T!



Alex Blake
Commissioning Editor

› Alex is really enjoying the summer weather - although his Watch keeps nagging him to go for a run when he'd rather be lying in the sun.



Paul Blachford
Art Editor

› Paul has spent the last month off the internet to see *Infinity War* unspoiled, and found that an endless supply of blockbusters works as the ultimate social media detox!



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Step up your SECURITY



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**LOVE
YOUR
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> Luis breathes new life into old keyboards





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APPLE CORE



EDITED BY **ALAN STONEBRIDGE**



Apple's patent concerns how Watch's interface would work on a circular display.

HOT TOPIC!

Apple designs circular Watch

Patent details a way to overcome circuit issues

Perhaps one of the defining features of the Apple Watch is its shape, which differs significantly from most of its smartwatch rivals. Where many other watches have opted for a traditional circular face design, the Watch has steadfastly remained rectangular since its inception. But that may change in the future thanks to a patent recently awarded to Apple.

There are plenty of Android watches

available with circular faces, from companies such as Huawei, Motorola and LG.

One reason Apple might have declined to make a circular Watch in the past, however, could be because rectangular pixel arrays do not fit efficiently into a circular display - the company certainly noted this problem on its patent application. Circular displays can end up with notable bottlenecks where signal lines become overcrowded, thus limiting

App Store crackdown

Apple is removing apps that take liberties with location info

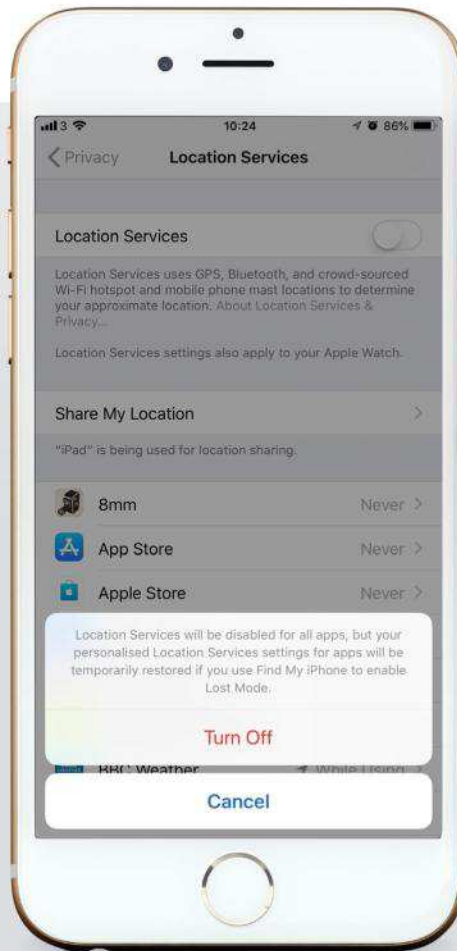
Apple has always been hot on privacy, and that's reflected in a crackdown on certain

apps on the App Store. Specifically, Apple has begun removing those that share your location data with third-parties "for unapproved purposes" and without your permission.

Apple is now also requiring apps that use your data to make it clear exactly where and how this information will be used.

If an app has been removed for this reason, Apple states that the offending code, framework or SDK must be removed from the app before it can be resubmitted to the App Store.

To control how your iOS apps use your location information, go to Settings > Privacy > Location Services.



Apple is clamping down on third-party apps using location info without your explicit permission.

their efficiency. They also have large inactive areas around their edges that contain no pixels, and so can't display anything in those regions.

Apple's patent details a system that would allow the company to overcome this issue, essentially by building a circuit that utilises the inactive areas of the face using curved and 'serpentine' circuits to counter the curved edge of the watch.

Interestingly, the patent was filed by Apple in June 2015, two months after the first Apple Watch debuted. That suggests this is not an idea Apple abandoned even before the original Apple Watch went on sale. At the very least, it seems the company could be more open to the idea of ditching its rectangular design than we had previously thought.

Back when it was first launched, Apple aimed the Watch squarely at the fashion

Releasing a circular Watch would refocus the device back towards the fashion market

market. It opened exclusive Watch-only stores and released the expensive Watch Edition to try to entice high-end buyers. Since then, it has switched the Watch's marketing to aim more at fitness-oriented buyers. Releasing a circular Watch would refocus the device back towards the fashion market as an option to potential buyers who dislike the current design.

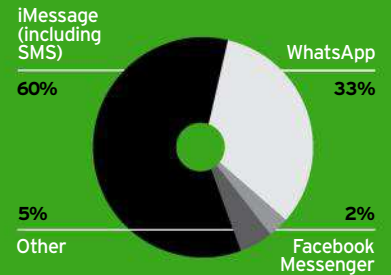
This is the second patent that Apple has been granted relating to a circular Watch. In April 2018, it won a similar patent (also filed two months after the first Watch was released) relating to device displays that could be circular or curved. Of course, these are merely approved patent applications, but a product based on them could be announced as soon as September. The absence of parts from the supply chain suggests a circular Watch would be

further off, but note that Apple is cracking down on leaks - an internal memo warning employees about them was itself leaked to *Bloomberg News* in April.

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THE POLL

WE ASKED... What's your main messaging app on iOS?



> Log on and see next issue's big question!
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Siri rival Google Assistant's big step forward

> In the race for smart assistant dominance, Google has taken a big step forward. At its recent I/O conference, the company showed off updates to Google Assistant.

Among the most interesting was its ability to conduct phone conversations with people on your behalf. During the show, Google Assistant was able to understand nuances such as a restaurant worker explaining that tables could not be booked for small parties.

The update puts pressure on Apple to bring meaningful improvements to Siri, which is widely considered to be trailing behind rivals' capabilities.

Other updates announced at I/O included the ability to string multiple actions into a single voice command,

something Siri is unable to do.

Siri needs to step up to compete with Google Assistant.

APPLE NEWS ROUNDUP

APPLE RUNS ON RENEWABLES

USES 100% GREEN ENERGY ACROSS GLOBE

Apple has announced that all of its facilities, including retail stores, offices, data centres and co-located facilities, are now completely powered by renewable energy. The facilities are located across 43 different countries. As well as that, nine more of its suppliers have also committed to running on 100% green energy; 23 of Apple's suppliers now do so.

APPLE AIRPORT DISCONTINUED

WILL ONLY BE SOLD WHILE STOCKS LAST

After more than a year of speculation, Apple has announced that it will be discontinuing the full range of its AirPort routers. It will continue to sell the routers on its websites, but only while stocks last. In November 2016 it was reported that Apple disbanded its AirPort development team, and in January 2018 it started selling third-party routers on its website. So, the end of AirPort is not much of a surprise.



iPhone X Plus rumours swirl

Face ID, camera sensor and handset size upgrades expected

With only three months left until Apple is expected to unveil new iPhones, news is emerging of a rumoured 'iPhone X Plus'. Japanese outlet *Mac Otakara* reports that the larger version of the iPhone X will be roughly the same size as the iPhone 8 Plus, which has a display measuring 5.5 inches across.

However, it says the iPhone X Plus will come with a 6.5-inch display. The discrepancy in screen sizes between that and the iPhone 8 Plus is due to the much larger bezel on the latter; by largely eliminating the bezel, the iPhone X Plus would be able to integrate a much larger display in a phone that's overall

close to the size of the iPhone 8 Plus.

Mac Otakara also reports that the iPhone X Plus will be slightly thicker than the 8 Plus, at 7.7mm thick. That's apparently due to the way the camera is mounted.

The site also claims the regular iPhone X will be refreshed, with a larger camera sensor and lens. There are no details on how this will impact camera performance, though.

Face ID will also work in horizontal orientation on both the iPhone X and X Plus (at present it only works when you hold the phone vertically). With Face ID expected to soon arrive on a refreshed iPad Pro, this improvement would make a lot of sense.

New chip exploits discovered

Eight new Spectre-like flaws found that might affect Apple devices

The security exploit Spectre was big news at the start

of 2018. It affected major processor manufacturers and put many devices, including Macs and iPhones, at risk.

Despite patches from the major vendors, the threat is not over, according to security researchers. Processor firm Intel has been notified that up to eight new Spectre-like flaws



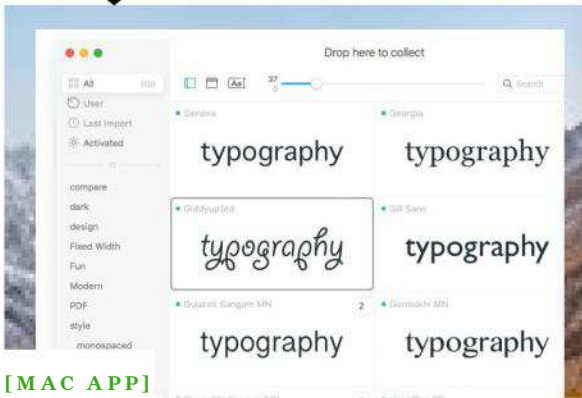
have been discovered in its chips. According to *Patently Apple*, Intel has rated four of the flaws as 'high risk' and the other four as 'medium risk'. According to its own research, the website notes that one of the flaws presents a "significantly higher" risk than Spectre.

That's because it could allow someone to attack a host system (such as a cloud server)

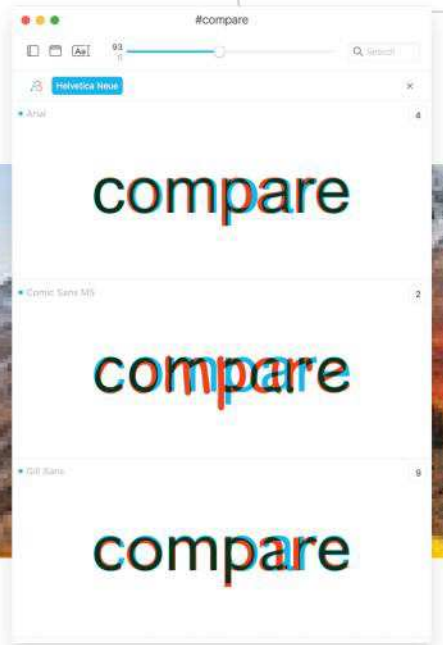
from inside a virtual machine (VM), or attack the VMs of other uses on the same server.

It's unknown how Apple devices will be affected, but if your Mac runs on an Intel chip then it might be at risk. The specific details of the eight exploits have not been revealed; Intel is updating its processors to address Spectre, and hopefully will fix these bugs as well.

APP OF THE MONTH



[MAC APP]



TypeFace 2 £19.99

A powerful yet easy-to-use alternative to macOS's Font Book



> **The fonts you choose for your designs can make or break when it comes to effectiveness.**

Maybe you use Apple's Font Book or duplicate text to compare words in different styles. TypeFace 2 provides you with advanced options for managing and comparing them.

What swings a design decision can be a subtle difference in a character. TypeFace can overlay one font over another in a kind of X-ray

view to highlight these. Will your choice depend on a particular character's availability? Choose more easily by filtering out fonts that lack it.

The app's font management goes beyond the manually built and criteria-based collections of Font Book, giving you the ability to tag fonts, based on whatever subtle criteria you choose, to make them easier to find later on. Despite its capabilities, TypeFace's window is lean, hiding its sidebar till you drag something.

APPLE TV

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



[MOVIE]
Black Panther
£13.99

> Power struggles, truly charming characters, relatable risk to the world, and a believable foe make this one of Marvel's best films.



[PODCAST]
Data Skeptic
FREE

> Does scientific thinking turn you on? This show puts all sorts of topics under the microscope, from game theory to quantum computing.



[iOS GAME]
Oddmar
£4.99



> Join the titular Viking on his quest to earn his place in Valhalla. Platform-based action and puzzles stand in the way of Oddmar's journey to heaven for Norse heroes. The quality of animation here is great, reminding us of Ubisoft's Rayman Run series.

Why you need it: Check out the trailer! bit.ly/oddmarvd
What's it best for: Sheer fun, and gorgeously animated.



[iOS APP]
WWF Free Rivers
FREE



> Explore the impact of environmental changes to free-flowing rivers that arises from human activity. This app uses Apple's ARKit tech to display a 3D landscape on a tabletop, ready for you to interact and learn about sustainable development.

Why you need it: It's an informative use of ARKit.
What's it best for: Learning about our effect on the world.



[iTUNES STORE]
Hell-On Neko Case £8.99



> Neko Case never seems to be short of an evocative lyric, and her strong vocals burst with indelible personality - something that's abundantly plain from her contributions to two New Pornographers albums in the five years since her previous solo album.

Why you need it: To hear Case's impressive voice.
What's it best for: Glorious and unapologetic style.

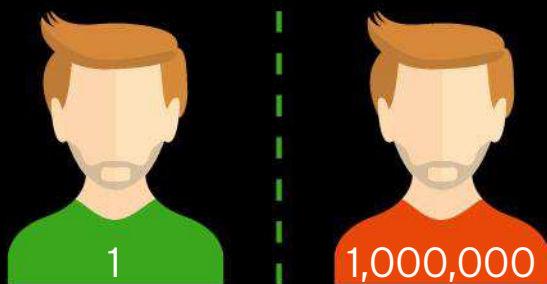


[TV SHOW]
Episodes (Series 5)
£14.99

> Episodes ends its run on a high by ramping up the disregard for consequences shown by its fictionalised take on *Friends'* Matt LeBlanc.

FACE ID IN NUMBERS

We take a look at the workings of Apple's authentication feature, and face up to the dots, attempts and happiness counts



1 in 1,000,000

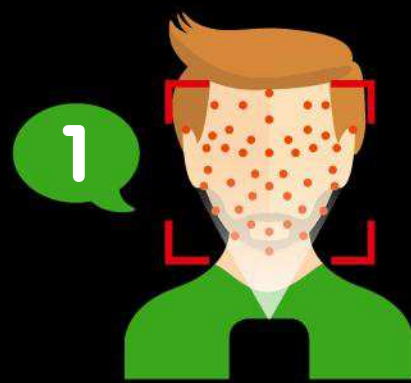
> Apple claims the chances a random person could fool Face ID are one in a million, and that the odds for Touch ID are one in 50,000.

90% 

> In a survey of iPhone X users by Experian and Creative Strategies, more than 90% of owners said they were happy with Face ID.

48:00

> If you haven't unlocked your iPhone X using Face ID for more than 48 hours (or haven't unlocked it with a passcode in 156 hours and Face ID in the last 4 hours), you'll have to unlock it with your passcode.



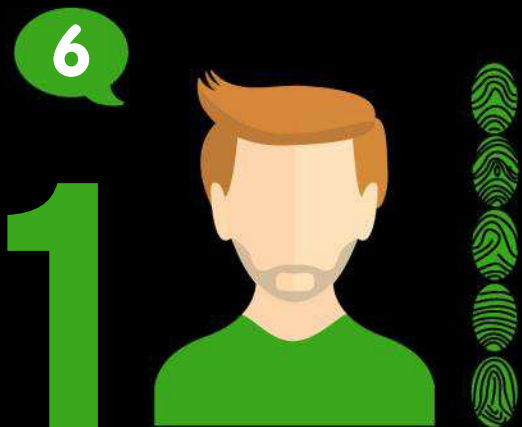
30,000

> In order to accurately analyse your facial features, iPhone X's TrueDepth camera projects over 30,000 invisible dots to create a depth map of your face.



5x

> An imposter can't keep trying to trick Face ID indefinitely - your passcode is required after five failed attempts.



1

> Only one person can register facial data with Face ID, unlike Touch ID, which allows you to register multiple fingerprints (up to five) from different people.



Start a 30-day digital trial and get an issue for free*



In iOS 11, point the Camera app's photo mode at this QR code to download our app.

*First-time digital subscribers only.



Mac FORMAT

INVESTIGATES

What lies ahead for iPhone cameras?

Apple is facing stiff competition for the camera crown – is it still king of the smartphone shooters?

WRITTEN BY **ALEX BLAKE** >

After years of incremental changes and slight improvements, Apple came out with a radical camera upgrade in the iPhone 7 Plus.

That was the first iPhone to feature two cameras on the back, giving it a big advantage over earlier models. With it came new features: a telephoto lens with 2x optical zoom and 10x digital zoom; Portrait mode, which blurs backgrounds in pictures for a depth-of-field effect; and a new Image Signal Processor to handle your photos.

The camera in the iPhone 7 Plus put Apple at the forefront of mobile phone camera technology. But since then, it's arguable that Apple has not stretched that lead – rather, its competitors have made a serious attempt to catch up with – and even surpass – the Cupertino giant.

When cameras first made a splash on mobile phones, the immediate goal for all involved seemed to be increasing the megapixel (MP) count as much as possible. That's not surprising – the rear-facing camera in the original iPhone was just 2MP – but since then the focus has shifted, and megapixels aren't much of a selling point any more.

Beyond a point, having a higher megapixel count doesn't mean you're taking *better* pictures,

just *bigger* pictures. For mobile phones and their limited storage, that's not always a good thing. As well as eating up your storage space, larger megapixel counts also make it harder to upload pictures or to shoot quick bursts of shots.

Furthermore, more megapixels means having to fit more information into the phone camera's sensor, which itself is very limited in size. As a result, your pictures can end up with more noise.

These days most phone makers have settled on 12MP or so for their rear-facing cameras. Instead, these companies are looking for other ways to differentiate their phone cameras. So what are they working on in their latest phones? And what tech is Apple developing to give its cameras an edge once more?

Machine learning

One way that all phone makers can advance their devices is through artificial intelligence (AI) and machine learning. These technologies are hot among the world's phone manufacturers, and integrated cameras have not escaped their touch.

Google Pixel 2, for example, only has one rear-facing camera but is still able to create the kind of portrait mode effect the iPhone achieves

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see page 34!





phone camera tech

Fighting to get your focus...
The tech giants are exploring
many ways to improve our
smartphone cameras.



More pixels doesn't always mean better pictures, but it does mean that images can go bigger without too much loss of clarity.

with two. It does that with what it calls dual-pixel autofocus, which essentially divides each pixel into two so that the camera can ascertain the depth of objects in the frame. Once it has done that, it automatically applies a blur to the background elements. This also means you get portrait mode on the front camera, which iPhone 8 and earlier do not.

Of course, imitating a dual-lens camera system using only one lens will not be perfect every time. But it's an interesting example of the way the tech may be moving – if you can achieve a convincing portrait mode effect using only one lens, you can potentially save space inside the phone for other components, which Apple has always been keen to do.

Google isn't the only company making use of artificial intelligence to improve its phones'

iPhone X is
currently the
only model to
take Portrait
mode selfies

cameras. Huawei has done something similar in its new P2 Pro phone, the camera of which has received excellent reviews. Its Master AI system can detect more than 500 different scenarios, using this analysis to automatically adjust the camera's settings appropriately. For example, if it detects people in the photo, it can activate portrait mode for you.

Huawei is an example of a company trying to make its phone camera easier to use – to instantly adjust settings and presets to predict what you want without you having to lift a finger. It shows how the improvements to smartphone cameras we've seen recently haven't just come in hardware, but in how that hardware interacts with the phone's on-board software in new ways.

Lenses in focus

Of course, hardware is still very important to these high-end cameras. The P20 Plus, for example, is one of the first to make use of three lenses for photography – the Lenovo Phab 2 Pro and Asus ZenFone AR also have three lenses, but they are used for augmented reality (AR), not photos. That trio consists of a 40MP colour camera with an f/1.8 lens, a 20MP monochrome camera with an f/1.6 lens, and an 8MP telephoto camera with an f/2.4 lens (the monochrome camera is used to add extra light, depth and detail information).

According to Taiwan's *Economic Daily News*, Apple could follow suit in 2019 with its own triple-lens iPhone, equipped with a trio of 12MP cameras (although what exactly the third lens would be used for remains unclear). On iPhone X, iPhone 8 and

Getting a raw deal >

One of the main limitations of Apple's Camera app is that it can't shoot raw files. These files capture much more information than JPEGs (they give you the raw sensor data) giving you more room to manipulate images later on.

Of the three images shown on the right, the left section shows a JPEG as shot by a DSLR camera. In the middle is an unedited raw file, while the right image is an edited raw file, showing how much scope there is to alter it.



JPEG

Unedited raw

Edited raw

8 Plus, the rear-facing cameras are all 12MP.

Apple's main rival Samsung, however, is doing things a little differently. In its flagship Galaxy S9 Plus phone, it's stuck with two rear cameras, but has an interesting trick up its sleeve: the main camera has a dual-aperture lens. This means that in low light conditions the phone automatically switches to an f/1.5 aperture, letting more light hit the sensor in order to make up for the darkness. In more favourable lighting, the lens switches to an f/2.4 aperture, which enables it to focus on achieving high levels of sharpness in the images it produces. Consequently, reviewers have lauded the S9 Plus's photographic performance, especially in low light. In tests by reputable imaging website DxOMark, the S9's camera received a score of 99, the highest score of any phone camera the website has reviewed – in fact, it scored 104 for its photo capabilities and 91 for video.

Sony, meanwhile, is also making headway in low-light photography, making use of its expertise in the DSLR arena to improve its smartphone cameras. In its new Xperia XZ2 Premium phone, for example, you can shoot photos at up to ISO 51200, giving it a big boost in low light conditions.

The question now is whether Apple is going to replicate – or surpass – the features that have already made it into its competitors' impressive cameras.

Apple's patent plans

While these developments from its rivals appear to leave Apple in the dust in some regards, there are plenty of reasons to be hopeful for Tim Cook and co. A number of patents relating to Apple's camera technology might provide us with some interesting hints as to what Apple is planning.

A patent published by the US Patent and Trademark Office (USPTO) in March 2017 suggests that Apple might be working on a system to create 3D images using your iPhone. The patent shows that the system would compile "a relatively small number of basis images" to create a 3D image, rather than the dozens of pictures that are normally required. The patent also notes that the new system might be able to simulate "shadows and parallax artifacts" in some instances.

That's not the only interesting camera patent from Apple that has recently emerged. A patent published by the USPTO in October 2017 suggests that Apple is developing a

The limitations of iPhoneography >

The iPhone helped kill off feature phones, and it also seems to have done a number on DSLR cameras.

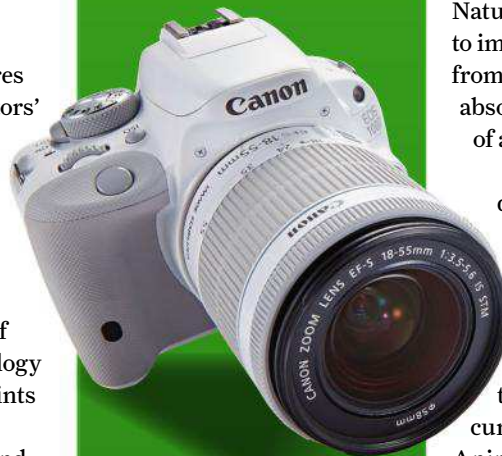
Still, despite sales plummeting, there are still reasons to purchase a mirrorless camera or DSLR.

For one thing, you get a much broader choice of lenses with a fully fledged digital camera. Whether you want a macro lens or one with a high telephoto rating, you're

much better served with a DSLR.

You've also got a far greater range of shooting options with a dedicated camera. You can lower the f-number in order to get better low-light performance, or adjust the white balance to suit your surroundings. While iOS apps can do some of these things, they are still very limited compared to mirrorless cameras and DSLRs.

Smartphone camera tech is moving fast but DSLRs continue to provide more finite control.



Is Apple going to replicate – or surpass – the features of its competitors' cameras?

camera lens made up of six layered lenses. This would allow it to greatly reduce – or even totally eliminate – lens flares in your photos.

Further Apple patent applications for enhancing smartphone cameras include its own accessory system to augment a phone's built-in lenses. That's something third parties already cater to, but Apple's proposed system would use a 'Sensing Technology Interface' to analyse the alignment of an accessory and adjust the phone's built-in lens to match. Naturally, Apple continues to look at ways to improve existing features. An application from February 2017 talks about using shock absorption components as a physical method of assisting optical image stabilisation.

With the first generation of Face ID's depth-sensing camera only on iPhone X at present, expect front-facing camera tech to evolve rapidly too, especially as more models gain this hardware. Tim Cook has made his excitement clear for what AR might enable in the future – surely more than Apple is currently doing, with novelties such as Animoji and the Clips app.

DSLR or iPhone?

Apple has come a long way since 2007's 2MP iPhone camera. These days its smartphone shooter is, in some ways, able to compete with entry-level DSLRs for casual use.

Of course, there are plenty of reasons to buy a dedicated camera instead of relying on a phone – high-quality, changeable lenses and manual controls, say – but the camera tech in smartphones continues to advance apace. Apple and its rivals are doing great work here, and that competition, and applications such as AR, are sure to keep it going for years.



CONTACTS

Have your say on all things Apple!

Contact us

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

LETTER OF THE MONTH!



Apple price drop?

> We've all grown used to paying a premium price for Apple products here in the UK, especially so after the price hike a couple of years ago after the Brexit referendum.

It was encouraging to note recently that the greenback was exchanging above 1.40 to the pound, very close to early 2016 levels. If this trend continues, it'd be really

nice if Apple would consider reducing its UK prices once again, perhaps in September with product upgrades, as a bonus to those of us who are still loyal to the brand but unlucky enough not to be able to benefit from the recently announced share buy-back. Or is this just wishful thinking?

BY JOHN FRASER

ALAN SAYS... I was fortunate to avoid the price hike on my iPad Pro, but will definitely share your pain if I need to replace my iMac all of a sudden. The good news is there are *small* signs of favourable price adjustments already. The latest 9.7-inch iPad shaved £20 off the price of its predecessor, and Apple Pencil is now bang in the middle of the price at its 2016 introduction (£79) and last year's peak (£99).

Apple sets prices according to expectations in the long term, and though sterling has indeed strengthened in recent months, the ongoing Brexit issue, the emerging threat of a broader trade war, and that (at

the time of writing) the pound isn't quite back to where it was two years ago make it seem likely we'll see slow, steady concessions until the economic outlook becomes more predictable.

WIND IT BACK

> Your response to Jason Vaughan's inquiry about a consumer-focused database might have mentioned TapForms (tapforms.com).

When FileMaker discontinued Bento, I discovered and was blown away by the power and simplicity of this software! It works seamlessly on the Mac, iPad and iPhone - I use Dropbox to sync the data. Might be a welcome suggestion - you gave it your highest rating in March 2014!

BY DR JOHN M BONN

ALEX SAYS... Thanks for reminding us about TapForms, which totally slipped our

LETTER OF THE MONTH

Win yourself a BentoStack XL

> The author of our Letter of the Month gets a prize: a BentoStack XL to keep cables safe and tidy on a desk or in a bag. Learn more at function101.com and get 30% off until 19 November by entering promo code FORMAT.



Looking for a database? Need it to work with macOS, iOS and even watchOS? TapForms has you covered.

minds when replying to Jason's letter. TapForms is still actively maintained, having received a mix of fixes and small but handy features in recent updates. Perhaps it's time we took another look at how useful it is, this time in our Apple Skills section.

INTO THE SUNSET

> Great to read the newsletter in my email box today. However, after reading about Apple scrapping AirPort routers. I'm very disappointed. I've been using Time Capsule for quite a while and love it.

I'm now a bit confused as to what I can do to back up all my devices to one device. Do I go down the route of using Apple's server? Or have multiple disks everywhere to back up to. I'm hoping you can shed some light on my options, as I haven't a clue!

BY ALEX BESNIER-CHAMBERLAIN

JO SAYS... I'm also sad about this, though it frustrates me that AirPort doesn't cater to iOS backups (which require iTunes or iCloud).

AirPort kit hasn't stopped working just because of this news, but you'll need to know about fallbacks in case yours does down the line. This sounds like a group test to us!

Features in macOS Server are changing, but Time Machine appears not to be one due for the chop; so, Server remains an option for backups, if you've a spare Mac to run it.

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£620

Win!

The new iPad, Apple Pencil & Affinity Photo!

Get creative with a 9.7-inch iPad and the best photo editor for it!

➤ **For editing photos on an iPad using a powerful and professional toolset, look no further than Affinity Photo.**

Also available for the Mac and Windows PCs, Affinity Photo received five stars and an Editor's Choice award in our review (see MF #317). We praised the way the app, originally made for the Mac, has been adapted to a touchscreen, the software's responsiveness, and the comprehensive toolset it offers.

Affinity Photo for iPad includes everything you'd expect of a great image editor: an unlimited number of layers; masks and blending modes to enable

creative interactions between layers; a healing brush that removes defects using data sampled from elsewhere in an image; the ability to refine selections to capture fine details, and many other impressive capabilities.

Serif Labs, which develops Affinity Photo, has provided a bumper prize bundle for us to give away. The overall winner will receive a brand-new 9.7-inch iPad, Affinity Photo to run on it, and an Apple Pencil. We also have 10 runner-up prizes of a copy of Affinity Photo - and you get to choose whether you receive the Mac, iPad or Windows version.

PLUS
10
runners-up
win Affinity
Photo

➤ THE QUESTION

We've got a 9.7-inch iPad with an Apple Pencil and Affinity Photo for the overall winner, plus 10 runner-up prizes of Affinity Photo. For your chance to win, answer this question:

For how many platforms is Affinity Photo available?

- A) 2
- B) 3
- C) 4

For more information about the Affinity family of apps for Mac, iPad and Windows, visit affinity.serif.com.

HOW TO ENTER...

- To enter, you can visit our website at bitly.com/affinityipad (web address is case sensitive).
- For full terms and conditions, go to bitly.com/affinityipad. 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 **2 July 2018**. Over 18, GB residents only.
- Email addresses of the winner and runners-up will be shared with Serif Labs to enable it to provide prizes. Serif Labs will not use them for marketing purposes.



MATT BOLTON...

HAS A HOUSE HE'S WORKED HARD TO MAKE PRETTY, SO WHY WOULD HE WANT TO FILL IT WITH UGLY SMART HOME TECH?

A lot of tech companies have a big blind spot when it comes to design. Steve Jobs famously said that Microsoft's problem was that "they just have no taste", a barb that felt almost cruel in its precision. In the era of tech firms getting into interior design, effectively, by creating smart home products, it now fits more as a jab against a whole industry than one against Redmond.

Recently, I saw a template design from Amazon of a possible smart lamp with Alexa built in. It was basically an Echo Plus, but the top three quarters are a tube of light instead of silver plastic. And it was exactly as ugly as that sounds. The Amazon Echo is, subtly, an excellent piece of technical design that actually avoids some pitfalls that Apple itself fell into, even though it had the Echo around for two years to learn from. I'm mostly thinking of the indicator light – the HomePod's is only visible from above,

Smart tech is still designed with tech in mind, and a veneer added

whereas the ring of lights indicating Alexa activity runs around the top corner of the Echo, so it can be seen from any angle. It's built really well as a tech product... but it also looks like a tech product. The second-gen version added a cladding of fabric or wood veneer to fit in better, but the end result was, still, very techie;

a faintly monolithic tower that appeals to the sci-fi fan in all of us, but less so the home makeover show fan.

I think the HomePod is the best-looking smart speaker not because it is an especially pretty design, but because it is the most innocuous. That's less of an endorsement of Apple as it is an indictment of the rest. Smart hubs are often hunks of plain plastic, cameras are shiny eyesores, air quality sensors foul up the place... there have been some great smart home designs, though they've often been from Yves Béhar, and he can't design literally everything.

I think part of the problem is that they're still designed with the tech in mind first, then a nice veneer is added. But if you want to sell an air quality monitor to someone, maybe it should be something they want to have visible in their home first. I remember, back when Habitat was an upmarket store, it collaborated with shoe maestro Manolo Blahnik on a striking metal shoehorn. It was almost impossible to

Adding a wood veneer to the Echo doesn't suddenly make it homely – the stark straight lines and sharply drilled holes are borderline brutalist.

almost impossible to



Mondaine's Connected Wall Clock is a classic design (that Apple once emulated for the iPad's clock), updated with Bluetooth smarts.

get hold of, and not because there was a sudden need to subdue stubborn footwear. It was an objet d'art in its own right, and people wanted to display it.

Mondaine, a famous Swiss clockmaker, just released a wall clock in its minimalist style, with connectivity and sensors built in. This is more like it – I want the clock anyway, and the extras just push it over the top.

You might have already spotted the contradiction: having declared that too many companies have no taste, I'm now suggesting they create actual art. But maybe that's a reminder that if tech products are going to be in more areas of our lives, they'll need the input of more than coders and engineers.

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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Alex says...

"I'VE BEEN THINKING OF GETTING A SMART TV. SHOULD I GET APPLE TV?"

I've had loads of TV show recommendations from friends, but I don't have a smart TV or a box to get them. Which should I get?

My TV is a smart TV in and of itself, so I get apps like iPlayer and All 4 through that. I have Apple TV 4K too, but have mixed feelings.


You've had several models, haven't you? If Apple TV 4K isn't hugely impressive, why haven't you saved  with Chromecast?

Well, my TV being smart is part of it. I mostly use Apple TV for work purposes, and I like extending my  desktop onto my TV.

That's not something I'd thought about. It's not explicitly noted on Apple TV's web page!

To do that with Chromecast needs third-party software. It's not all good news - Apple TV 4K still tops out at a 1080p extended desktop.

Tim Cook said the future of TV is apps - is that future here? How do the apps you get on Apple TV stack up against its rivals?

There are a lot of media services and games, much like other boxes. It's worth checking each one's store to see what's included. I'm happy that several of my iOS games came with a tvOS version for free. 



Alan says...



APPLE IN QUOTES

TIM COOK
apple.com

"In every way and every turn, the question is not what can we do, but what should we do."

Apple CEO on the company holding privacy sacrosanct

JONY IVE
apple.com

"Since the 1970s [Apple] has made difficult-to-comprehend and inaccessible technology easy to understand."

Design chief explains one of Apple's key successes since its founding

HORACE DEDIU
asymco.com

"It set a standard for novelty, creativity and dynamism."

The iMac was the first device to make consumer computing cool

TIM COOK
apple.com

"If you begin to merge the two... you begin to make trade-offs and compromises."

Apple doesn't want to merge iOS and macOS, says company CEO

Siri...ously?



Hey Siri, tell me a joke tap to edit

I got my friend a fridge for her birthday. I can't wait to see her face light up when she opens it.

89

TIME-SAVING TIPS FOR MAC, iPHONE & iPAD

- ✓ Discover smart shortcuts
- ✓ Unlock secret features
- ✓ Be more productive

Written by
Adam Banks, Tim Hardwick
& Alex Summersby

Your Mac, iPhone and iPad help you to get things done, but are you using them as efficiently as possible? Does the number of open windows make you avoid Mission Control in favour of a less graphical but reliable way of switching windows? When you need to focus, do you scroll up in

Notification Centre and turn on Do Not Disturb's switch? Do you waste time formatting text copied and pasted from elsewhere to get it to match your documents?

We picked three Mac and iOS experts to tell you how to do these and dozens of other tasks more quickly. Their advice will save you time across many aspects of your

Apple devices - from improving the Dock to window management on the Mac; and from accessing key features of apps in an instant to taking notes with a tap on the Lock screen on your iPhone and iPad.

You'll soon be blazing through work, enabling you to get even more done - or just finish your day earlier and enjoy a well-earned rest.

About the writers



Adam Banks

Remember the great *MacUser* magazine? Adam had two turns in its editor's chair, and latterly designed it, too - so, he has plenty of document creation timesavers to share.



Tim Hardwick

Formerly *MacFormat's* operations editor, Tim broke out into the freelance world and he now writes about Apple and wider tech industry news for *Mac Rumors*.



Alex Summersby

Long-term readers might remember Alex from his days editing *MacFormat* back in the 90s. That's a lot of years of acquired knowledge to pass on.



Workspace makeovers

1 Squeeze out more space

Many windows only extend behind the Dock if you drag them. To make full use of the desktop, set the Dock to hide - **⌘**-click the divider for this option. It will reveal itself when the pointer hits the edge where it lives. Do the same for the menu bar in System Prefs' General pane.

2 Desktop a bit cramped?

Need a larger desktop? If your Mac has a Retina display, choose a higher 'looks like' resolution in System Prefs' Displays pane. Window furniture shrinks; use an app's zoom feature to keep your docs readable. Use EasyRes (free, Mac App Store) to do this from the menu bar.

3 Turn off toolbars

If you can memorise key combos or menu items' locations, hiding toolbars can give more room to what you're working on. Usually done in an app's View menu, some apps don't allow it - if you find the icons easy to tell apart, choose Customise Toolbar and hide text labels.

4 Quickly block intrusions

Your workspace is *your* space, even if those pesky notifications that pop up at the top right would have you believe otherwise. The quickest way to shut them out is to hold **⌘** and click Notification Centre's icon (top right), so it becomes dimmed. This hides incoming items until the next day or you repeat the action.

5 Make System Prefs lean

Do you find it hard to pick out the pane you need in System Preferences? If you only regularly use a few of them, choose View > Customise and then clear the checkboxes next to panes you use rarely. Those panes remain accessible in the View menu, or by clicking and holding the button that shows a grid of dots.

6 Don't lose the pointer

It's easy to lose track of the pointer against a busy desktop. Remedy this in System Prefs > Accessibility > Display: turn on 'Shake mouse pointer to locate'. Shake the pointer and it will grow in size temporarily. If you use this a lot, consider dragging the 'Cursor size' slider right to make the pointer larger all the time.

Spotlight and Siri shortcuts

Make the Mac's search engine and personal assistant truly work for you

Your Mac's Spotlight search engine (opened by pressing **⌘+[spacebar]**) is a great way to find your files and open apps. Siri, added in macOS Sierra, has a few tricks up its sleeve, too. Here are our favourite tips for making the most of both features.

1 Get word definitions

If you enter 'define:' (without quotes) as your first term in Spotlight and then type a word, the first result will be from your Mac's dictionary.

2 Relocate Spotlight

If Spotlight's results are getting in the way of what you're comparing them with, move them to a convenient location by dragging from the magnifying glass in the window. (To reset the position, click and hold on Spotlight's menu bar icon.)

3 Jump categories

After typing in Spotlight, quickly move down the results without reaching for your mouse or trackpad by pressing **⌘+⏵** to jump a category at a time.

4 Summing up

The Calculator app has been a stalwart of macOS for many years, but



In Siri's window, click the words the personal assistant thinks you said to make corrections.

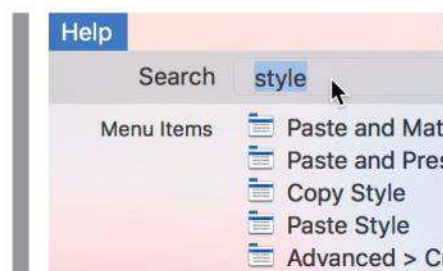
you don't have to open it to perform quick calculations – type in Spotlight instead. Spotlight respects operator precedence (multiplication before addition, say), and you can use brackets to override this.

5 Avoid repeating

If Siri misinterprets what you've said, just click the words it thought you said and edit them using your keyboard to correct it. Press **⌘** and Siri will reprocess your command.

6 Hands-on Siri

In cafés, offices and libraries, to name a few places, it's more discreet to type commands and questions to Siri rather than speak them. To do this, you will need to change a setting in System Preferences' Accessibility pane: select Siri in the left-hand column, check the box next to Enable Type to Siri, and the next time you invoke Siri using its Dock icon, menu bar icon or keyboard shortcut, it'll expect you to type instead.



Need help?

If you open an app's Help menu, the input focus is immediately placed in its search field, so you only need to type the name of the menu item you're looking for. Use the arrow keys to select a suggestion below and then press **⏎**. For direct access to the field in many apps, press **⌘+⌘+⏵**.

Open apps faster



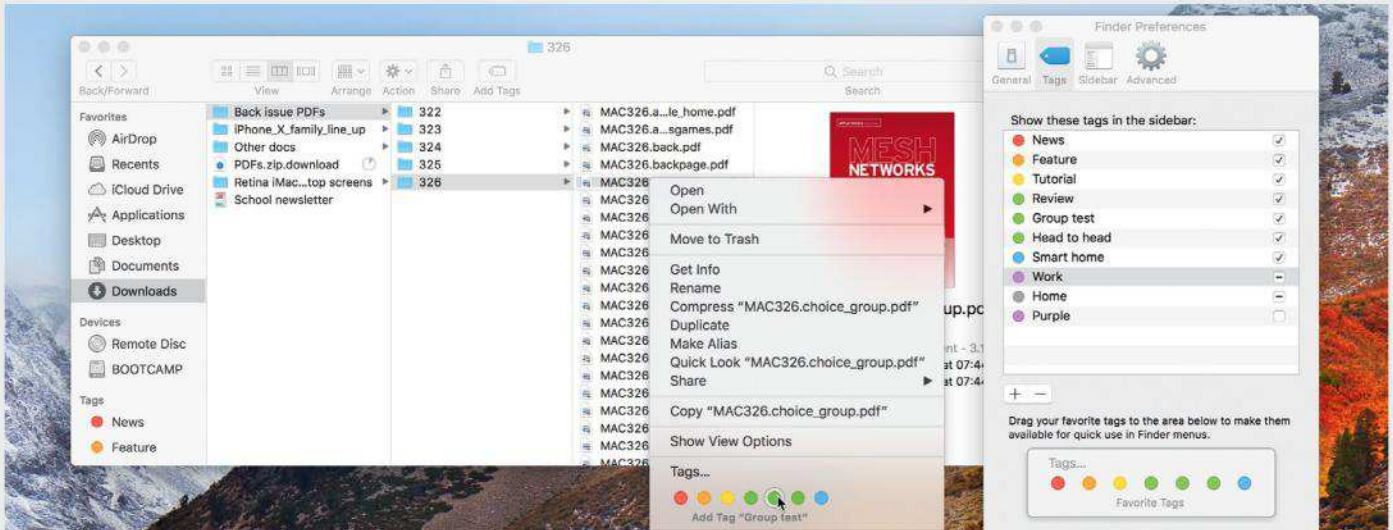
If your Mac lacks a dedicated Launchpad key, assign a key combo in System Prefs > Keyboard > Shortcuts.

Spotlight is always on hand to help you open apps, but sometimes its efforts to intelligently anticipate what you're looking for mean the app you want is bumped down the list of results, which wastes your time in having to find and click it.

If that's familiar, try opening apps using Launchpad instead. Its search bar has the keyboard focus as soon as you open it, waiting for you to type an app's name, at which point it quickly filters the listed apps. Select one using the arrow keys and use **⏎** to open it.

Fast file management

Browse drives, find files and move things around in quick time



Tag your files and you'll be able to find in an instant all those on your Mac that relate to a project or category, even if they're spread among various folders.

1 The path bar

When moving files around in Finder, it's often helpful to reveal the path bar (View > Show Path Bar). The breadcrumb trail of folders leading right to the top of your drive is interactive, so you can drag and drop items onto one of those folders, or double-click a folder to jump to it.

2 Open folders faster

When you drag and hold a selection of one or more items over a folder in Finder, you'll notice it takes a moment for the folder to open. Fortunately, you can speed up the process by pressing the space bar as soon as the folder's icon becomes dimmer.

3 Save at the start

When starting a document, be sure to save it immediately. At the very least, this ensures Time Machine can back it up hourly. If the app has a File > Revert To submenu, it supports Auto Save and Versions (bit.ly/asver), saving time if you change your mind about excised material.

4 Column view

In Finder's Column view, file and folder names can often get concealed. Double-click the dividing line to the right of a column to resize that column to fit the longest filename contained in it. Holding down **⌘** when you do this will additionally resize all other columns to match their respective longest filenames.

5 Tag items

Tags can help you find files later on. To tag a file in Finder, **⌘**-click it and pick one of the coloured tags shown near the bottom of the menu. The seven defaults may be all you need; you can assign them labels with personal meaning: in Finder > Preferences > Tags, select a tag's row, then click its label and type a new one.

6 Create new tags

To replace the menu's shortcuts, in Finder > Prefs > Tags, drag a tag from the top list to a spot in the bottom area. You can create your own tags – say, to label saved or scanned receipts with 'Tax return'. **⌘**-click a file, pick Tags, type a label, press **↵** once to tag the file with that label, and again to close the pop-up.

Swiftly switch devices

Continuity is a suite of features in macOS and iOS that save you time when working across devices.

The devices must be signed in to the same iCloud account, have Bluetooth and Wi-Fi on, and (in some cases) Handoff too – look in General settings.

With Universal Clipboard, you can copy text, images or videos from one device, then paste on your nearby devices.

For many apps, Handoff enables you to move a task between

devices. To move to your Mac, click the icon left of Finder in the Dock. On iOS, open the app switcher and tap the banner at the foot of the screen.

You can use AirDrop to share directly

to a nearby Mac or iOS device. Tap a recipient in the top row of iOS's Share sheet; they'll need to set who to receive from: in Control Centre's top-left group on iOS, or the AirDrop window on a Mac. You can send directly from many Mac apps by choosing File > Share > AirDrop.



Mission Control

Master the pre-eminent timesavers for multitaskers

Constantly switching apps? Screen cluttered? Take charge with **Mission Control**. Press its dedicated key or **ctrl**+**⏏**, double-tap two fingers on a Magic Mouse, or swipe three fingers upwards on a trackpad to open it.

1 Group app windows

By default, Mission Control spreads out the windows of all your open apps (but

not hidden or minimised ones, or those in any additional workspaces you've created). If you turn on 'Group windows by application' in its System Prefs pane, it'll stack windows belonging to the same app together - easier to navigate if you have many windows open in many apps.

2 One app at a time

Mission Control can get crowded. To view only the current app's windows, either: press **ctrl**+**⏏**; **ctrl**-click an app in the Dock and choose Show All Windows; double-tap two fingers on a Magic Mouse; or turn on the special trackpad gesture in System Prefs > Trackpad > More Gestures. In this mode, press **⌘** to cycle through open apps in turn, or click one's Dock icon to see its windows immediately.

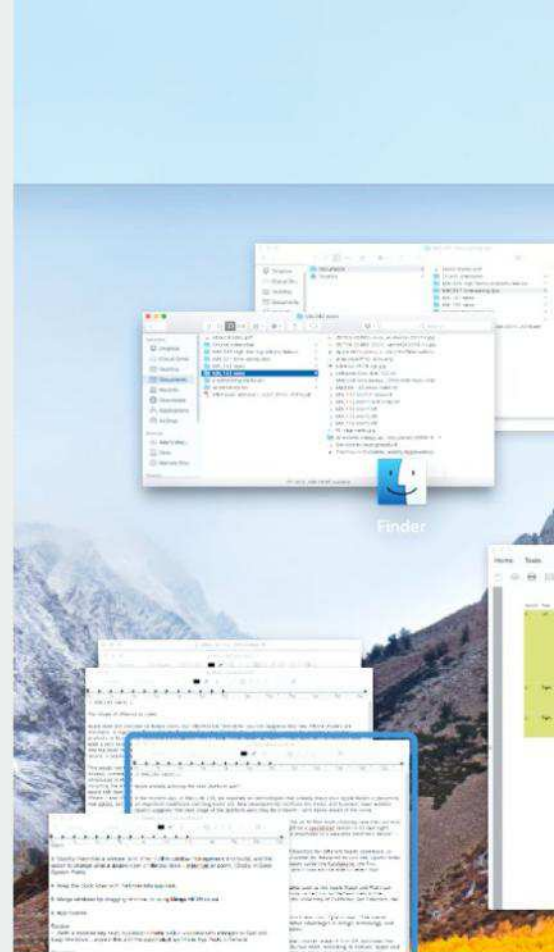
3 Recent documents

Instead of using an app's File > Open Recent list or **⌘** > Recent Items to reopen what you were working on earlier, enter App Exposé and look to the row of thumbnails shown across the foot of the screen. They represent recently opened files and minimised windows; click one to reopen that item/restore the window.



Tim's favourite timesaver Quick Look

If you have a lot of windows open, the thumbnails in Mission Control (and App Exposé) can be small. To check which is the window you want, use Quick Look - move the pointer over a thumbnail and press the space bar to see a larger preview. Press again to close it. This works even if you've turned on Mission Control's 'Group windows by app' preference, which stacks up each app's windows.



4 Faster app switching

You don't have to hold **⌘** and then repeatedly press **⌘** (or **⌘**+**⏏**) to reach the app you want in the app switcher - just move the pointer over an app icon, then release **⌘** to switch to that app.

5 More quickly quit apps

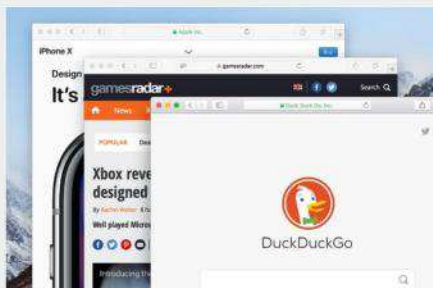
With an app selected in the switcher, press **Q** to quit it. You can repeat this while **⌘** is held - a fast way to quit several apps safely. The previous tip, about what is under the pointer, also applies to this.

Working with windows



Hide apps temporarily

You can hide an app's windows without quitting it: **ctrl**-click its Dock icon and pick Hide, press **⌘**+**H**, or hold **⌘** when you click another app's icon to switch to it. Or, use **⌘**+**⌘**+**H** to hide all other apps.



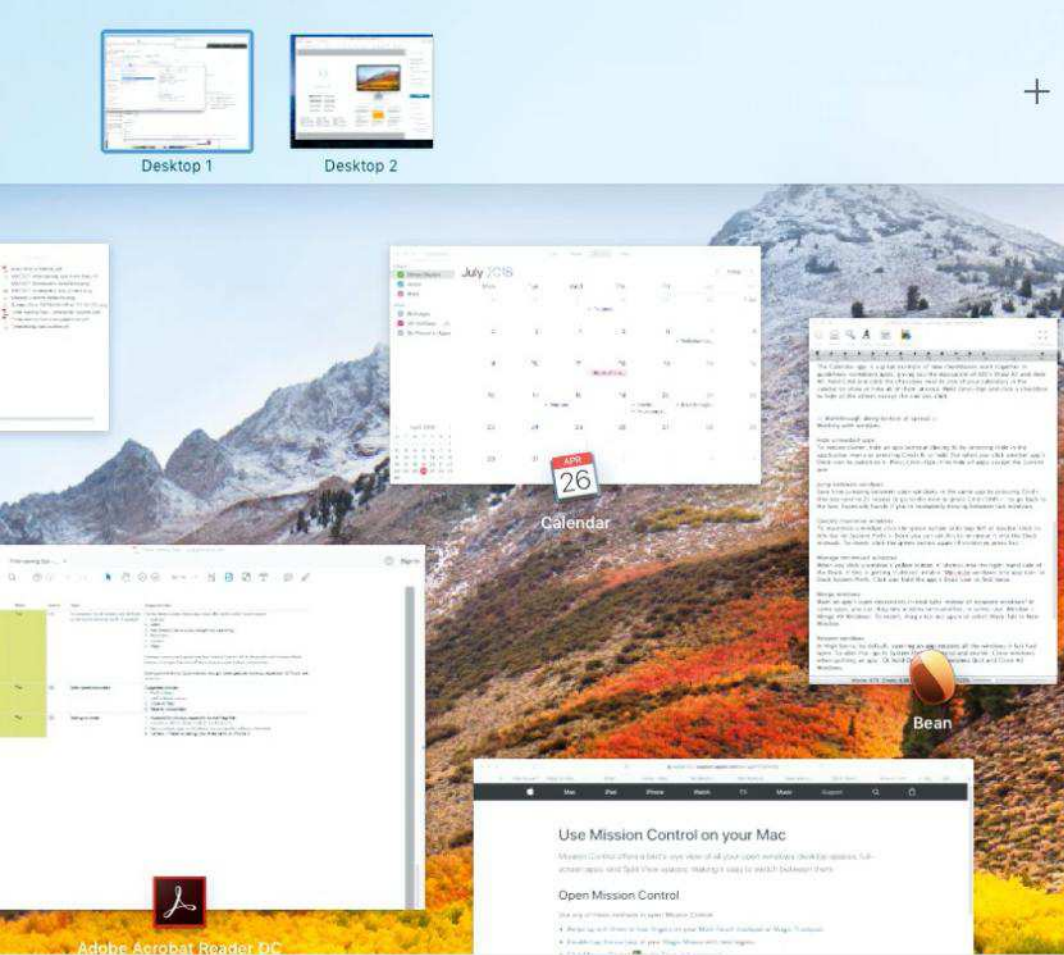
Jump between windows

Save time jumping between windows in the same app: press **⌘**+**⏏** (the key next to Z); repeat to go to the next or press **⌘**+**⌘**+**⏏** to go to the last - helpful when repeatedly going between two windows.



Quickly maximise windows

Clicking a window's green button (top left) 'zooms' to what's thought to be the best fit for its contents. To make a window fill the desktop instead, hold **⌘** and then double-click one of its corners.



Quick Calendar tips

➤ When looking for a gap in your schedule across several months, the Year view is a good starting point - and you can make it even better. In Calendar > Preferences > Advanced, turn on 'Show events in year view'. The view then uses colour to indicate how busy you are on each date. In the sidebar (View > Show Calendar List), hide UK Holidays and others if they have no bearing on your plans.

Calendar is a great example of how checkboxes work together in apps that follow Apple's guidelines, giving you the equivalent of Show All and Hide All in iOS: hold **⌘** and click a checkbox in the calendar list to show/hide all calendars at once. Or, hold **⌘** + **⌘** and click a box to hide all other calendars.

Hot Corners

➤ An alternative to using keys to invoke features is **Hot Corners**. You can set each screen corner to trigger an action when the pointer reaches it - say, to open Mission Control, move windows aside to access the desktop, or put the display to sleep. In System Prefs' Mission Control pane, click Hot Corners to start assigning actions. To avoid accidents, hold one or more of **⌘**, **⇧**, **⇧** and **⌘** when selecting an action here; you will then need to hold those keys as well to trigger the action.



Minimised windows

A window's yellow button shrinks it into the Dock's right side; for tidiness, turn on 'Minimize windows into app icon' in the Dock's prefs. Click and hold a Dock icon (or use App Exposé) to get windows back.



Merge windows

Want to turn an app's windows into tabs? In some apps, drag one window onto another; in others, use Window > Merge All Windows. To revert, drag a tab out or use Window > Move Tab to New Window.



Reopen windows

In High Sierra, by default, opening an app restores its windows. Tick 'Close windows when quitting apps' in System Prefs > General to change it. Or, hold **⌘** and Quit becomes 'Quit and Close All Windows'.

Making documents

Take control of text, graphics, colours and changes

Wrestling with apps like Pages, Numbers and Keynote? Cut down on wasted time with these techniques. Apple's office and productivity apps are generally easy to use, yet you can get even better value from the time you spend with them.

1 Find keyboard characters

In System Preferences' Keyboard pane, tick 'Show keyboard and emoji viewers in menu bar' - click the icon this adds to the right end of the menu bar and choose Show Keyboard Viewer to open a virtual keyboard. Hold **ctrl**, **cmd**, **opt** and/or **shift** - individually or in combinations - to see which character keys you can then press as well in order to type special characters.

2 Find additional symbols

Press **ctrl**+**cmd**+**spacebar** to show a panel containing a whole bunch of special characters. Use the categories across the bottom to explore, or type in the search bar for part of a character's description, such as 'sad' or 'fraction'. Double-click any character to paste it at the insertion point's position in your doc. Recently used items are displayed at the top of the pane.

3 Expand short keywords into longer phrases

In System Preferences' Keyboard pane, click the Text tab. Here you can set up short character sequences that, when typed, are automatically replaced with longer words or phrases. To save hunting for symbols, you might replace (c) with ©, say. Set shortcuts for phrases, like #spe for 'See previous email'. Add corrections, such as to turn 'itouch' into 'iPod touch'. These sync to all Mac and iOS devices signed in to the same iCloud account. (Note: some apps ignore these shortcuts.)

4 Tidy up your type

Font Book lets you manage fonts without having to move their files around. In Finder, drag a new font into the app to make it available. To organise fonts, click the plus at the foot of the left column to make a new collection, then drag fonts



Spend time with the Keyboard Viewer to learn which keys combine to produce special characters.



onto it. Select any font or collection and disable it by clicking the toolbar button that shows a checkbox; the tick goes away and the fonts won't appear in menus, but they can be re-enabled. For essential system fonts, the tick is greyed out.

5 Ask to keep changes

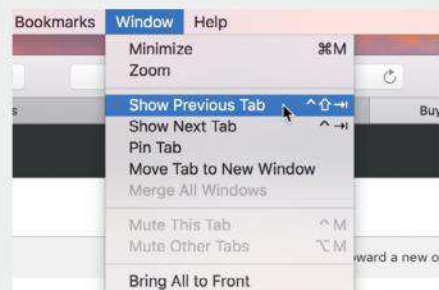
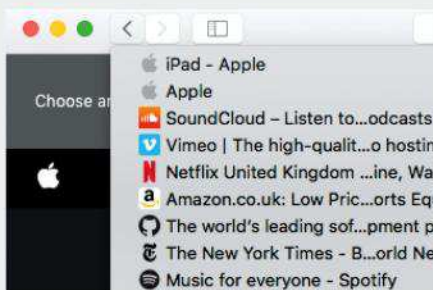
Apps that don't use macOS's Auto Save feature save your work when you close a document's window, or when you quit an app. If you've ever made changes, decided against them, closed the doc and then realised they were saved anyway, it's because an item in System Prefs >



Adam's favourite timesaver Template files in any app

Finder includes a great (but far too easily missed) method for using any file as a template. Set up a document as your starting point in any app, save it to a file, then select the file in Finder, press **cmd**+**T** and check the box labelled 'Stationery pad'. Now when you open that file, Finder creates a duplicate alongside the original and opens the copy in the respective app; the template remains untouched, ready for next time.

Safari speed-up strategies

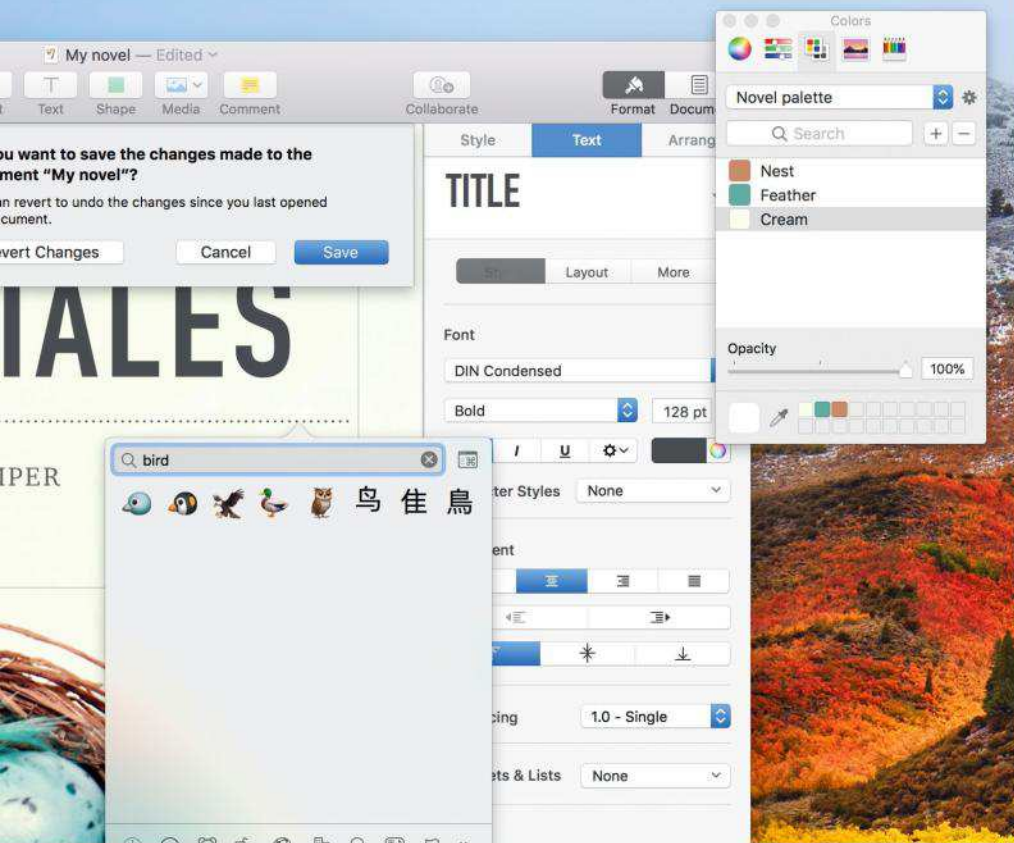


Reopen closed tabs

Press **cmd**+**opt**+**T** to reopen the tab you just closed (or window with all its tabs). This includes its history: click and hold the Back button to see it, then jump to an earlier page with one more click.

Tab to tab

To switch tabs without taking your hands off the keyboard, press **ctrl**+**right arrow** to go one right of the current one, or **ctrl**+**left arrow** to go left. This also works in Finder, Pages and many other apps that support tabs.



General is off by default. If your app supports macOS's Versions feature, you can roll back changes by choosing File > Revert To - or, save the bother: turn on 'Ask to keep changes when closing documents' in System Prefs > General.

6 Reduce file size

Save time when sharing a Pages, Numbers or Keynote file using email or a similar method by shrinking its size. Choose File > Advanced > Reduce File Size to downscale and crop embedded graphics to the size at which they're used, and trim audio or video clips. Don't do this

on the master copy of your doc, in case you need to change it later - make a copy and create an optimised version from it.

7 Mix your own colours

In many apps, $\text{⌘} + \text{⌘} + \text{C}$ opens the Colours palette. Click a colour on any tab and it appears in the inkwell, bottom left; drag this to a slot on the right; colours here remain available across apps and after restarts. In the third tab, click the cog, choose New, then drag colours from the bottom into the list. You can name your palette and each colour - useful for working on multiple projects.

Quick keyboard tips



1 Text navigation aids

Learn a few key combos to be able to move the text insertion point (caret) without using your mouse or trackpad. In TextEdit, Pages and many other text editors, use $\text{⌘} + \text{⏪}$ to go to the start of the doc or $\text{⌘} + \text{⏩}$ to go to the end. $\text{⌘} + \text{⏪}$ or $\text{⌘} + \text{⏩}$ goes to the start or end of the current line. $\text{⌘} + \text{⏪}$ or $\text{⌘} + \text{⏩}$ moves back or forward by one word, $\text{⌘} + \text{⏪}$ or $\text{⌘} + \text{⏩}$ or by a paragraph. Add ⌘ to these to additionally select text between the start and end positions.

2 Paste in style

Save yourself having to reformat text after you copy and paste it from elsewhere - a web page, say - into TextEdit or Pages. The source's formatting is usually preserved, but often unwanted. If you use $\text{⌘} + \text{⌘} + \text{⌘} + \text{⏪}$ to paste, the text will adopt the style at the position where it's inserted into your document. (Some third-party apps have their own equivalents.)

3 Keep things neat

Most apps respect standard keys for constraining objects when they are edited. Hold ⌘ as you drag an object to move it vertically or horizontally in a straight line, or while dragging a corner to keep the object's proportions as you scale it. Hold ⌘ and drag an object to copy it, or while dragging a corner to scale from the centre. While rotating, hold ⌘ to turn in 45- or 90-degree increments.



Monitor downloads

A new button appears at the top-right corner of Safari during downloads. Click it to monitor progress. You can drag the popover away to keep it visible, rather than having to come back and click.



Open multiple sites at once

If you often use a group of sites for a task, add them to a folder rather than the Favourites grid. Go to it in the Bookmarks menu or ⌘ -click it in the sidebar and pick 'Open in New Tabs' to open all at once.

Terminal tweaks

Customise the Dock to work even more efficiently

Surprisingly, the Dock has a number of options that can make it an even more useful and effective timesaver, yet these features aren't available in its System Preferences pane.

To use them, you'll need to use Terminal, which you'll find in /Applications/Utilities. If that intimidates you, we'll introduce you to a third-party app that provides the same results.

Before you begin, make sure you have a recent backup of your entire system - Terminal is very powerful, and although you'll be fine if you type *exactly* the commands here, it has the potential to royally muck things up.

As a precaution, make a backup of the Dock's current settings: in Finder, hold $\text{⌘}+\text{⇧}+\text{G}$ and choose Go > Library. From the folder that opens, copy `com.apple.dock.plist` to another folder. If you later want to undo all changes made here, copy this back to the original folder, replacing the one you've changed, then open Terminal, type `killall Dock` and press ⏏ .

1 Recent items in the Dock

Ready to go? For faster access to apps you use often, add a 'recent items' stack to the right of the Dock's dividing line.

In Terminal, type `defaults write com.apple.dock persistent-others -array-add '{"tile-data" = {"list-type" = 1;}; "tile-type" = "recents-tile"}'; killall Dock` and press ⏏ .

This adds a new icon to the left of the Trash icon. Click it. The stack shows the same number of recent apps as are shown in $\text{⌘}+\text{H}$ > Recent Items; you can change this number in System Prefs > General > Recent Items.

You can $\text{⌘}+\text{click}$ on the stack's icon to set how its contents are displayed - in a fan, grid or list - and whether it contains recent apps, documents or servers, among other things. Want multiple stacks to access more than one of these things? Run the Terminal command again to add another stack, then configure it to suit.

2 Indicate hidden apps

The Dock displays a dot beneath the icons of apps that are open, but it doesn't indicate those whose windows you've hidden by pressing $\text{⌘}+\text{H}$. In Terminal, type `defaults write com.apple.Dock showhidden -bool yes; killall Dock` and press ⏏ . Now when you hide an app's windows, its Dock icon will become semi-transparent as a reminder.



Creating stacks at the Dock's right end gives you speedy shortcuts to recent apps, files and more.

3 Group icons in the Dock

You can add spacers to the Dock to make it easier to navigate - useful if it's very busy. In Terminal, type: `defaults write com.apple.dock persistent-apps -array-add '{"tile-type" = "spacer-tile"}'; killall Dock` and press ⏏ .

Drag the spacer where you want it, and repeat the command if you want to add more. If you want a spacer that's narrower than a regular icon, type `small-spacer-tile` instead of `spacer-tile`, and if you want one in the Dock's right side, type `persistent-others` instead of `persistent-apps`. To remove a spacer, $\text{⌘}+\text{click}$ it and choose Remove from Dock.



Alex's favourite timesaver Screenshots

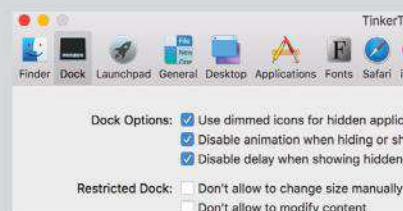
When capturing a screenshot using the keyboard (bit.ly/mfscrsht), it's usually saved to the desktop. To use a folder instead, in Terminal type `defaults write com.apple.screencapture location` and a space, then drag a folder onto the window and press ⏏ . (If you have a Touch Bar, you'll then need to press $\text{⌘}+\text{⇧}+\text{4}$, tap 'Save to' on the bar and choose Desktop; your chosen location will be used, though.)

An easier way to tinker

Want access to even more hidden preferences and behaviours in macOS?

Marcel Bresink's TinkerTool (free, bresink.com) gives access to a huge range of them in familiar-looking preference panes, without you having to resort to using Terminal.

You can simply click a checkbox to turn on each of the tweaks we've covered here. Among the many things it can change, our favourites include eliminating the brief pause before the Dock (when hidden) slides into view, disabling the Dock's animation so it



TinkerTool is an easy-to-use alternative to entering arcane commands in Terminal.

pops up/hides instantly rather than sliding in and out, stopping the Help window sitting on top of all others, and removing the delay between dragging a window to a screen edge and jumping to the next space.



iPhone & iPad shortcuts

Get things done fast from the moment you pick up your device

Adding important apps to the Dock means they're only a tap away on any page of the Home screen. On an iPad with iOS 11, the Dock is also only a swipe away (upwards, from the foot of the screen) - even when you're in an app.

To add an app to the Dock, hold a finger on its icon until it jiggles, then drag it onto the Dock and let go; if it pings back to its original location, there's no space left; the Dock can hold four items on iPhone,

and between 11 and 15 on iPad (depending on the model).

You can add folders to the Dock, too - but to make a new one (by dragging one app icon onto another), you'll need to do it in the area above, then move it. When done, press the Home button (or swipe up from the bottom on iPhone X).

New in iOS 11 is the ability to move multiple app icons at once. When the app icons are jiggling, drag one and, while holding it, tap additional icons to add them to your selection.

Go to the page/folder where you want to place them and lift your finger; the icons are placed in the reverse order to which you picked them up.

The Lock screen offers shortcuts, too. Swipe left to use the camera in an instant. Swipe right to reach the Today view. To choose what's shown here, scroll all the way down and tap Edit; use the + and - buttons to add and remove items, and drag the handles on the right so the most important info is shown first.

Multitasking on iPad



1 Quick reference

In an app, swipe up from the bottom to reveal the Dock. Press on an icon till it grows, drag up, then let go to use that app in a floating pane. Flick the top line to swap sides, or to hide it off the right edge; swipe left there when needed again.



2 Side by side

Again in an app, reveal the Dock and hold a finger on an app icon. This time, drag it to the left or right edge of the screen and let go to open it alongside the first app. Drag the divider to adjust the split, or on the line at the top of the right app to switch them around.



3 Keep watching

If you're using FaceTime or watching a film, say, tap the Picture in Picture icon to scale it down to a corner of the display. Go to another app and the video remains. You can drag it to another corner, pinch or spread two fingers to resize it, or flick it off an edge to hide it.

Share sheets

The Share sheet is available in most apps - its icon is a square with an arrow pointing outwards - and comes preconfigured with a number of options for sharing content from your iPhone or iPad.

To save time, you can customise which options appear on the middle and bottom rows by tapping the More item (three dots), which is always rightmost in each row. In the Activities list that then appears, toggle the switches beside each item to indicate which ones you want to show in the Share sheet.

Conveniently, you can alter the order in which

Share sheet actions are displayed. Drag on the lines at the right end of a row to move an action. The vertical order of items in this list reflects the order items will appear from left to right in the Share sheet.

Note that iOS does its best to hide actions that aren't pertinent to the app you're currently using, but it doesn't always get things right. So, if you're looking for a particular action and you can't see it, that might be why. Unfortunately, you can't set visibility and order on a per-app basis - we're hopeful that this will change in a future version of iOS!



Super-quick controls

Don't overlook Control Centre's customisation options

You can change Control Centre's contents in **Settings > Control Centre > Customise Controls**.

To use the following shortcuts, apply a firm press if your device has 3D Touch, or hold a finger on the control for a moment.

1 Apple TV Remote

You needn't reach for your Siri Remote when your iPhone or iPad is in hand. Tap Control Centre's Apple TV button for a touchscreen trackpad and Siri button.

< Control Centre Customise

INCLUDE

- Torch
- Apple TV Remote
- Low Power Mode

MORE CONTROLS

- Accessibility Shortcuts

You can change the order of most items in Control Centre using the handles on the right of this page.

2 Screen recording

This is useful for sharing iOS tips and troubles. Tap it to record to the Camera Roll, or press to pick one of your apps that can broadcast live, such as Facebook.

3 Camera

This provides a quick route to take a selfie, record a regular or slo-mo video, or take a portrait photo.

4 Wallet

Wallet's button provides a shortcut to your default card and, more usefully, an option to check your last transaction.

5 Notes

This button provides quick ways to start a new note containing freeform text, a checklist, a new photo or a sketch.

6 Timer

If you dislike speaking to Siri to start timers, this is the next quickest method. Press/hold the button, slide your finger up/down to set a duration, then tap Start.



Don't overlook the ability to tailor iOS 11's Control Centre to suit how you use your iPhone or iPad.

Get info at a glance

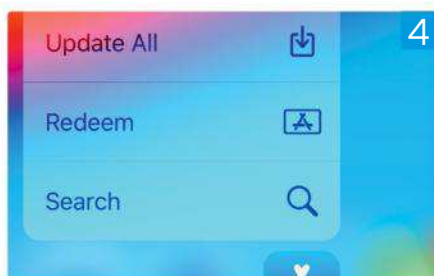
Many apps provide widgets, which contain snippets of info or shortcuts to recently opened docs. To see if an app has a widget, press firmly on its Home screen icon. Normally they are only available on iPhones with 3D Touch, yet Files, Pages, Numbers and Keynote have widgets on iPad.

5 invaluable 3D Touch shortcuts >



1 Settings

In iOS 11, Control Centre's Wi-Fi and Bluetooth buttons merely disconnect from networks/devices, but the hardware remains available for features such as AirDrop to use. To turn them off to save power, go to their pages in Settings. Get there quickly on an iPhone with 3D Touch (6s or later) by pressing firmly on Settings' icon; this app's Quick Actions menu also links to the Battery and Mobile Data pages for monitoring usage.

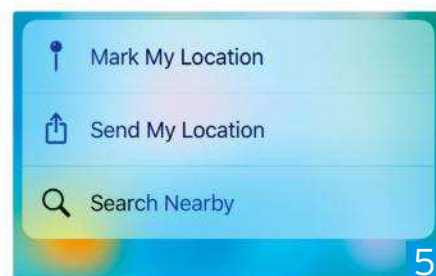


2 Mail

Mail's Quick Actions include a direct route to searching your messages - two interactions instead of three or more - and a link to whichever mailbox is listed just below All Mailboxes (see opposite).

4 App Store

Perhaps you've turned off auto app updates in Settings > iTunes & App Store to choose when they install. Save a few taps with the store's Update All shortcut.



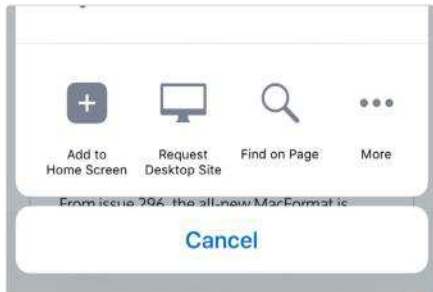
3 Safari

You can jump directly to your Reading List or Bookmarks from Safari's icon, or open a new regular or private browsing tab, which will be ready for you to type an address when the app opens.

5 Maps

From Maps' icon, you can mark your current location (handy for later finding your car), send your location to someone, or jump straight to searching what's near.

Snappy Safari techniques



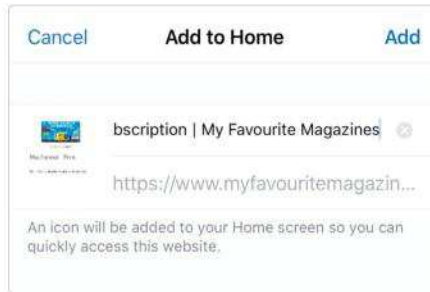
Find text on a page

You can search for a word or phrase on a web page in Safari, and there are two ways to get started: tap Find on Page in the Share sheet's bottom row, or type in the search field and then tap the last item in the suggestions, under On This Page.



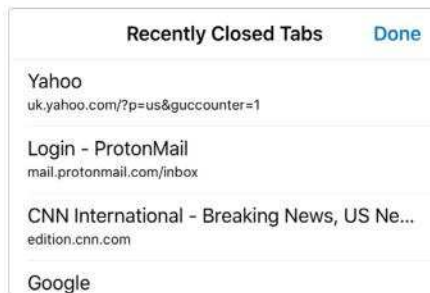
Close all tabs in an instant

It's easy to lose count of the number of tabs you have open in Safari for iOS. Fortunately, a long press of the Tabs icon (two overlapping squares) reveals a Close All Tabs option, which indicates how many are open before you close them.



Add to the Home screen

Some online utilities and services aren't available as standalone iOS apps, but you can add such web apps - or any regular web page - to the Home screen for quick access by tapping 'Add to Home Screen' in the Share sheet's bottom row.



Bring back a closed tab

If you close a tab by mistake, there's no need to go all the way into your history or re-enter the site's address. On iPhone, first tap the Tabs icon. Next, on iPhone or iPad, hold a finger on the new tab (+) icon to open a list of recently closed tabs.

Special features

Key flicks on iPad

If you're using iOS 11 on an iPad (excluding the 12.9-inch iPad Pro, unless you've set its display mode to Zoomed), make use of the Key Flicks feature of the on-screen keyboard. It lets you type symbols without switching keyboard layout: flick downwards on a key to type the second character shown on it.

Clear all notifications

On an iPhone that has 3D Touch, you can get rid of several alerts in Notification Centre in one fell swoop: rather than tapping an 'x' to the right of a heading (such as Earlier Today) to clear only that group, press firmly on it to reveal a Clear All Notifications command.

Check Pencil's battery

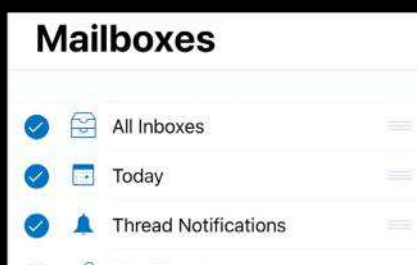
If you use an Apple Pencil, your iPad warns you when the Pencil's battery runs low - which might happen at an awkward moment. Fend off this situation: swipe right on the first Home screen, scroll all the way down and tap Edit, then add the Batteries widget.

Tap for a new note

With Pencil, you needn't open Control Centre and tap a button to create/resume a note. In Settings > Notes > Access Notes from Lock Screen, pick what happens when you tap your Pencil (handy in meetings), and how soon after Touch ID or your passcode is required, which can differ from the timer for general device security.

Small but useful tweaks

1. In Settings > General > Accessibility > Accessibility Shortcut, you can choose which of this practical set of features are listed when you triple-click the side button (the one that sleeps/wakes your device). Smart Invert Colours works as a dark mode for much of iOS; images in Mail and Safari will display as normal. If nothing else, it's worth turning on Magnifier one level up, under Vision.



2. In Mail, you can hide and rearrange items in the list of mailboxes (reached by tapping at the top left till you see something like the screen shown here). Tap Edit, then tap rows to toggle the visibility of mailboxes, and drag on the handles to the right to reorder things.



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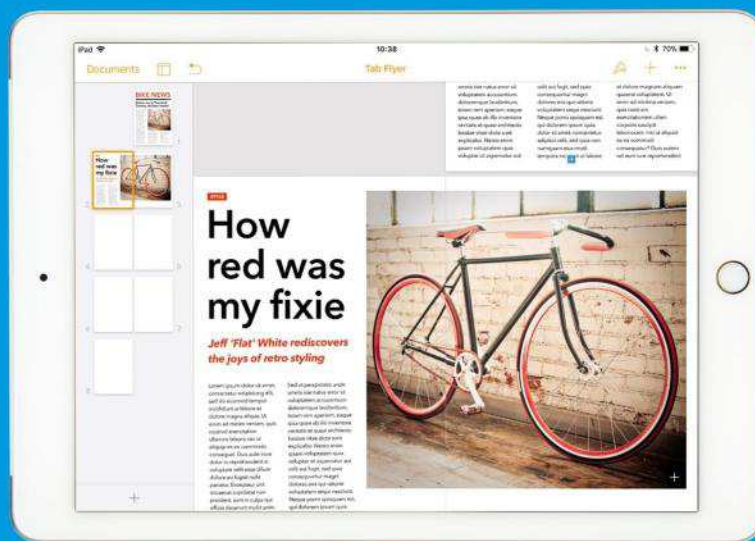
APPLE SKILLS

EDITED BY **JO MEMBERY** ›



NEW IDEAS

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



GET MORE FROM PAGES **p50**

› 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*.

› **⌃** 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

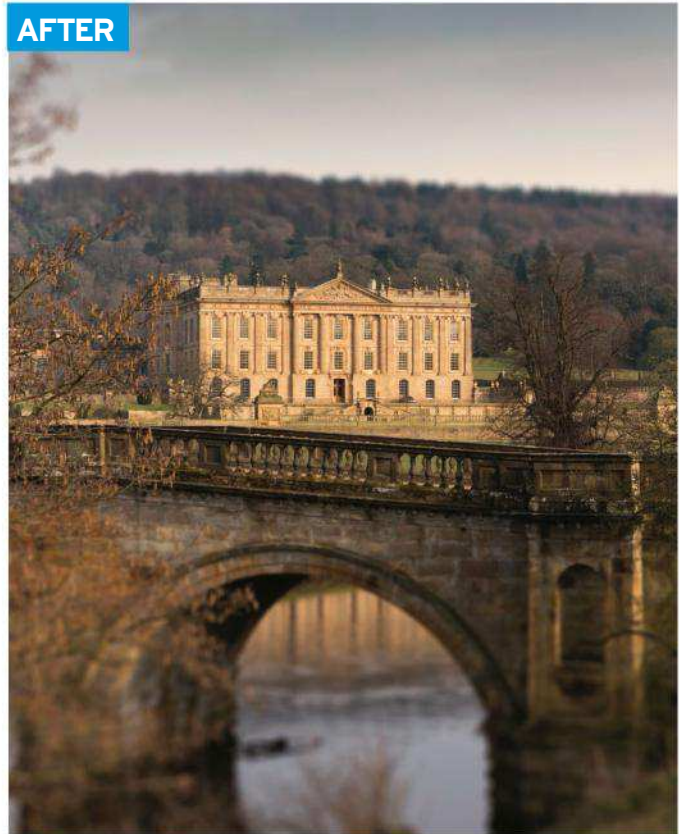
insertion point. Press **⌘+⇧+⌫** to delete to the right.

› **⇧+⌘** 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.

BEFORE



AFTER



Creative image adjustments

Expand the toolset in Photos by adding extensions from Affinity Photo

IT WILL TAKE

>10 minutes

YOU WILL LEARN

>How to add extensions to Photos, then reduce haze and make buildings look like miniature toys

YOU'LL NEED

>Photos,
Affinity Photo

Affinity Photo adds a range of extra editing tools to Photos



Apple's Photos app is designed to help you import, organise, fix and share your shots. As a result, it's an effective 'one-stop

shop'. However, while Photos enables you to fix common problems with colour, composition and exposure, it lacks some of the more sophisticated tools found in other apps.

Powerful and versatile, Affinity Photo enables you to perform a wider range of edits than you can with Photos' built-in tools. For a one-off purchase (£48.99), Affinity Photo provides many of the functions of Photoshop without an ongoing subscription fee.

As well as running as a standalone app, Affinity Photo adds a range of extra editing tools to Photos. So, you can enjoy using more powerful tools from the comfort and familiarity of Photos' workspace.

Explore extensions

In our walkthrough, we'll show you how to import Affinity Photo's extensions into Photos

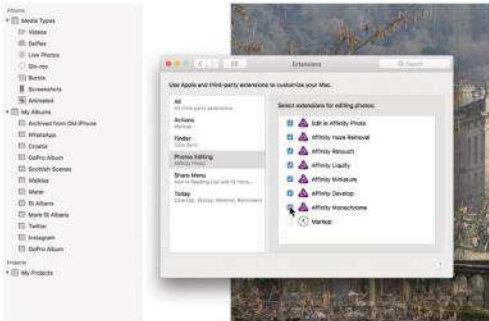
and then produce a creative and distinctive looking image. Our scenic example photo suffers from cold, drab colours. The tones in the distant trees are washed out due to atmospheric haze.

We'll demonstrate how to use Affinity Photo's extensions to selectively adjust the contrast of the trees to reveal more colour and detail, and tease out the scene's 'golden hour' colours for a more attractive look. We'll also increase the midtone contrast to reveal more delicate texture in the brickwork and create a picture with more punch.

After enhancing the shot's colour and tones, we'll show you how to use Affinity Photo's creative Miniature extension to selectively blur parts of the image and mimic the effect of a tilt-shift lens. This selective blurring creates the narrow depth of field you see when viewing a photograph of models or toys, which helps make full-size subjects look like miniatures.

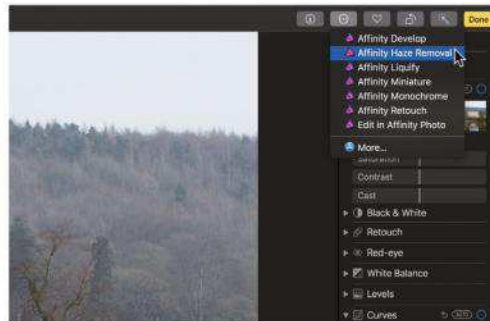
George Cairns

HOW TO Enhance an image >



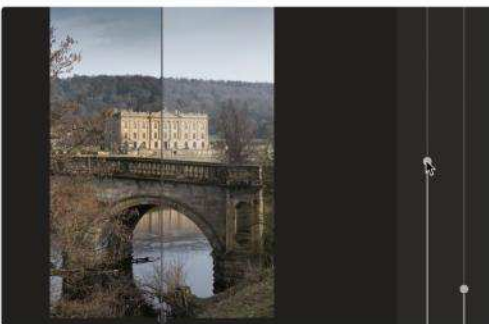
1 Add extensions

After installing Affinity Photo, choose System Preferences. Click on the Extensions icon and select Photos Editing on the left. Fill the checkboxes next to the various Affinity Photo extensions to activate them.



2 Access an extension

In the Photos app, double-click on an image's thumbnail, then click Edit at the top right. Click the Extensions icon and choose Affinity Haze Removal. This will open the photo in the Affinity Haze Removal workspace.



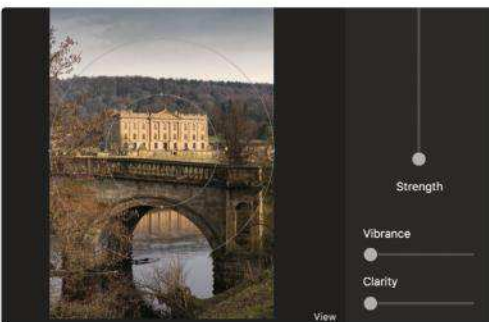
3 Remove background haze

The tool's Distance slider enables you to target and tweak the contrast of distant hazy midtones without adjusting foreground contrast. The Strength slider enables you to fine-tune this. When done, click Save Changes.



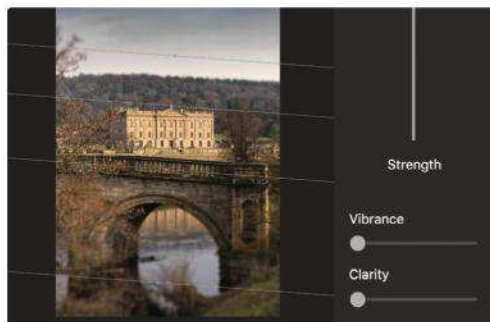
4 Enhance colour

Click on the Extensions button and choose Affinity Develop. Drag Vibrance right to selectively boost weaker colours. Increase Saturation too. Drag Temperature right to warm up the colours for a 'golden hour' look.



5 Boost clarity

To make delicate details stand out, drag the Clarity slider right to increase midtone contrast. Click Save Changes. Click the Extensions icon and choose Affinity Miniature. By default, the Elliptical blur tools are visible.



6 Tilt-shift effect

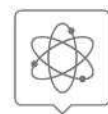
Click on the Tilt button. Drag the Strength slider right to add blur to the top and bottom of the frame. Drag the blue control handles to create a narrower band of focus. Click Save Changes when you're happy with the look.



Jargon buster

> Golden hour

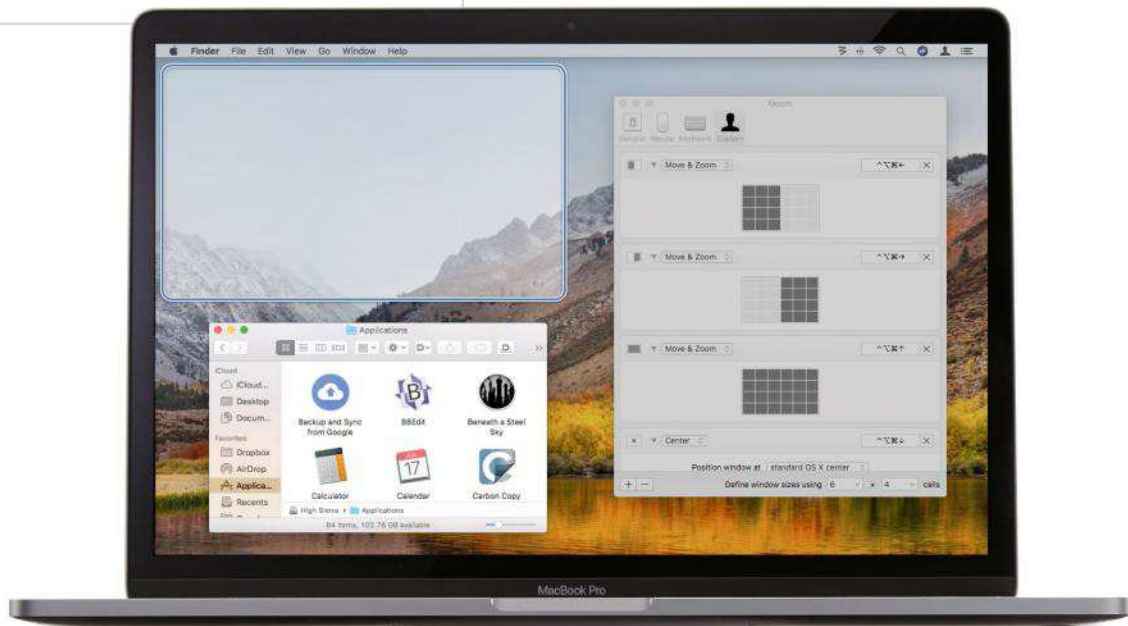
As the evening sun drops towards the horizon, it bathes the subject with light that has a warmer colour temperature than average daylight.



Genius tip!

> The Affinity Miniature extension's Elliptical tool enables you to add a romantic blurred vignette around the edge of the frame.





Manage your Mac's windows

Get full control over your workspace with personalised shortcuts in Moom

IT WILL TAKE

▶ 30 minutes

YOU WILL LEARN

▶ How to use Moom to organise windows

YOU'LL NEED

▶ OS X 10.7 or later, Moom



These days, macOS lets you view apps full screen or in Split View, like on an iPad. However, chances are you still often use traditional windows, and end up with all sorts of apps and documents spread across your screen. Moom is designed to bring order to that special kind of Mac chaos.

A window manager is not a unique concept on the Mac, but Moom goes further than its contemporaries, providing an unparalleled level of customisation and control. You can

move windows by dragging them to screen edges, draw out the area you want a window to fill, or use predefined or user-defined keyboard shortcuts to trigger actions.

Moom is available from manytricks.com. The demo works for 100 uses, after which it costs £9.99. When you first open the app, its preferences window will open. In the General tab, you can set Moom to run as a regular app (in the Dock), a faceless app (open it to access prefs), or as a menu bar icon. We recommend the last of those. **Craig Grannell**

HOW TO Manage windows with Moom ▶



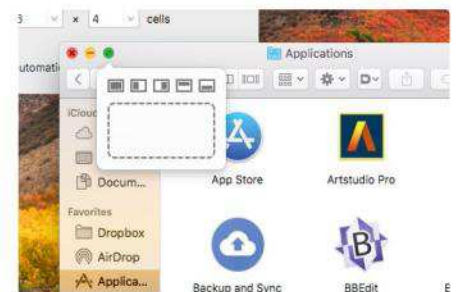
1 Drag to snap

In Moom's Mouse preferences, click Snap to Edge and Corners and ensure the checkbox is filled. Drag a Finder window, say, to a screen edge or corner and it'll be resized to that half/quarter screen. Drag it away and it reverts.



2 Configure zoom

Click Zoom Button Controls in the Mouse preferences tab. Ensure 'Pop up controls' is ticked. Turn on the full-screen grid and decide how many divisions you'd like the screen broken up into horizontally and vertically.



3 Use the Zoom button

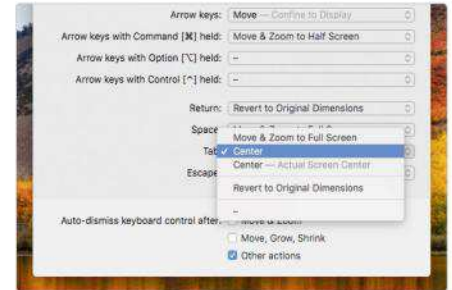
Place the pointer over a window's green (Zoom) button and use the icons to snap the window to depicted screen areas. Alternatively, click in the dotted area, then click and drag across your desktop to set the window's new position.

CONTINUED... Manage windows with Moom >**4** Keyboard trigger

In Moom's Keyboard preferences, click inside the Trigger field and press a memorable key combination that doesn't clash with others on your system. **⌘ + F6** may be a good option. Add more modifier keys to your combo if necessary.

**5** Move a window

Open a Finder window and test your shortcut. When Moom's logo appears on the screen, use the arrow keys to move your window around within the confines of your display. Use **⌘** and arrow keys to snap the window like in step 1.

**6** Keyboard settings

Back in Moom's Keyboard preferences, examine the other menus and options on offer. You can use shortcuts to quickly centre a window, maximise its dimensions on the screen, or revert to its original dimensions.

**7** Use custom controls

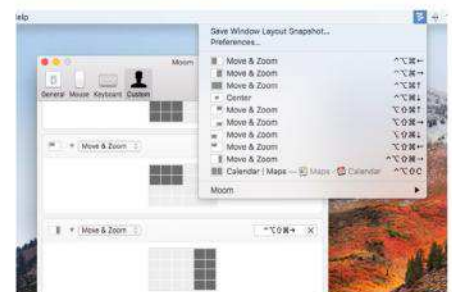
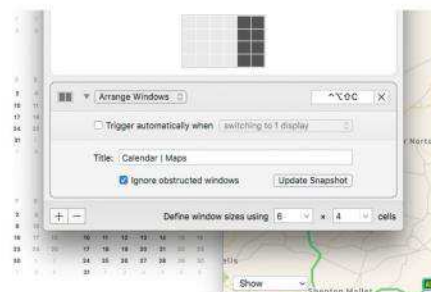
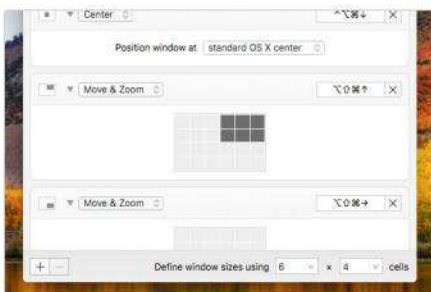
You can speed up keyboard-based window management even more by assigning window actions to key combos of your choosing. Start doing this in the Custom tab. Select and delete the demo actions, and click + to make a new one.

8 Set up an action

The boxes at the bottom right determine the size of the grid you'll be working with. Adjust that if you like, but 6x4 is a decent starting point. Drag a rectangle to colour in the left-hand side of the grid.

9 Define a shortcut

Click inside the shortcut field (which defaults to None) and press **⌘ + ⌥ + ⌘ + ←** arrow. Now open a Finder window and try out your shortcut. The window should instantly snap to the left-hand side of the screen.

**10** Build a system

Add more actions, and design a logical shortcut system for snapping windows to various areas. In further actions, explore other menu options, for example to centre or revert a window using a keyboard shortcut.

11 Save snapshots

If you often use two apps side-by-side, set their windows so they fill halves of the screen. Then create an Arrange Windows action in Moom. When its shortcut is triggered, the apps (if open) will be positioned as per the snapshot.

12 Use the menu bar

In Moom's General preferences, set the app to run as a menu bar icon. You can then access all your custom setups from the menu bar - or just get a handy reminder regarding your defined keyboard shortcuts.



Organise files automatically

Use Hazel to automate managing and filing your documents

IT WILL TAKE

> 30 minutes

YOU WILL LEARN

> How to use time-saving workflows

YOU'LL NEED

> OS X 10.10 or later, Hazel 4.2 or later, some folders and files



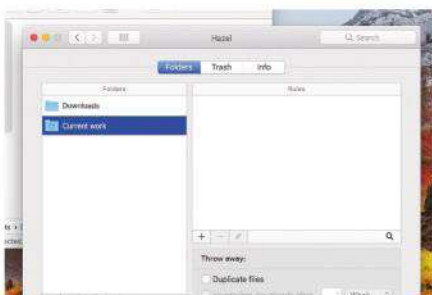
Hazel (\$32, about £24 noodlesoft.com) monitors folders and performs actions on their contents, based on user-defined rules.

The app can be a major timesaver. For example, have it watch your Desktop folder, and move anything older than a week to Downloads. Then have it monitor Downloads, with rules that send music and photos to iTunes and Photos, respectively, before deleting the originals, and others that sort everything else into folders by type (using

'Sort into subfolder with pattern kind'). Once your rules are running, this is all automated.

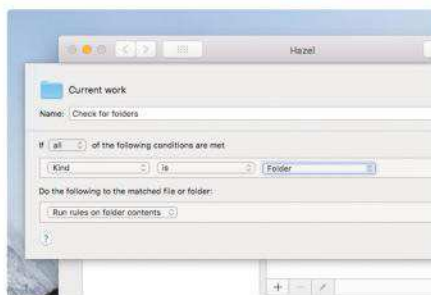
Our walkthrough explores two advanced rules. One finds text files in a folder and copies them to an archive. The other searches PDFs and renames them based on their contents. Use these as the basis for your own workflows. Think modularly, figure out what you want to achieve, then build your rules - and test on duplicate folders for safety! Note: **⌘**-click a folder in Hazel's list to pause that item's rules - ideal when editing. **Craig Grannell**

HOW TO Make Hazel work for you >



1 Make a folder

Create a destination folder called Archive in your Documents folder. Go to Hazel. Under Folders, click +. Select the target folder you wish to pull content from. If you use subfolders, you also need a rule so Hazel won't ignore them.



2 Check for folders

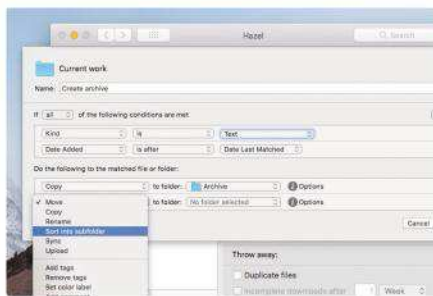
Click + under Rules, and call the new rule 'Check for folders'. Set the condition to 'Kind is Folder', and the action to 'Run rules on folder contents'. Subsequent rules will run on folders inside the one you've chosen.



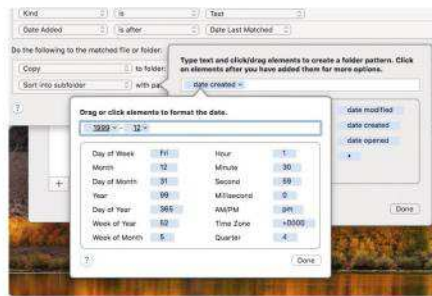
3 Add a second rule

Add a rule: Create archive. Add the condition 'Kind is Text', to match text documents; add a second, 'Date Added is after Date Last Matched'. This stops Hazel manipulating unchanged documents it has already filed.

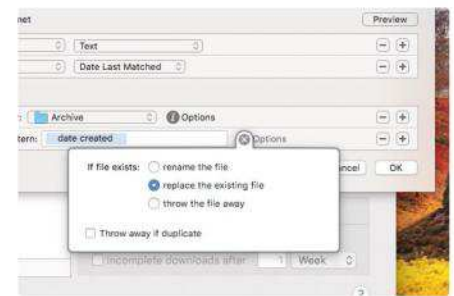
CONTINUED... Make Hazel work for you >



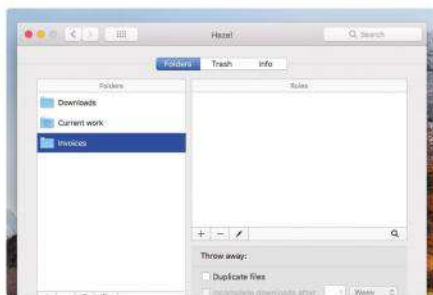
4 Define actions
Set the first action to 'Copy to folder Archive'. This will send matching items to the folder created in step 1. Now to sort them into date-based subfolders. Add a second action, starting with 'Sort into subfolder'.



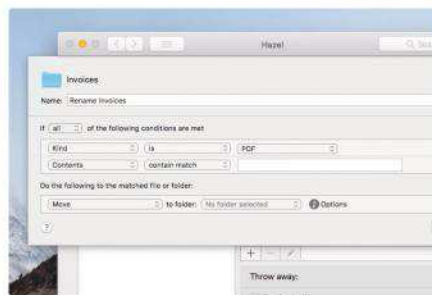
5 Choose a pattern
Click inside the 'with pattern' field. Click the 'date created' token to add it to the pattern. Click the token's downwards-facing arrow and select Edit Date Pattern. Remove -31 (so folders will use YYYY-MM). Click Done.



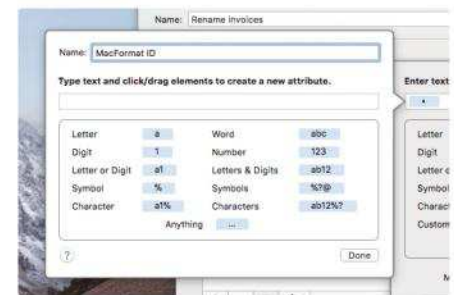
6 Set options
Click Options and use the 'Replace' option if you want updated files to replace those in the archive. 'Rename' creates many copies of files that you actively work on - counteract this with a condition to ignore today's files.



7 Set a new folder target
We'll now move to our second folder - one full of PDF invoices with identifying numbers comprising a word followed by a four-digit numerical code, such as macformat0001. (Adapt what follows to suit your own documents.)



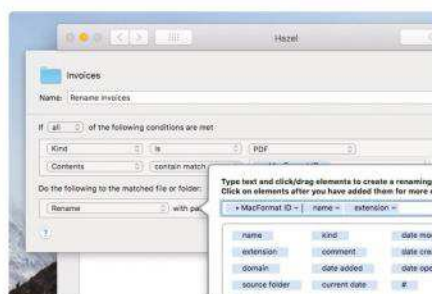
8 Target documents
Add the condition 'Extension is pdf' to target PDFs. We now need to create a token to find documents that contain the code mentioned in the previous step. To start, create a second condition: 'Contents contain match'.



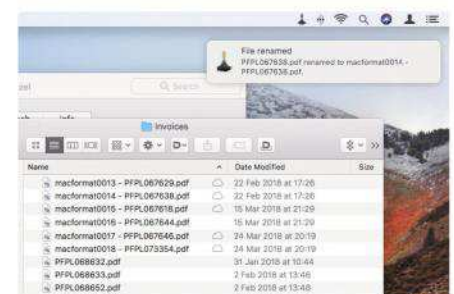
9 Use a token
Click inside the match field and, in the pop-up, click the Custom Text token to add it. Give it a memorable name (we're using MacFormat ID). We now need to define the attribute that Hazel will search for in the PDFs.



10 Define the attribute
For this example, we said we would search for the word 'macformat' followed by some numbers (which could be anything). In Hazel, this is achieved by typing 'macformat' into the attribute field and clicking the Number token.



11 Add a renaming action
Now create an action, 'Rename with pattern', to prefix the existing filenames with the token's value. The pattern will default to a hyphen followed by a name and an extension. Click just before the hyphen, then click your token to insert it.



12 Adjust and test
Adjust the pattern to suit, with spaces and other elements. Click Done and OK, then test your rule. Matching PDFs will be renamed using your pattern. Now expand these concepts to other items you usually have to file by hand!



Improve your online privacy

How to maximise the Vivaldi web browser's security features

IT WILL TAKE

15 minutes

YOU WILL LEARN

How to protect your personal data, search without being spied on, and add extensions

YOU'LL NEED

Vivaldi



Vivaldi is a new web browser from Jon von Tetzchner, one of the co-founders of Opera.

It offers extensive customisation, and access to Chrome plugins. But something very relevant to recent privacy concerns is Vivaldi's approach to protecting personal data.

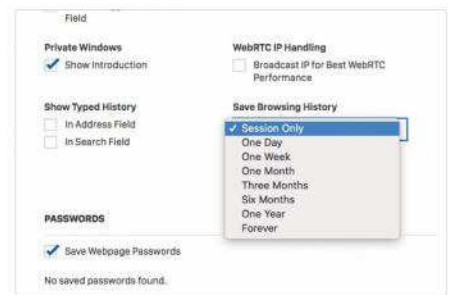
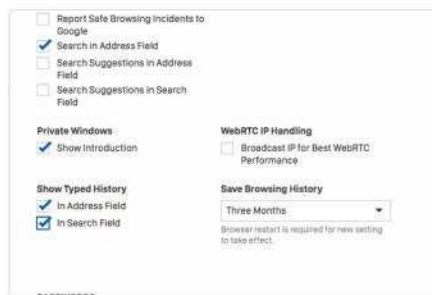
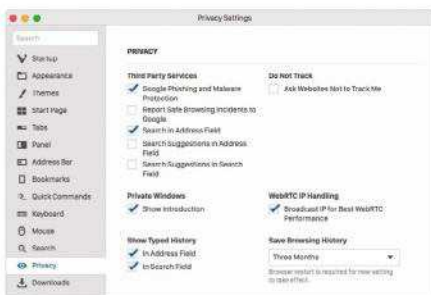
If you use a mainstream browser, you might want to consider switching to Vivaldi to gain control over how some websites access and potentially exploit your personal data. There are also some excellent interface

features, including a helpful note-taking ability.

Safari users may also consider switching to Vivaldi to access extensions not available for Apple's browser. But keep in mind the possibility that extensions may access personal data independently of the browser.

One drawback of Vivaldi is the lack of bookmark synchronisation. It is possible to import bookmarks from other browsers. But, for the moment, there is no way to sync bookmarks across different devices. Now, get the browser from vivaldi.com. **David Fanning**

HOW TO Set up Vivaldi to protect your data >



1 Adjusting settings

Open Vivaldi's preferences and click Privacy in the sidebar on the left. This will show you the default privacy settings, which you can adjust depending on your needs. We will be adjusting the settings with two goals in mind.

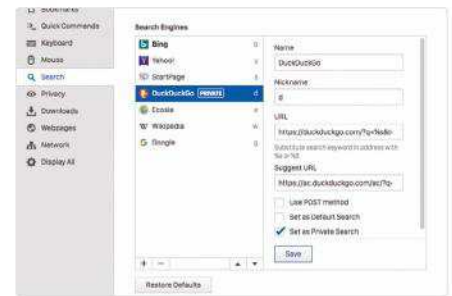
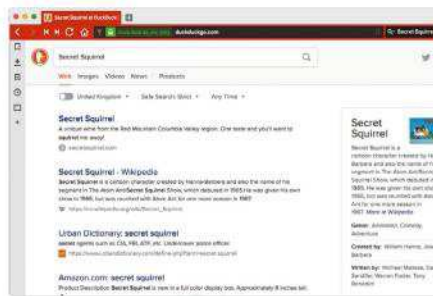
2 Disable tracking

To disable tracking, check Do Not Track and Block Third-Party Cookies. This means advertisers can't monitor your history. Disabling Broadcast IP will withhold your IP address from WebRTC video conferencing sites.

3 This session only

If you share your computer/user account, you might want to hide your search history from other users. For max security, uncheck the items under Show Typed History and change Save Browser History to Session Only.

HOW TO Search without being snooped on >

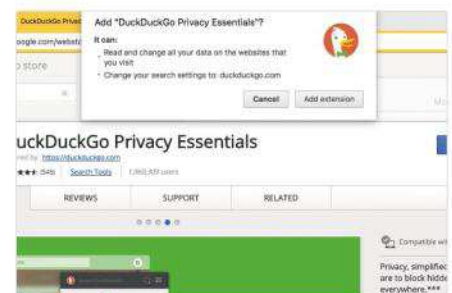
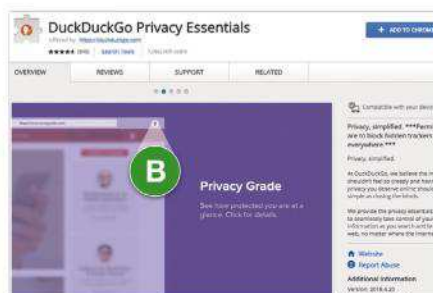
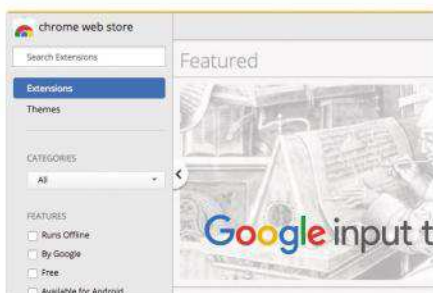


1 Private browsing
Choose File > New Private Window to browse without recording pages you visit. Many browsers include this, but may still send info to search engines. Private windows default to DuckDuckGo, which won't collect or share personal info.

2 Choose search engines
You can use DuckDuckGo for all searches, or set an alternative engine for regular windows and use DuckDuckGo only for private ones. Choose in Vivaldi > Prefs > Search by selecting an engine and setting the Default/Private Search items.

3 Stop searches
When using DuckDuckGo, searches are not recorded or shared by the engine. Using a private window means other users of your computer won't get search suggestions or autofilled data based on things you were looking for.

HOW TO Add a Chrome extension >



1 Chrome extensions
The ability to use Chrome extensions gives Vivaldi a variety of customisation options. But do choose carefully here, as extensions can also affect your privacy in a negative way. In this example, we're installing DuckDuckGo Privacy Essentials.

2 Search and select
Go to chrome.google.com/webstore/category/extensions. On the left, you can browse by category, score and other attributes. We know what we want: in the 'Search the Store box' type "DuckDuckGo Privacy Essentials" and press ↵.

3 Add to Chrome
To install the extension, click 'Add to Chrome', then 'Add extensions'. As far as Google can see, you're using Chrome rather than Vivaldi, as it uses the same Chromium engine, which makes most Chrome extensions compatible.



Web multitasking like a pro Display multiple websites in one browser >

Easy access to security options is a welcome feature, but Vivaldi also includes tremendous customisation and interface options. One great feature is the ability to have a window that displays multiple websites in the same panel.

Vivaldi does this by using Tab Tiling. To start, open two or more tabs by using **⌘+T**. Next, drag one of the tabs over the other until the latter one dims, then let go. Repeat with other tabs. Once all the tabs are contained in one Tab Stack, **⌘-click** it and choose Tile Tab Stack to see the websites side by side.

8 email timesavers

Use the Mail app's convenience features to keep things organised

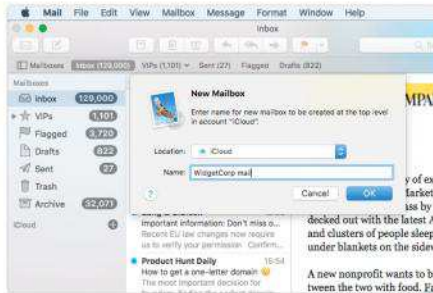


The Mail app handles emails from all your accounts in one place.

You can set up mailboxes, like folders, within each online account, or offline by hovering over On My Mac and clicking the +. Organise messages in these by dragging them manually, or automatically by using Mail Rules.

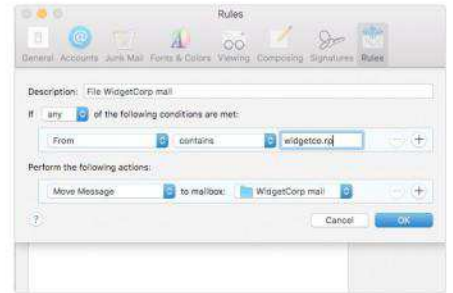
Using Mailbox > New Smart Mailbox, you can collate messages based on your criteria (without moving the originals). Mail Drop enables you to send large attachments that most mail servers will reject. Here's how to use these features.

Adam Banks



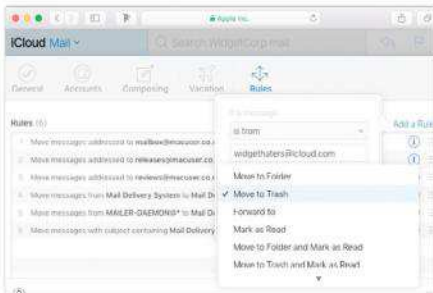
1 Make mailboxes

Hover over an account name and click the +, or **ctrl**-click its Inbox and pick New Mailbox, to add a mailbox. Click a mailbox to see its contents. From your Inbox, drag messages to mailboxes to file them.



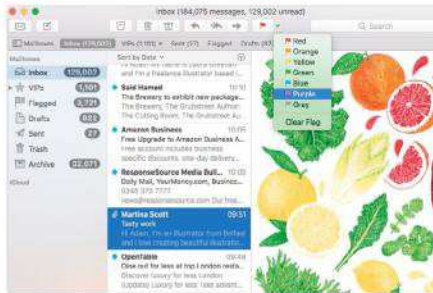
2 Set up Mail Rules

To file emails automatically, go to Mail > Preferences > Rules and click Add Rule. Set it to match a sender or subject you receive regularly, pick Move Message as the action, and choose a mailbox.



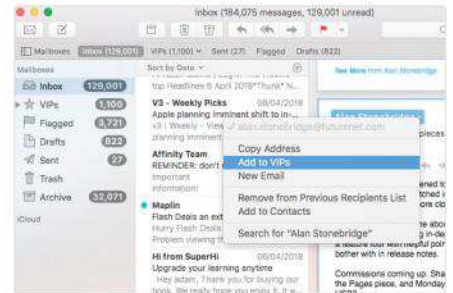
3 Set iCloud rules

Mail Rules are only applied when Mail is open. With iCloud, you can also filter messages at source. Sign in at iCloud.com, go to Mail, click the cogwheel and pick Rules to set up rules on the server.



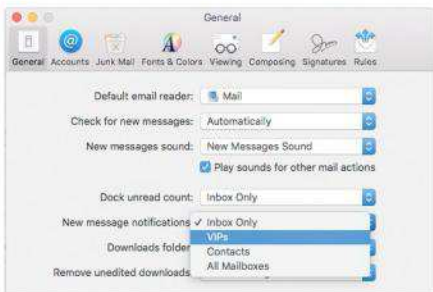
4 Apply flags

Another way to organise messages is to flag them. On the Mac, you can use multiple colours when you **ctrl**-click on a message in the list, but note that on iOS all flags just appear as an orange dot.



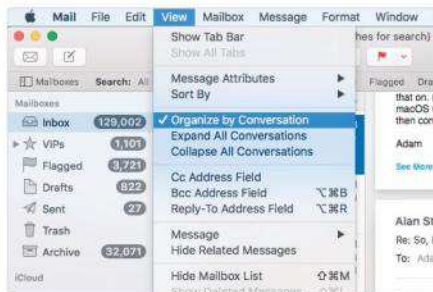
5 Add VIPs

ctrl-click a sender's name in any open message and pick Add to VIPs, or click the star left of a person's name when you hover over it. Messages from them are then included in the VIPs mailbox.



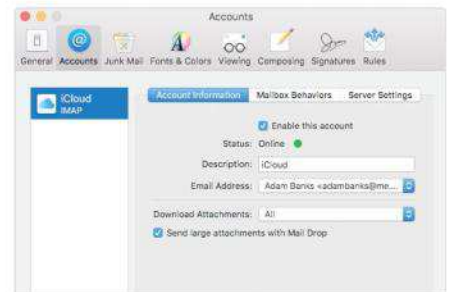
6 Notify for VIPs only

Now you have the important people and organisations in your life set up as VIPs, you can go to Mail > Prefs > General and set new message notifications to appear only for those people.



7 Format conversations

Mail clumps messages that it thinks form a thread; select the latest one in your Inbox and scroll through the others on the right. To list all messages singly, untick View > Organize by Conversation.



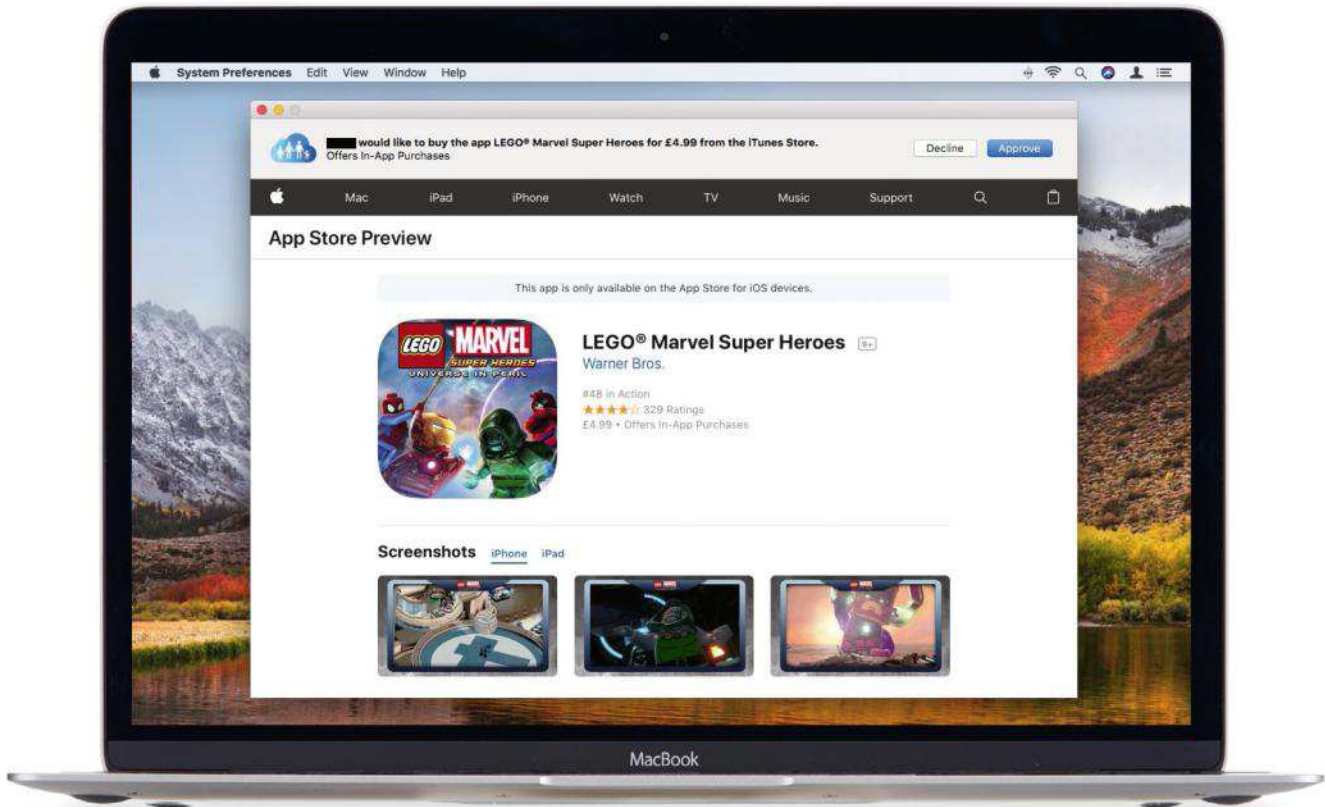
8 Use Mail Drop

In Mail > Prefs > Accounts, turn on Mail Drop for your iCloud and other IMAP accounts. When you attach large files, they're sent to iCloud; a link is included for non-Apple devices to download them.



The source for tech buying advice

[techradar.com](https://www.techradar.com)



Manage family purchases

Use Ask to Buy to ensure your kids don't spend your money on virtual bling

IT WILL TAKE

15 minutes

YOU WILL LEARN

How to set up Ask to Buy and manage your family's purchases

YOU'LL NEED

Apple IDs that are set up for Family Sharing

Ask to Buy ensures kids request permission to make a purchase



For parents who grew up in a simpler time, the prospect of kids armed with iOS devices and Macs is a little terrifying. These

items are typically always online, and the App Store is just a click or tap away - which means in-app purchases often aren't far behind.

For young kids, you'll want to fully manage their devices, installing apps and games yourself. But when children get older, there'll



You see this sort of thing in a lot of mobile games, so you must be vigilant about children and in-app purchases.

be a time when they want a little bit of extra independence - downloading things they themselves like the look of.

Permission before payment

Unless you hate money (or have an awful lot of it), you still don't want this to be a free-for-all. Ask to Buy provides a middle ground. A part of Family Sharing (bit.ly/fmshtr), it enables a child to ask permission when they want to download/buy a new app or in-app purchase.

The process for managing and using Ask to Buy is outlined in the walkthrough, and assumes you've already set up Family Sharing. If you haven't, you can do so in Settings (iOS) or System Preferences (macOS). One person must act as the organiser, managing the family and providing a payment card. That person can then invite family members (and create new Apple IDs for children). Note that children remain with the family account until aged 13, and cannot be deleted earlier without assistance from Apple Support.

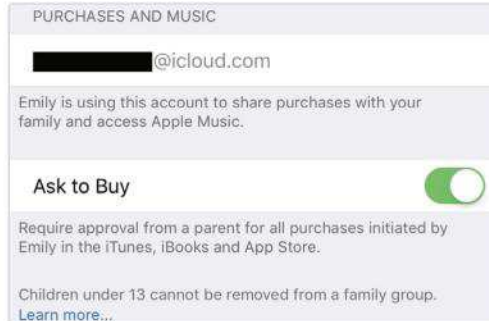
Craig Grannell

HOW TO Set up and use Ask to Buy >



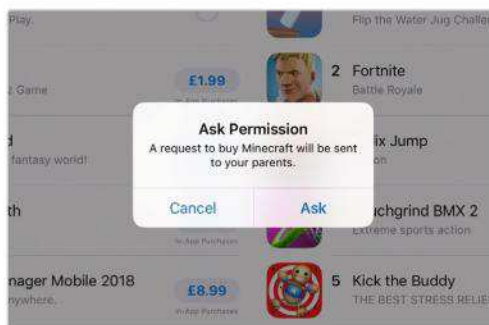
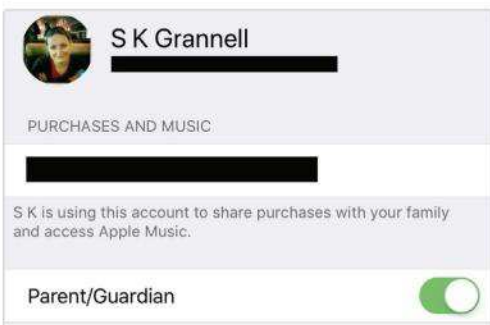
1 Get things started

On your Mac, open System Preferences, click iCloud and then Manage Family. In the sheet, select a family member and then click Ask to Buy. This option only exists for children, and is on by default for under-13s.



2 Use an iOS device

If you're on an iOS device, you activate Ask to Buy in the Settings app. Tap your name to access the settings for your Apple ID, and then tap Family Sharing. Select the family member in question, and tap Ask to Buy.



3 Add more adults

If your family has more than one adult, the organiser alone doesn't have to approve requests. Select another adult (on Mac or iOS) and click/tap (as appropriate) Parent/Guardian. They now have the power to approve.

4 Make a request

To make a request, a child goes through the usual purchase process. However, prior to installing/payment, an Ask Permission dialog appears. They must tap Ask to send an adult an approval request (and only once).



5 Approve on a Mac...

If you're on a Mac when the request arrives, it'll appear as a notification (top right). Click Details and an App Store preview page appears, so you can check out what's being requested. Approve or decline accordingly.

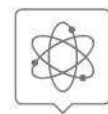
6 ...or approve on iOS

On iOS, tap the notification to open the App Store, and choose to Decline or Get/Buy. With the latter option, you must sign in/use Touch ID to approve, whereupon the item will then appear on the child's device.



Jargon buster

> **Family Sharing** is Apple's system that enables families to share apps, media and iCloud storage, and to geolocate each other (and their devices).



Genius tip!

> Consider enabling Touch ID/Face ID for Family Sharing when prompted, and also for a child's device, so there's no need to sign in and remember a password.



1

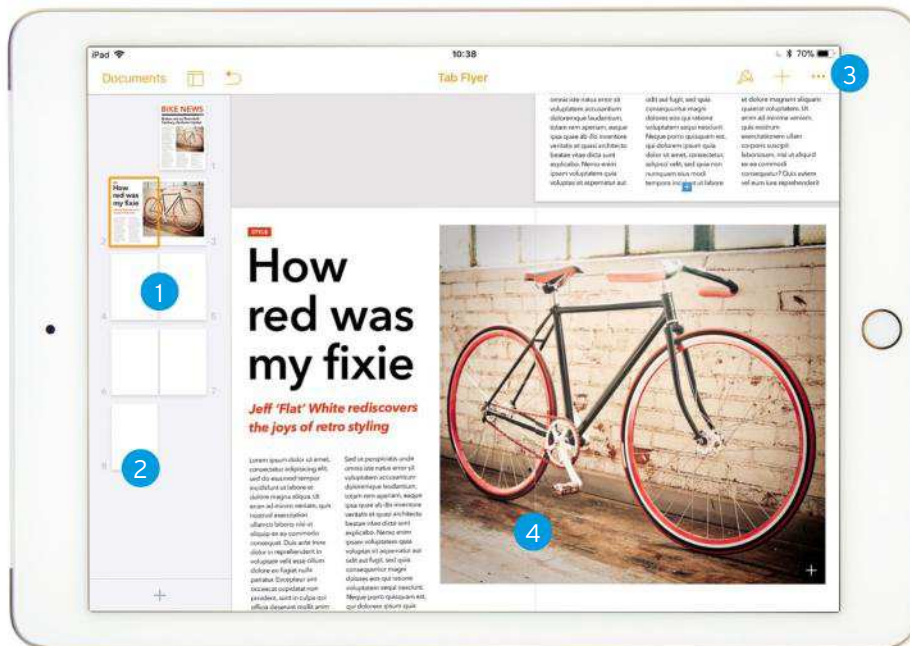
Double-page spreads

➤ In this format, pages are shown opposite each other, as they'd appear in a publication.

2

Four is a magic number

➤ If you're thinking of printing a booklet, you need multiples of four pages.



3

Get set up

➤ The facing pages magic happens in Document Setup, accessed from the More menu.

4

In the middle

➤ Now you can design spreads with elements crossing the spine! Well, with some jiggling.

Make Pages docs like a pro

How to create a document that takes facing pages into consideration

IT WILL TAKE

➤ 30 minutes

YOU WILL LEARN

➤ How to create a document with facing pages

YOU'LL NEED

➤ iOS 11 or later, Pages



At the recent launch of the sixth-generation iPad, Apple also unveiled new iOS versions of the iWork apps: Pages,

Keynote and Numbers. And Pages 4.0 now lets you create and edit documents more flexibly than ever.

Among the additions are Pencil annotation, leveraging the entry-level iPad's support for Apple's pressure-sensitive stylus; ePub templates for more ambitious book designs with fixed or reflowing layouts, inspired by iBooks Author; editable shapes to add quick graphics; and paragraph and character styles, which previously could only be set up in the Mac version.

Tablet publishing

First, though, let's look at the return of facing pages, lamented since Pages '09. Pages documents come in two flavours: word processing and page layout. Facing pages can be used with both kinds - in word processing documents for text-based printed books, where the text flows through the pages from beginning to end, and in page layout documents for printed magazines,

and other multi-page bound or folded publications that have fixed page layouts combining text and pictures.

Facing Pages doesn't quite work as we'd like yet, and Pages isn't ready to print them successfully. Its absence of pre-press features like bleed and CMYK makes it impractical to prepare documents for commercial printing. To print them out yourself, on the other hand, you'd need a feature known as imposition, or booklet printing. Fortunately, it's available in the free Adobe Reader app on the Mac or Vogelbusch's Create Booklet (£4.99) on iOS.

You'll need to export your Pages document to PDF, import it into one of these, output as a booklet on A3 paper or scaled down to turn your A4 layouts into an A5 book, then fold and staple. We've glossed over the part where the backs may print upside-down, which requires some experimentation to fix.

In the iOS version of Pages, the only way to create a page layout document is to use an existing template, and the Newsletter templates are all in word processing mode, so you'll need to... well, let us explain step by step. It's a bit of a faff, but doable once you know how. **Adam Banks**

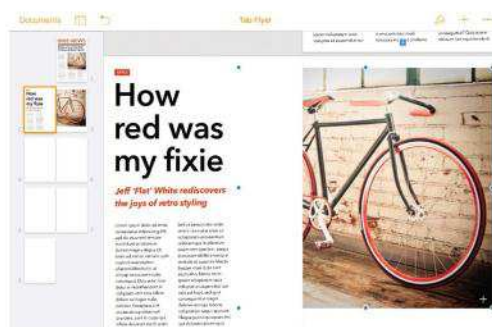
It doesn't quite work as we'd like yet, but double-page layouts are now doable

HOW TO Work with facing pages >



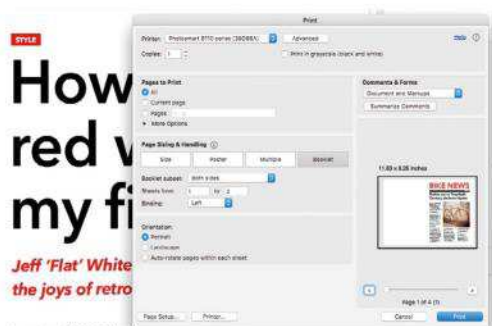
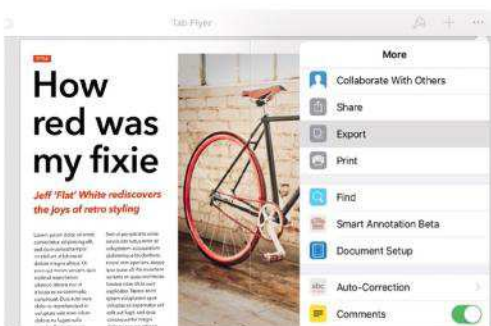
1 Make a layout document
 Open Pages and tap Create Document. Only a few templates are in page layout mode, mostly flyers. We used Tab Flyer. From More (the three-dot icon, top right), pick Document Setup. Under Document, turn on Facing Pages.

2 Add some pages
 Swipe inwards from the left to see page thumbnails, and tap the + sign at the bottom until you have eight pages. The first and last pages appear alone - these will be your front and back covers - and the rest as 'spreads'.



3 Create your layouts
 Double-tap placeholder text (it highlights pink), then type your own. Use the Style menu (the brush icon) to change font and size. Drag items to move them, or their handles to resize. To move several, hold one and tap another.

4 The facing pages problem
 Copy and paste items or add more to complete your layouts. On a spread, you may want a big picture or graphic crossing the spine (where the book is bound). But if you try it, only the part on one page shows up.



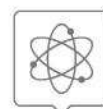
5 ...and the solution
 Position the item, copy and paste it, and line it up on the opposite page. If it jumps across, undo, grab it further from the spine and retry. Now let's pretend we've finished. From More, go to Export > PDF > Save to Files.

6 Printing via Adobe Reader
 On your Mac, open the PDF in Adobe Acrobat Reader DC. Go to File > Print and click Booklet. If your printer does duplex, set Booklet subset to Both; if not, set Front, print, feed the pages back in, then print the backs.



Jargon buster

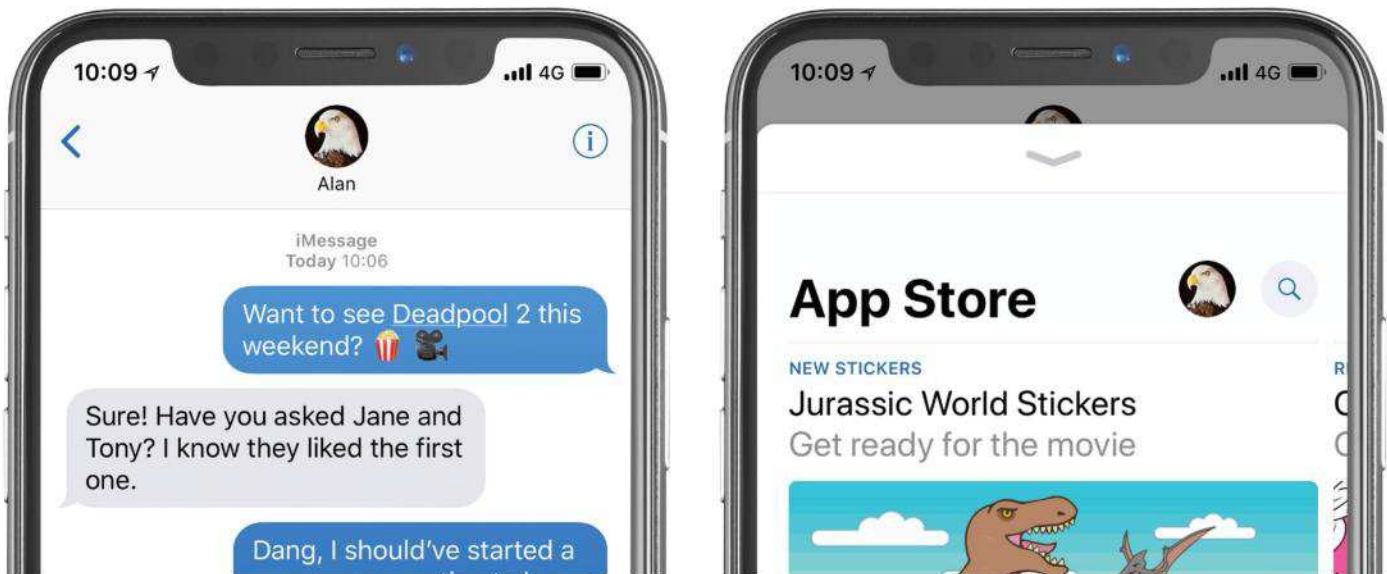
> A left and a right page joined at the spine is a **double-page spread**. Printing both pages of an A4 DPS at full size needs paper twice the width (A3). Pages for iOS can only create A4 documents, so use an A3 printer or scale down to A5 on final output.



Genius tip!

> In View Options (the icon to the right of Documents), you can turn off Two Pages to show one page at a time even when working with a facing pages layout.





Stay in touch with Messages

Learn how to communicate and meet up more easily

IT WILL TAKE

> 30 minutes

YOU WILL LEARN

> How to use Messages

YOU'LL NEED

> Messages for iOS or macOS



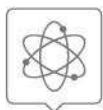
Messages is one of the most widely used apps in iOS, thanks to its ability to send SMS and MMS messages, as well as those that use Apple's iMessage protocol.

By default, the app always tries to send using iMessage – for which the recipient needs to have a valid Apple ID and be connected to the internet. If that's not possible, it will send messages using SMS (or MMS if it's an image or video and the sender and recipient's network providers allow it).

We've covered several less well used features of Messages here, including group conversations. Like regular messages, group conversations can be iMessage, if all the recipients meet the criteria, SMS or MMS.

We've focused on iOS, but most of the features are available on macOS. Where we refer to 'i', the Mac equivalent is 'Details'. And in step 8, on a Mac, swipe right (not left) to hide alerts for a conversation. You can turn off notifications for unknown senders in Messages > Prefs, but there's no filter. **Kenny Hemphill**

HOW TO Make more of Messages >



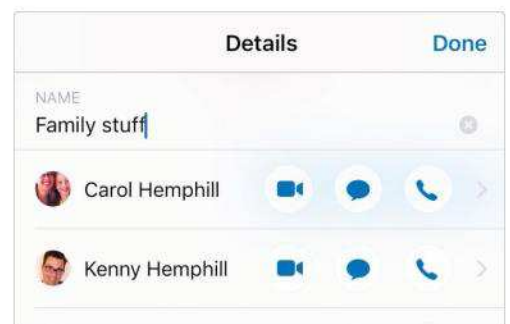
Genius tip!

> Messages allows you to send money to friends using Apple Pay, though it's not available in the UK yet. When it is, open Messages' app drawer and tap its icon.



1 Send a group message

In Messages, tap the Compose icon to start a new message. Tap the + in the To: field and add a recipient. Start typing and choose their name when it appears. Repeat to add another recipient. Type your message and press Send.



2 Name a group message

You can only name iMessage group conversations. In the list of messages, tap the conversation. Tap 'i' then 'Enter a Group Name'. Type in the name and tap Done. You should see the group name in the list.

CONTINUED... Make more of Messages >

3 Start audio or video call
With a conversation open, tap 'i'. If audio or video calls are available, you'll see a camera and/or phone button. Press the camera to start a FaceTime video call or the phone to make an audio call.



5 Filter messages
To filter messages from people not in your Contacts list, go to Settings > Messages and turn on Filter Unknown Senders. Messages will create a separate list for these messages and you won't get notifications for them.



7 Audio messages
In a conversation, tap and hold the Mic icon. Record your message. Let go, then tap play to listen back, 'X' to cancel, or Send. Audio messages are deleted after two minutes (this can be changed in Settings > Messages).



4 Images and attachments
Tap on the conversation whose images and attachments you want to review. Tap 'i'. Scroll down, tap Images or Attachments, then tap an item to view it and swipe left or right to see others. You can share the item from here.



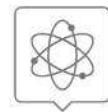
6 Report spam messages
When you get an iMessage from a sender who's not in your contacts list, Messages puts a note under it to tell you. Tap Report Junk to forward the sender's details to Apple and delete the message from your iPhone.



8 Hide alerts
In the Messages list, swipe left on the conversation you want to hide alerts for. Tap Hide Alerts to switch off alerts and banners for the conversation. If you have app badge notifications turned on, they'll still be updated.

Jargon buster

> **Send My Current Location**
Location allows you to share where you are right now. The recipient doesn't receive updates when you move. **Share My Location** allows others to track your ongoing movements. It can be limited to one hour or the day's end, or allowed indefinitely.

**Genius tip!**

> There are a host of other apps that work with Messages, including Evernote and Dropbox, which allow you to share notes or files within conversations.



How it works: USB

One simple socket that's evolved throughout the years

YOU WILL LEARN

► Why we have so many USB plugs and standards, and what each of them means in practice

USB class-compliant products can work immediately, without drivers

Key fact

► A USB device can draw one unit of power from the host - that's 150mA (100mA up to USB 2.0). Devices configured as 'high power' can draw up to five units.



The Universal Serial Bus (USB) arrived on 6 May 1998, at Flint Center, Cupertino.

Specified by an Intel-led industry partnership, it had already appeared in a few PCs, but it was only when Apple - not a member of the group - unveiled the first-generation iMac, with the traditional interfaces abolished, that we knew USB was the future.

USB 1.1, capable of speeds up to 12Mbps, was "the new generation of I/O", announced Steve Jobs. Simple, he said. Elegant, he said. And he was basically right. Although, if he'd envisaged that 20 years later USB would cover two data protocols running over six physical connections in five speed classes, he might have used some different words.

The iMac's ports were USB Type-A, the now familiar rectangular receptacle with a plastic tab across the middle.

Its mouse and keyboard had matching steel-sheathed plugs attached, while peripherals like disk drives and printers would come with square USB Type-B ports, connecting with an A-to-B cable that established a two-way data flow and a one-way power supply, from computer (host) to accessory (device).

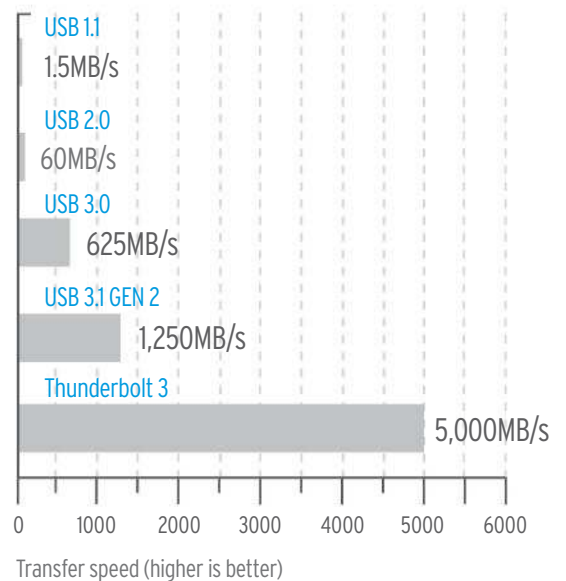
Socket to me

USB 2.0, emerging in 2001, boosted transfer rates to 480Mbps, competing with FireWire 400, which Apple had added to the iMac DV for video transfer. Smaller accessories, like digital cameras, didn't have room for the full-size Type-B socket, and some manufacturers had invented their own. Now there were two official solutions:

USB Type-C ports supporting Thunderbolt 3 allow for superfast data transfer and daisy-chaining.



Theoretical data throughput (megabytes per second)



Twenty years on from the first appearance of USB, Thunderbolt 3 can transfer data at a rate of 5,000MB/s.

the sharp-cornered trapezoid Mini-B, and Micro-B, so small and flat that mating the plug and socket without incident required the skills of a porcupine breeder.

What made USB so successful was that the spec covered more than just the physical connection and communication protocols. It defined device classes - printer, mass storage, communications (networking), human interface (keyboards and mice) - so that 'class compliant' products could identify themselves to the computer and start working, with no need to install software drivers except for esoteric features. This also meant Macs and Windows PCs could use the same USB devices.

Generation gain

Nearly a decade later, USB 3.0 - branded SuperSpeed and indicated by an SS logo and a blue insert in the Type-A port - multiplied transfer rates tenfold to 5Gbps. But with more pins required, Micro-B had to be upgraded to what looked like two plugs stuck together.

EXPLAINED... Common types of USB >

1

USB Type-A

> The original computer-end plug and socket only fit together one way.



1

2

USB 2.0 Micro-B

> Found on most accessories, this plug and socket are compact but quite easy to damage.



2



3

3

USB 3.0 Micro-AB

> Used by higher-speed devices, along with the B-only variant, which has the corners cut.



4

4

USB Type-C

> Fitting either way, this sturdy socket is taking over; Thunderbolt 3 also uses this connector.

USB On-The-Go (OTG) devices got the even more esoteric Micro-AB socket, which removed the corner chamfers to accommodate both USB 3 Micro-B and the largely mythical Micro-A. OTG allowed role-swaps between computer and device, so a phone could supply data *to* and draw power *from* a Mac as an accessory, but then connect to a camera or keyboard as a host.

USB 3.0 killed FireWire, but its new rival was Thunderbolt, an Apple-influenced copper version of technology first demonstrated by Intel over optical fibre. After the USB Implementers Forum (USB-IF) declined to back it, Thunderbolt was shoehorned into Mini DisplayPort instead, creating a 10Gbps multi-purpose connector.

USB 3.1, arriving in 2014, matched Thunderbolt's speed, but only in Gen 2 ports, branded SuperSpeed+. Thunderbolt retained the advantage of daisy-chaining, allowing up to six devices per port, versus USB's one.

Mobile hone

Smaller devices remained resistant to standardisation, and in 2003 the iPod switched from FireWire not to a USB port, but Apple's 30-pin Dock connector. Even so, the interface was USB-compatible, with a Type-A plug on the other end of the cable.

The same arrangement was used for the iPhone in 2007, but when it began to feel out of scale with modern devices, Apple replaced it (in 2012) with Lightning: as compact as Micro-B, yet reversible and with a simpler plug, like the tab in USB ports, and a hollow socket.

USB Type-C emerged from the USB-IF (now including Apple) two years later, similarly compact and reversible – finally scotching the joke that there were four ways to insert a USB plug, three of them wrong – but retaining the form of a tab inside a receptacle, with a hollow plug fitting concentrically. Most Type-C ports are USB 3.1 Gen 1 or 2, but just to complicate matters, Thunderbolt 3 jumped formats and became a superset of USB Type-C.

Every Thunderbolt 3 port will work with any USB Type-C cable and device, but not every USB Type-C port supports Thunderbolt 3 devices. All Thunderbolt 3 cables work with USB Type-C devices, and good-quality USB Type-C cables will work for Thunderbolt 3 devices, but you'll only get Thunderbolt 3's maximum 40Gbps with a 0.5m or shorter cable, unless you buy an 'active' Thunderbolt 3 cable with electronics that boost the signal.

40Gbps should satisfy most of us for a while, but with Apple now sitting on the USB-IF board, what comes next will be interesting.

Adam Banks



Jargon buster

> Because USB can't **daisy-chain**, hubs are often required for extra devices. With a passive ('bus-powered' hub), the USB port's voltage is shared, causing issues with high-power devices and charging. A powered hub fixes this using a mains adaptor.

Key fact

> USB Type-C uses 'smart' cables that route the correct amount of power either way, known as Power Delivery (PD).



What's inside

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GENIUS TIPS



EXPERT ADVICE

Our resident genius solves your Mac and iOS problems

EDITED BY **HOWARD OAKLEY** >

Investigate and fix slowdowns

Q I bought a new iMac (Retina 4K, 21.5-inch, Late 2015), which worked fine until I updated to macOS 10.13.3. Now it runs very slowly, with Microsoft Office apps taking two minutes to open, and Pages up to a minute. I also have Kaspersky and Avira antivirus products installed. Can you help to restore my Mac's former speed?
by BRIAN BOYD

A EtreCheck (free, etcheck.com) is a valuable tool for resolving performance problems like yours, and antivirus software is the most likely cause here. Run EtreCheck and attend to anything it recommends, then uninstall both those antivirus products and run it again.

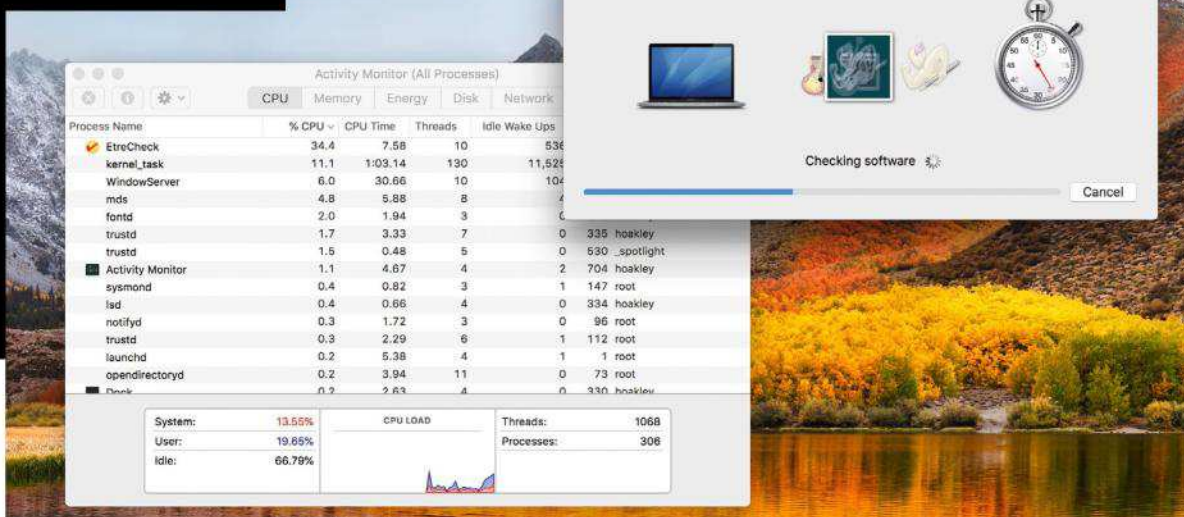
Some antivirus tools can be persistent and tricky to remove. Their most important components will be installed in the LaunchAgents and LaunchDaemons folders

in /Library and ~/Library - the tilde (~) meaning the path to your user account's Home folder. Filenames in those locations usually make it clear enough which files belong to which apps. Before you remove any, make a full backup of your Mac; if in doubt, check the support site for your software, as some developers list files made by their apps.

Once you've cleared out traces of your current antivirus products, restarted your Mac and restored performance, try replacements: Malwarebytes (free, malwarebytes.com/mac), DetectX (donationware, sqwarq.com) and tools from Objective-See (objective-see.com). These shouldn't impose the same load on your Mac, but are well maintained and arguably provide even better protection from malware.

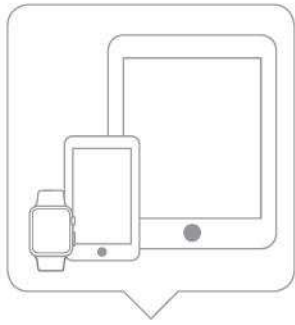
It's also important to keep all security software up to date, to ensure it remains fully effective against malware, and to maintain its compatibility with newer versions of macOS.

Activity Monitor can show you what's slowing down your Mac, while EtreCheck should tell you how you can speed it up.



Process Name	% CPU	CPU Time	Threads	Idle	Wake Ups
EtreCheck	34.4	7.58	10	0	536
kernel_task	11.1	1:03.14	130	0	11,524
WindowServer	6.0	30.66	10	0	104
mds	4.8	5.88	8	0	4
fontd	2.0	1.94	3	0	6
trustd	1.7	3.33	7	0	0
trustd	1.5	0.48	5	0	0
Activity Monitor	1.1	4.67	4	2	704
sysmond	0.4	0.82	3	1	147
lsd	0.4	0.66	4	0	334
notifd	0.3	1.72	3	0	96
trustd	0.3	2.29	6	1	112
launchd	0.2	5.38	4	1	1
opendirectoryd	0.2	3.94	11	0	73
Desk	0.2	2.63	4	0	330

System:	13.58%	CPU LOAD	Threads:	1068
User:	19.85%		Processes:	306
Idle:	66.79%			



iOS software >

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

iOS software quick-fire questions >

Touch ID has stopped working. Is it broken?

> In Settings > Touch ID & Passcode, enter your passcode and check that your iPhone is set up to use Touch ID for unlocking, Apple Pay, and Apple's various stores. If that looks okay, shut down your iPhone, wait a minute or so, turn it on and retry.

How can I keep private notes away from iCloud?

> In Settings > Notes, turn on the On My iPhone account. You can make this the default location in the setting immediately above, if you want. To make a private note in Notes, tap the item at the top left until you see the folders list, then tap a list in the On My iPhone section. Lists there are stored only on this device.



Lost access to vault with iOS 11

Q I had an iPad app, called My Photos, in whose 'vault' I kept photos and documents hidden from view and protected with a passcode. The app isn't compatible with iOS 11, so it stopped working when I upgraded. It's no longer on the App Store and I can't locate its developer. Can I install it on another iOS device running iOS 10 to access my protected documents?
by HARRY WILLIS

A A few apps have offered a vault feature, including Private Photo Vault, which is compatible with iOS 11. We've been unable to trace your app on the App Store - it does appear to have vanished.

For a short period after iOS 11 shipped, you could have returned to iOS 10 and restored from a backup made before upgrading. That depends on Apple providing that older version for your device, which it has stopped doing. You'd also have needed a suitable backup - local or in iCloud - from which to restore.

Often the protection provided by vault apps is rudimentary, only sufficient to keep prying eyes away, and easily bypassed when your iPad's storage is accessed from a Mac. Try iMazing (£34.99, imazing.com - there's a trial version available) to test whether it's able to access the files trapped in your vault, and whether they're encrypted or readily viewable.

In iTunes 12.7 and later, you can't download iOS apps or manage those that are installed on



Vault apps can protect private info on a shared iOS device, but make sure you have a backup of that data somewhere.

iOS devices. Further complicating matters, for a while iTunes hasn't synced apps downloaded in iOS itself 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 apps, for example, from your iPad to your Mac and then to your iPhone.

Even having an iOS 10 device to hand is unlikely to help. At a stretch, there's a chance My Photos might have stored a backup of its contents in a cloud-based service. You'd also need to be able to redownload the app from your past purchases. But you'll probably find that My Photos stores its vault locally, and that you can't transfer the vault's contents given you're unable to open the app.

For a short period after iOS 11 shipped, you could have returned to iOS 10



Networking >

We help to solve your Wi-Fi woes and connection conundrums

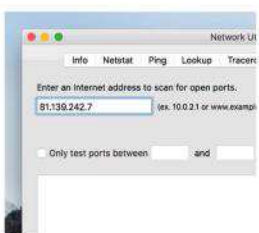
Networking quick-fire questions >

Can I stop others accessing my Wi-Fi during the day?

> If your Wi-Fi spills into a public area and you want to secure it when you're out or during the night, some routers can be configured to turn their radio signals off or to low power mode on a schedule. Check in the router's manual or the advanced settings of its admin tool.

How do I check my firewall blocks incoming traffic?

> In your router's admin tool, note the router's external (public) IP address. Connect your Mac to another internet connection, such as your iPhone's Personal Hotspot, open Network Utility, then run a port scan on that IP address. You should never do this on another IP address, as it is considered a hostile act.



Even if another Mac isn't listed in the Bluetooth pane, Continuity may still be sending it messages.



Bluetooth crisis

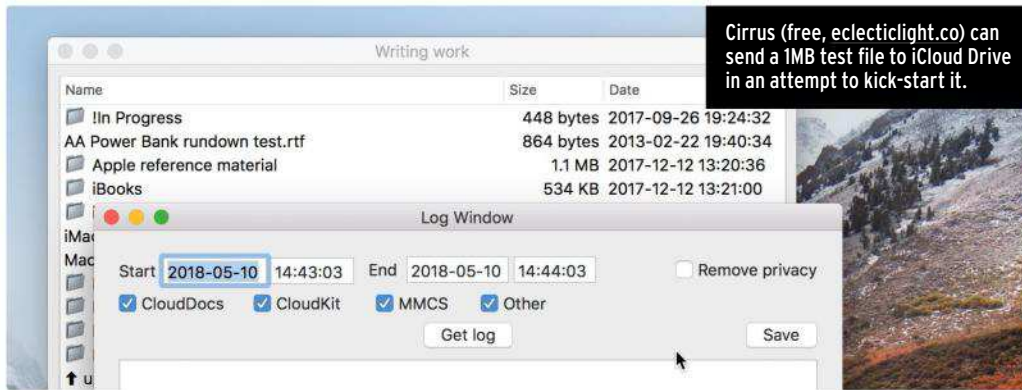
Q Whenever I use my new MacBook Pro near my iMac, the latter's Bluetooth starts to play up. At first, it loses its wireless keyboard and Magic Trackpad 2, which then reconnect. It often worsens to the point where I have to plug them both in, using their charging leads. The iMac is running macOS 10.12.6 and uses an Ethernet connection, with Wi-Fi turned off. The MacBook Pro runs 10.13.4, connects over Wi-Fi, and carries on working fine. Why?
by HARRY RICH

A What's most likely to be happening is that the MacBook Pro is trying to talk to your iMac due to their close proximity. That behaviour is extensively employed by the Continuity set of features; these are intended to make it easier for you to use multiple Apple devices together - for example, Handoff for moving a task from your iPhone to your Mac (or vice versa), and AirDrop for sending files or other info directly between devices, even when there's no local area network available to facilitate this.

These features use Bluetooth to detect the presence of nearby devices, and establish a direct connection between them using Wi-Fi. As your iMac has its Wi-Fi turned off, this can't function fully, causing the connection to drop, then start all over again.

This combines with a long-standing problem with some Macs running El Capitan or Sierra, whose Bluetooth has never been entirely stable: many people still suffer from sporadic spontaneous disconnect-reconnect cycles. When that wobbly system is then bombarded with proximity-based attempts to connect, it can be sufficient to break its Bluetooth service altogether. That seems most likely when the other Mac is a recent MacBook Pro updated to 10.13.4.

Hopefully, Apple will fix this in a future update. Until then, you have a choice between turning off Bluetooth on the MacBook Pro, preventing use of features that use proximity, or turning on Wi-Fi on the iMac, which may allow the two computers to connect fully for Continuity features and for everything to settle down again.



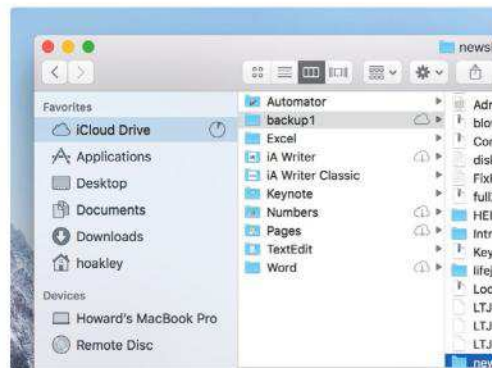
iCloud is slow to sync

Q iCloud performs poorly when syncing documents. How can I get iCloud Drive to sync immediately, rather than waiting until it gets round to it?
by DAVE HALLIWELL

A Apple doesn't provide controls to enable you to force a Mac to sync with iCloud Drive manually. When syncing is taking place, it's signified by a circular progress indicator next to iCloud Drive in Finder's sidebar, and a cloud icon next to files that have yet to be synced. Syncing is complex and occurs in stages. If it's slow to start, hasten it by adding a small file transfer. If you need syncing to finish quickly - perhaps so you can continue work on another device - then pause other internet use while it's in progress, as iCloud doesn't contend strongly for bandwidth; if you're

simultaneously downloading a large update, iCloud takes a back seat.

Signing out of iCloud and back in again is unwise once syncing has started, but may be helpful if it hasn't. It will disrupt other services, and should be your last resort.



iCloud syncing gets slow when you're also downloading large files. Pause other transfers to speed it up.

Networking quick-fire questions >

What's fastest for file transfers between Macs?

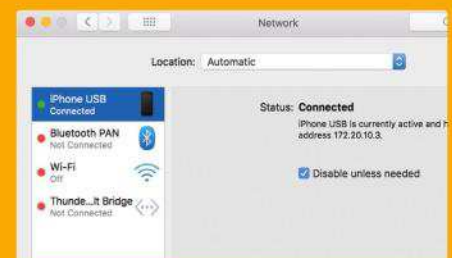
> Use Target Disk Mode over Thunderbolt, which enables you to browse one Mac's drive on the other. If both Macs are in macOS, on one go to System Prefs' Startup Disk pane, click Target Disk Mode, then Restart.

If one is shut down, power it on and hold **T** till a Thunderbolt icon appears; if a firmware password is set on your Mac, hold **⌘** instead, enter it, then press **T**.

When finished, eject the Mac in Target Disk Mode from the other before shutting it down.



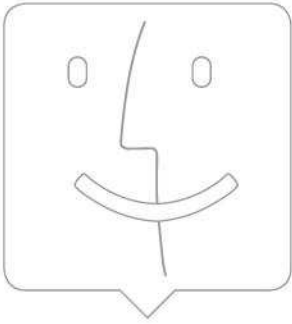
HOW TO Use Personal Hotspot as a fallback connection >



1 Turn on the hotspot
On your iOS device, go to Settings > Personal Hotspot. Turn on the feature. When connecting over Wi-Fi, you need the password shown (unless your devices are using the same iCloud account); with USB you don't need a password at all.

2 Get things connected
Connect the iPhone to your Mac using its USB cable, as if you were going to sync it with the Mac. If your Mac has a USB-C port, you'll need an adaptor or USB-C to Lightning cable to hand for this. If iTunes or Photos opens, quit it.

3 Avoid unnecessary use
On your Mac, go to System Prefs' Network pane. 'iPhone USB' should be listed on the left as a network interface. Turn on 'Disable unless needed' to use the iPhone as a fallback only when your usual connection fails or is unavailable.



macOS >

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

macOS quick-fire questions >

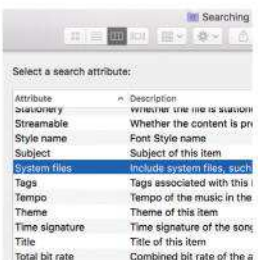
How do I restore items in the Open Recent submenu?

> Occasionally, a crash or bug may clear the contents of an app's Open Recent submenu.

The list is maintained by Launch Services, part of macOS over which you have little control. Try restarting; if that doesn't fix it, temporarily starting up in safe mode (bit.ly/macsafemd) should.

How to find files in system folders?

> In Finder, choose File > Find. In the criterion's leftmost pop-up menu, choose Other. In the list that appears, put a tick next to 'File invisible' and 'System files' and click OK. Set up rules (click + to add a second) to check these attributes, matching against 'Visible or invisible' and 'are included', respectively.



Missing passwords after update

Q Installing a Safari update became stuck, so I restarted my Mac. When the update completed, the new version couldn't access my old passwords. I tried restoring my keychain, which is local (not iCloud), but Time Machine says it can't do that. How can I get my passwords back?

by J A N E

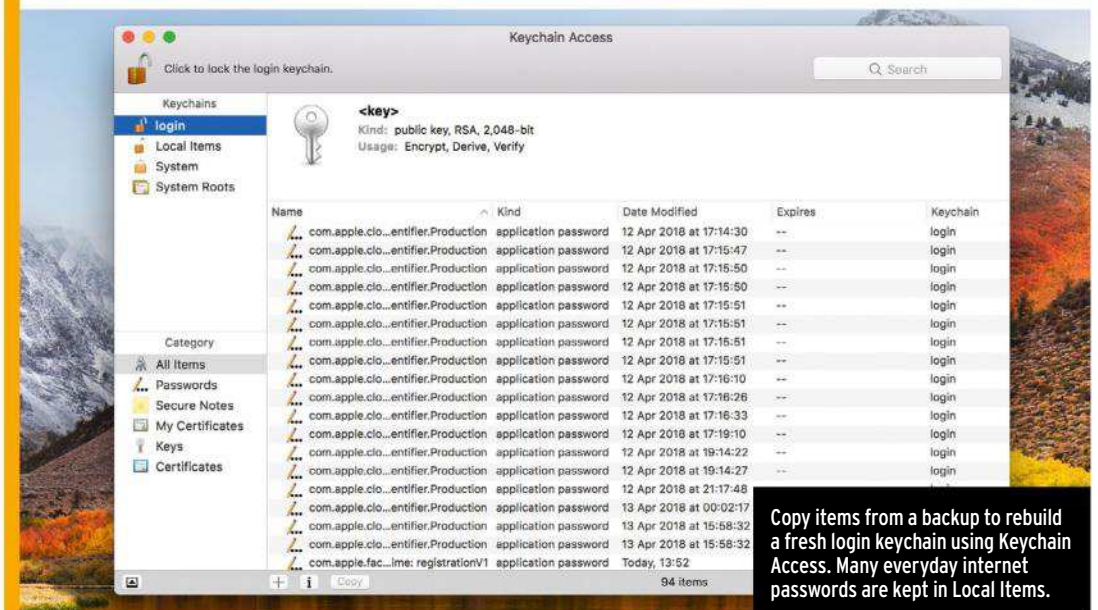
A Look in the Keychains folder in your Home folder's Library – in Finder, hold \square and choose Go > Library. Among other files, you should see a keychain there named login.keychain-db, which is your user account's current (login) keychain. View its contents using Keychain Access, which you'll find in /Applications/Utilities.

If that login keychain is almost empty, your previous keychain became damaged, perhaps when your Mac restarted during the update, and macOS has replaced the old one with a new, almost empty one.

You can still restore a keychain from before the update, but under a different name. Then, use Keychain Access to copy passwords and other items from the old keychain and paste them into the current one, although that becomes tedious. With each paste you'll normally be prompted to authenticate with your user account's password.

Also check in Safari's preferences that AutoFill is turned on for 'User names and passwords'. (Note that in Safari 11.1 or later, you must interact with a form before AutoFill offers you a choice of data to populate it with.)

Safari can keep some usernames and passwords in the Local Items keychain, which may also be listed in Keychain Access's left pane. You may also see older keychains with names like login_renamed, which are created when there are problems with the regular login keychain. Once your login keychain is up to scratch again, you should be able to trash all those old renamed versions.



Copy items from a backup to rebuild a fresh login keychain using Keychain Access. Many everyday internet passwords are kept in Local Items.

macOS quick-fire questions >

Does High Sierra still leak passwords used for encryption?

> Versions prior to 10.13.4 wrote some encryption passwords into the main log and install.log when using encrypted APFS volumes. Apple fixed this in 10.13.4, but passwords for such volumes made earlier may be readable; it's worth trashing /var/log/install.log for safety.

How can I make links in Finder?

> Finder's aliases are preferred over symbolic or hard links - features of UNIX, on which macOS is built - for almost every purpose. They're durable, continuing to point to the original if moved. Hold **⌘+⌘** and drag an item; a curved arrow on the pointer means you'll get an alias where you let go.

The Versions browser looks much like Time Machine, but doesn't require that feature to be turned on. Versions are added with each save.



Does macOS's file versioning system require Time Machine?

Q If I turn Time Machine backups off, will I lose access to earlier versions of my work?

by MARC JAMES

A No, macOS's version management system doesn't depend on a backup drive, or Time Machine even being configured. You can browse old backups at any time: hold **⌘**, click Time Machine's menu bar icon and choose 'Browse Other Backup Disks'.

If the apps you use are built to make use of macOS's Auto Save and Versions features - check for File > Revert To - make sure you save new files early on; that will enable you to preserve milestones in your work, and to roll back changes even with Time Machine turned

off. However, when Time Machine is turned off, backups are no longer made on external storage, and though your work in apps that support versioning will be protected against changes made accidentally or which you reverse, it's vulnerable to drive failure.

The Revert To command displays an interface like that of Time Machine, enabling you to roll back changes made to a document. Their similar presentation is a cause of confusion, but the versioning system doesn't require Time Machine to be turned on.

The Versions browser includes file versions from Time Machine only if your backup drive is available. You'll always see those from when you saved manually or the app auto-saved - though the latter are weeded out over time.

An update froze my MacBook Pro

Q My MacBook Pro froze when installing the High Sierra 10.13.4 update. Now it won't start up properly, and just sits there with a dark display. What can I do?

by STEVE WOLFE

A That update included an EFI (Extensible Firmware Interface) update for every Mac, which for some people has brought trouble and left their Macs in limbo.

Force your MacBook Pro to shut down by holding the power button, leave it for a few seconds, then power on and immediately hold **⌘+R** to enter macOS Recovery. If the EFI update went wrong,

recent models should automatically recover, displaying a progress bar while they do. Macs that still play a startup sound will inform you by making three long, three short, and three long tones. However, recent models of MacBook Pro are silent at startup.

Once in Recovery, open Disk Utility and run its First Aid feature on your startup disk. Afterwards, you should use Recovery's option to reinstall macOS over the top of your existing installation. If you can't get into Recovery, try resetting the SMC by following Apple's steps for your model at bit.ly/mfrstsmc.

If your Mac continues to have problems, it's worth running hardware



If a failed update leaves your Mac in limbo, restart in Recovery and run Disk Utility's First Aid tool.

diagnostics by following the advice given at bit.ly/mfappldiag or bit.ly/mfapplaht (depending on the age of your Mac). If all else fails, make an appointment at your nearest Genius Bar.

Step up your **SECURITY**

It can be quick and easy to secure your Apple kit - and the benefits are immense

Written by Alex Blake

Despite its necessity, many of us can be a little reluctant to make our devices as secure as possible. We know

we need to use strong, individual passwords and set up two-factor authentication, but we don't always follow through.

But it doesn't have to be that

way. Safeguarding your Mac and iOS devices is easy, and the payoff is absolutely worth it every time.

That's where we come in. We've written this guide to give you all the information you need to boost the security of your Apple kit, both online and offline. Read on to find out how to neutralise threats and hamstring the hackers.



Are your devices secure?

How your Apple kit protects your data

Apple is known for the security of its devices, especially compared to Windows and Android. But as the proliferation of digital technology has accelerated, Apple devices have become more appetising targets for the ne'er-do-wells of the world.

That means it's more important than ever to understand how to make your devices as secure as they can be.

Security setbacks

Despite its long-standing reputation for watertight security, Apple has suffered a number of embarrassing security slips in the recent past.

There have been a number of instances of simple text messages crashing iPhones because they contain a glyph the phone cannot process. It has been found that the all-powerful root user on your Mac could be easily accessed without a password, which could potentially put your computer at risk. And the Meltdown and Spectre vulnerabilities showed that Macs are far from infallible (although these exploits also affected Windows).

These stories illustrated the need to keep your Apple devices as up to



Touch ID combines security and convenience: a short press of your fingertip and access is granted.

date as possible and ensure that you don't miss out on essential patches from Apple. But installing the latest updates is not the only way you can keep all of your devices safe.

Luckily, as Apple users we have a lot of built-in security features at our disposal. Apple has been very careful to stop threats in their tracks, with features like Gatekeeper, FileVault and the Secure Enclave coming as standard in Apple's latest kit.

In fact, the recent security scares

were, in a way, exceptions that proved the rule of Apple security. The fact that they generated so much press was due, in part, to the rarity of such serious exploits in both Macs and iOS devices. Generally speaking, as an Apple user you are much more resistant to hacks, exploits and vulnerabilities than your friends on Android and Windows.

Sandbox safety

On your Mac, one reason for that excellent security is the way Macs handle and install apps. Each app is 'sandboxed', meaning its privileges are limited to ensure it behaves only as you expect. That makes it much harder for malicious code to exploit apps and put your computer at risk.

It's also very easy to see what apps are able to access on your computer. For example, go to System Preferences > Security & Privacy > Location Services to see which apps can find out about your location. On your iPhone, you can get the same information in Settings > Privacy > Location Services.

Still, there are plenty of things you can do to strengthen the security of your devices. Over the next few pages we'll take you through the key steps to boosting your protection.

Apple's hardware protections

Although they're both intended as convenience features, not security features, Face ID and Touch ID are still very secure. That is due to the built-in Secure Enclave, an isolated hardware mechanism used to protect your fingerprint and facial data.

That doesn't store that data as an image, but as 'a mathematical representation' that can't be reverse engineered. That data is encrypted and is not sent to Apple, and it's protected with a key that's only available to the Secure Enclave.

That's not the only method Apple

uses to protect your data. The latest MacBook Pro design comes with a Touch ID sensor embedded in its Touch Bar. This was powered by a dedicated T1 chip, which houses the Secure Enclave to process your data.

The iMac Pro then introduced the T2 chip, the second generation of Apple's secure processor. It enables new encrypted storage and secure boot capabilities in the iMac Pro, while also handling things such as the FaceTime HD camera's image signal processor, used for exposure control, among other tasks.

FEATURE Step up your security

Protect your Mac

A few simple settings to keep your Mac safe

One of the major advantages of macOS is the system's raft of built-in security features.

From FileVault to Gatekeeper, Apple has integrated features that can stop threats before they get started.

Generally speaking, you should stick to downloading Mac apps from the Mac App Store. However, sometimes you may want to download an app from a third-party developer that you trust. Apple can give developers a unique ID for their apps - Gatekeeper uses this to recognise legitimate apps, and can block those that don't have a valid ID.

Another useful feature is FileVault. This lets macOS automatically encrypt your Mac's startup disk, thus preventing

It's best to stick to apps from the Mac App Store, or at least those from 'known' developers.

unauthorised access to key areas of your computer by malicious actors.

You should always protect your Mac with a strong password that you don't use anywhere else. If you're unsure how, use the password generator in Keychain Access, in File > New Password Item and click the button that shows a key.

Finally, it's a good idea to create two user accounts. Make a standard account for everyday use, separate from the powerful access of your admin account, the latter being the kind you made when you first set up your Mac. This is useful for keeping things safe if someone uses your Mac without your permission.

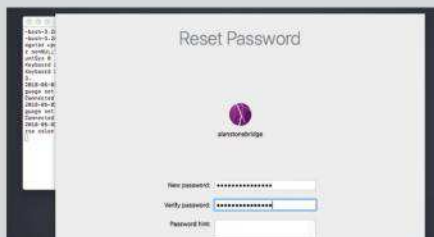


HOW TO Secure your Mac in six simple steps >



Manage logins

In System Preferences, click Users & Groups; under your username you can add a password or change an existing one. In Login Options, make sure you turn off Automatic login, too.



Reset user passwords

To reset the password of any account, hold **⌘ + R** at startup. When the macOS Utilities window appears, go to Utilities > Terminal, type `resetpassword`, then follow the on-screen instructions.



Firmware password

If you're worried about passwords being reset from Terminal, set a firmware password. Hold **⌘ + R** at startup, go to Utilities > Startup Security Utility, then click Turn On Firmware Password.



Gatekeeper

To change your Gatekeeper settings, go to System Preferences > Security & Privacy > General. Here you can choose whether to allow apps from outside the App Store to be installed.



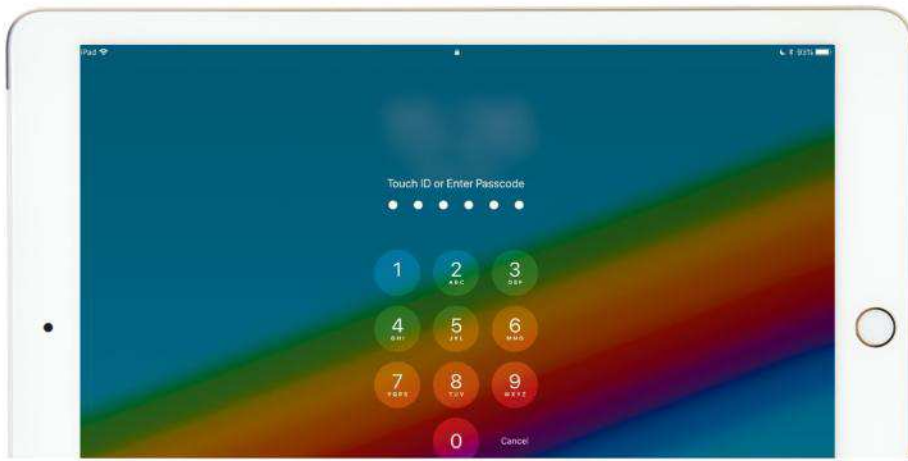
FileVault

In System Preferences > Security & Privacy, click the FileVault tab, then the padlock icon. Type an admin name and password, then click Turn On FileVault. The Mac then silently encrypts its drive.



Root user

This has complete access to your Mac's files, so don't enable it without a very good reason, and be sure to disable it afterwards. See bit.ly/mfru for help - and give it your own *strong* password!



Beyond Touch ID, it's a good idea to use a lengthy alphanumeric passcode that is difficult to crack.

iPhone & iPad security

What can you do to make your iOS devices more secure?

Back in March 2018, news emerged of a mysterious box called **GrayKey**. It allowed any person to gain access to an iOS device's contents, locked or otherwise.

While the device is intended for law enforcement use, it highlights an issue that's relevant to everyone: weak device passwords can be a real security issue. That's because GrayKey reportedly uses a 'brute force' attack to repeatedly guess the target device's password until it gets it right and gains access.

What can you do? Matthew Green, a security researcher at Johns Hopkins Information Security Institute, suggests

that increasing the length of your password (as well as mixing in alphanumeric characters) can help.

According to his calculations, a 10-digit password would take GrayKey (or other brute-force attackers) 12 years to crack on average. A four-digit one, on the other hand, would take a mere 6.5 minutes on average.

App Store downloads

As a further security measure, iOS only lets you install apps from the App Store. There's no way to install apps from third-party websites as you can on a Mac, and you can't override this in iOS's settings. Apple reviews the apps in the App Store, although that hasn't stopped the odd scandal (see page 66).

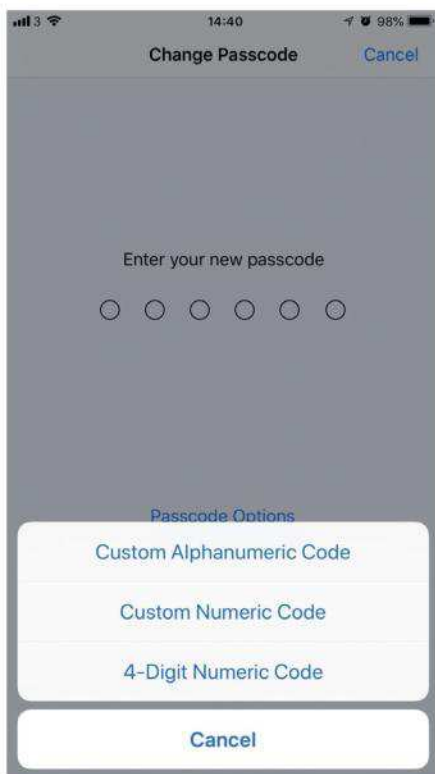
PASSCODE OPTIONS

■ You can change your passcode in Settings > Touch ID/Face ID & Passcode. When doing so, tap Passcode Options for a few more choices.


■ Tap Custom Alphanumeric Code to enter a passcode comprised of letters, numbers and symbols. It's a good idea to mix in upper- and lower-case letters.


■ If you'd rather stick to numbers, you can choose a Custom Numeric Code. This can be as long as you like, so it can be more secure than a six-digit code.


■ The final option is to switch to a four-digit passcode. We don't recommend this as it's trivial for a system like GrayKey to crack, or a nearby person to observe.




QUICK TIPS


 **App downloads**
Only get apps from the App Store or directly from developers approved by Apple. Never tell your Mac to run other apps, unless 100% confident in the source.


 **Passcode length**
Don't use a short four-digit passcode on iOS. Instead, consider increasing it to eight characters or more and including numbers, symbols and mixed-case letters.


 **Password managers**
Try using Safari's password suggestions or a password manager like LastPass. Make sure it's not a word that can be easily associated with you or someone you know.

 **Admin account**
Don't use the main account on your Mac day to day - create a new standard account instead. Add a firmware password to prevent any account's password being reset without your permission.

 **Authentication**
Make sure to enable two-factor authentication on websites you use and your Apple ID in order to add another layer of security.

 **System updates**
Don't linger on an old version of your device's operating system - download the latest macOS and iOS updates to get fixes from Apple to plug potential security holes.

 **TrafficLight**
There are browser extensions that can alert you to suspicious websites. If you're using Safari, try TrafficLight (bitdefender.com).

 **Don't get complacent!**
Using a Mac or iPhone won't make you invulnerable. Always take precautions and secure your Apple devices against threats - getting complacent can put you at risk.



Spectre and Meltdown

You've probably heard of Spectre and Meltdown - they were hard to miss in the news in January. Both are serious vulnerabilities affecting huge numbers of modern processors, including those in all modern Macs, iPhones and iPads (Watch is unaffected).

Meltdown targets the way your operating system and apps are isolated from each other, while Spectre breaks the separation between two apps. Both can be patched, but Spectre is harder to mitigate (and is harder to exploit).

In order to remove the exploits in the future, processors will need to be designed differently. Luckily, Intel, AMD and ARM have pledged to do just that.

Apple was quick to patch the vulnerabilities, issuing updates in macOS 10.13.2, iOS 11.2 and tvOS 11.2. Make sure you have them.

Apple ID and iCloud

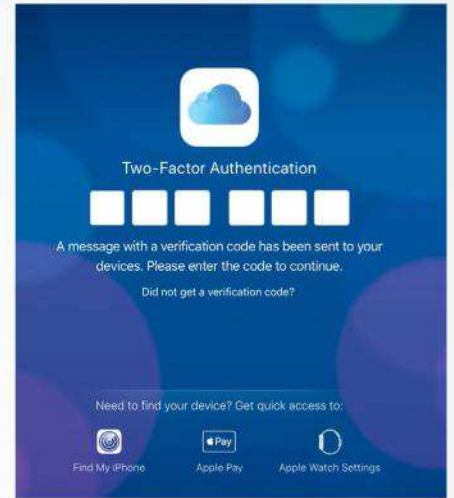
Sync your data in safety

Given that it houses your notes, photos, reminders and much more, iCloud is unsurprisingly pretty secure. Between your Apple ID, iCloud Keychain and Apple's encryption methods, your files are kept safe and sound in the cloud.

One simple way to keep your iCloud account secure is to set up two-factor authentication (2FA). This adds an extra layer of security to ensure that someone can't gain access to your account if they have your password - they also need a code sent to your trusted devices. We've outlined how to set up 2FA opposite.

Bear in mind that you should set up 2FA for every Apple ID you have. If you signed in to iTunes on an old Windows PC years ago, then bought a Mac and set up a new Apple ID at a later date, you'll probably now have two Apple IDs, and so should set up 2FA for both.

Limiting access by using 2FA is not the only way your iCloud data is kept safe from threats. There's also iCloud Keychain, Apple's built-in password manager for your Safari usernames



Two-factor authentication sends a verification code to a trusted device to further ensure security.

and passwords, credit card information and Wi-Fi network info. It can also sync your account information for a range of Apple services like Mail and Messages, plus third-party websites, to all your Apple devices.

All that data is encrypted by Apple, both on your devices and in transit, to

ensure it cannot be read by unscrupulous actors. Because these features are integrated into Apple's systems, they're free and easy to use.

Given that it houses your photos, notes, reminders and much more, iCloud is unsurprisingly secure



If a bug can get past Apple, it just shows how important it is to set up your own protection.

Apple's security scandals

Apple's reputation for super-tight security has taken a hit over the last year or two.

Of serious concern was a bug involving the root user account in macOS. It was found that this powerful account could be accessed by anyone, simply by typing the username 'root' followed by a blank password on a Mac's login window, then repeatedly hitting the key.

In 2015 and 2016, Apple was at the centre of a row with the FBI when it refused to unlock an iPhone possessed by one of the perpetrators of the San

Bernardino shooting. Apple argued that doing so would weaken the security of all iPhones and create a backdoor, but its critics stated it was hindering the investigation of a terrorist incident.

The App Store has also come in for criticism over the ability of bogus and exploitative apps to gain prominence in App Store search results. Apps that masquerade as legitimate services but charge users inordinate amounts in monthly payments have often been spotted at the top of iOS search results, as reported by the press.

How to Use two-factor authentication in iCloud >



Initial setup

Go to System Preferences > iCloud, sign in if necessary, then click Account Details. Once you're there, click the Security tab, then click Turn On Two-Factor Authentication.



Use the code

Now, whenever you sign in to iCloud you'll get a notification on your trusted devices asking you to allow access. Do so and you'll get a code to enter on the other device/iCloud.com to finish up.



Two-step verification

Two-factor authentication (2FA) is now switched on. If you've set up two-step verification (2SV) and want to update to 2FA, turn off 2SV in Security settings and set up 2FA, which is more secure.

Secure the websites you use

A lot of popular websites give you extra layers of safety

As awareness of online security threats has spread, a lot of websites have started offering ways to protect yourself. As we explain below, one of the main ways a lot of websites do this is through two-factor authentication (2FA), which helps to protect your accounts on popular websites like Facebook and Amazon. By enabling 2FA, these websites know that it really is you trying to log in, thus shutting out anyone trying to gain

unauthorised access to your account.

As well as that, browsers have begun integrating new security features. Safari, for example, now enables content blockers, which can stop malicious code (such as malware embedded in adverts) running on your Mac or iOS device.

Another good way to keep safe on the websites you browse is by using an extension like TrafficLight from online security firm Bitdefender. As the name

suggests, it uses a traffic light system to quickly show you which websites are safe to browse. This can be displayed in your search results, helping you to stay away from dodgy websites and thereby preventing attacks in the first place.

Ideally, you should use a different password for every website you use. In practice that can be hard to do, but Safari makes it easy by suggesting tough passwords and automatically saving them for you.



Facebook

Click the down arrow at the top right, then click Settings. Click Security and login on the left, then click Edit next to 'Set up two-factor authentication'. Click Get Started and follow the instructions on the screen, then click Enable to finish setting up two-factor authentication.



Twitter

At the top right, click your profile icon, then click 'Settings and privacy'. Click Account, then 'Set up login verification', then Start. You'll need to enter your Twitter password. Enter your phone number - Twitter will text you a code to complete the process.



Amazon

Go to your account settings and click 'Login & security'. Under Advanced Security Settings click Edit, then Get Started next to Two-Step Verification. Enter your phone number and click Send code. Once you have it, enter the code, click 'Verify code' and continue.

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Mac FORMAT



Protect your Apple kit

> Step up the security of your
devices and online accounts

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APPLE HOME

EDITED BY **CLIFF JOSEPH** >



LIVE SMARTER
The smart home is here - live the Apple dream today!

Smart tech can be expensive, especially when it's from Apple, but there are plenty of affordable options that won't break the bank



You can spend a fortune buying the latest smart devices for your home - high-definition security cameras, interactive disco lights, and, of course, Apple's own HomePod with Siri voice control. But there are other ways of introducing smart tech into your home that don't require you to remortgage the place in order to pay for it all.

Buying into the smart tech revolution needn't cost you a fortune; there are reasonably priced gadgets out there.

A simple smart plug is an affordable option that will work with any of your existing household appliances, allowing you to turn lights and other dumb devices on or off by remote control, while low-cost motion sensors can provide affordable security for every room in your home. It can even be fun to try a few simple DIY programming projects to get all your smart devices to work together, so here's our guide to the latest smart but affordable tech for your Apple Home.



Get started with Smart tech FOR LESS

From Amazon to Ikea, there's a range of affordable smart devices now available for your home

Smart tech quick-fire questions >

What about HomeKit?

> HomeKit is Apple's smart home platform. It enables you to control compatible accessories from an iOS device. You get manual control in the Home app and using Siri. HomePod, iPad and certain Apple TV models (see bit.ly/hkrmtc) enable remote control and automation.

What about heating?

> Smart thermostats can be expensive. A cheaper alternative is a smart valve, such as Elgato Eve Thermo (£59.95), which can be used to control just one radiator. Others are available, but some only work with a companion smart thermostat.



oice control is the big thing in smart home technology at the moment and, of course, Apple recently got in on the act with

its HomePod smart speaker. But, in typical Apple fashion, the HomePod is far and away the most expensive option in this category, costing £319 if you want to use Siri to control the (still rather limited) range of lights and other devices that are compatible with Apple's HomeKit platform.

It's Amazon that is really making the running here at the moment, though - its Alexa voice assistant already works with a really wide range of lights, thermostats and other devices, and its Echo range of smart speakers includes affordable options such as the Echo Dot, a little plug-in accessory that lets you add voice control to an existing speaker for just £49.99.

Google's Assistant technology isn't quite so popular, but it has its own low-cost option in the form of Google Home Mini at £49. And, if you're a fan of the do-it-yourself Raspberry Pi, Google has even launched a version of its Assistant software for that, too.



Most smart lighting systems are costly, as you have to start by buying a kit that contains two or more light bulbs, plus a special hub (also called a bridge or gateway) that connects to your router in order to control the lights.

Let there be (affordable) lights

However, prices have started to come down recently, and Philips - the top dog in the smart lighting market with its Hue range - now sells a Hue White Starter Kit that contains two white bulbs and a bridge for just £59.95 (and it works with HomeKit for Siri voice control, too).

LIFX takes a different approach with its lighting range. Instead of using a hub that connects to your router, the LIFX lights have all their smart tech (including HomeKit) built in to the bulbs themselves. This means that you can get started with just a single smart light for a specific room or location, such as a child's bedroom, with prices starting at just £24.99 for a basic white light bulb, or £44.99 for a colour bulb.

Even budget-conscious Ikea is getting in on the act, with its Tradfri range of smart lights. Ikea provides a number of options, including its Tradfri Gateway Kit, which includes two white bulbs and a gateway for £65. However, it also sells a low-cost Motion Sensor





Explained IFTTT

> Short for 'If This, Then That', IFTTT is a free service that can be used to link smart devices so that they work together. There's a free IFTTT app for iOS devices, or you can read more about it on ifttt.com.

Belkin's WeMo Insight Switch can monitor your power consumption.



EASY AS PI

Create your own smart control

The tiny Raspberry Pi computer costs as little as £10, and there are lots of DIY projects online that show you how to use the Pi to control smart devices in your home. You can connect the Pi to an iPad and use the iPad as a screen, and even get the Pi to work with devices that use

Apple's HomeKit software.

If you're intimidated by programming, then Logitech's Pop (£80) is an easy-to-use 'smart button' that uses simple commands to control a variety of different devices, including lights, blinds, locks and even Sonos speaker systems.



Smart tech quick-fire questions >

Bluetooth or Wi-Fi?

> Most smart devices use Wi-Fi to send you messages and notifications via your home network. However, some lights and sensors opt for Bluetooth instead - which is cheaper, but has a more limited range.

Bluetooth lights and sensors often need to use an Apple TV, iPad, or HomePod as a kind of relay in order to send you messages over the internet when you're out.

What are motion sensors?

> There are two main types of motion sensor available for use in your home. A basic motion sensor will monitor an entire room, and warn you whenever it detects any movement at all within the room. Door and window sensors are a bit more specialised, focusing just on the movement of a door or window frame, and warning you if an intruder enters your home.

Kit for just £25. This includes one of the Tradfri bulbs, along with a motion sensor that can be used to control the light, perhaps illuminating the bulb if it detects an intruder during the night, or when you're away on holiday.

Safe and sound

Motion sensors are another inexpensive option for your smart home. Security is important to everyone, but a good security camera can be expensive, often costing £150-£200 for a model that provides high-definition video recording. Buying several cameras for different rooms just isn't a viable option for most people. A simple motion sensor is a more affordable alternative - Elgato's Eve Motion sensor is just £44.95. Elgato also sells handy little Eve Door & Window sensors for £34.95, so you can easily cover several rooms in your home for about £100. The Elgato sensors all support HomeKit, too - although they do need an Apple TV, iPad or HomePod to act as the relay point when sending security alerts over your home network.

Alternatively, you can buy a more complete security kit, such as Samsung's SmartThings Starter Kit. This is priced at £199 on Samsung's own website, although we've seen it for less on Amazon and some other online stores. The SmartThings kit includes a number of sensors, including a

Elgato offers a range of contact and motion sensors that notify you if someone enters your home.

motion sensor, door/window sensor, and even a 'presence' sensor - a kind of smart keyring that can help you to keep track of a young child or elderly relative - with all the sensors controlled by a central hub that connects to your router. The SmartThings hub can be used to control compatible devices from other manufacturers as well, such as security cameras and even video doorbells, so this is an affordable security kit that also allows you to expand your smart home system in the future.

There's another affordable option for adding smart tech to your home. It's possible to buy smart plugs and switches that can be used to control existing devices, such as lights, speakers, and even washing machines and other appliances. These simply allow you to turn the power on or off for a particular device via remote control, but that can still be handy if you want to schedule the lights to keep coming on when you're away on holiday, or only use air conditioning at a specific time of day.

Samsung's SmartThings kit includes a smart plug, but if you don't want to pay for the entire Samsung kit, you can

buy individual smart plugs, such as Belkin's popular WeMo Switch for as little as £39.99. Belkin also makes the more expensive WeMo Insight (£49.99), which can monitor your power consumption, helping you to save more money in the future.





You can control Philips' Hue lighting using HomeKit, Amazon Echo and Google Home.

FIVE OF THE BEST

The gadgets that bring light, heat and order >



Amazon Echo Dot £49.99

amazon.co.uk

> Apple's HomePod is a great speaker, but at £319, it's an expensive option to gain voice control of your home. Amazon's Echo Dot isn't a speaker at all - it's a microphone that you plug in to an existing speaker in order to use the Alexa voice assistant through it - at a fraction of HomePod's cost.



Belkin WeMo Switch £39.99

belkin.com/uk

> Belkin's Switch plug and companion app let you schedule activity for dumb home appliances. You might use it to turn on a lamp when you're away or a fan when it's hot, or turn off a clothes airer that has no timer. It works with Alexa - and HomeKit using the upcoming WeMo Bridge.



Elgato Eve Thermo £59.95

elgato.com

> Eve Thermo is an affordable alternative to an expensive smart radiator valve. It can be used to control just one radiator, perhaps in your bedroom for cold winter mornings, and HomeKit support means that it can be linked with other devices, such as lights or motion sensors.



Philips Hue White Starter Kit £59.95

meethue.com

> It was Philips that really got the smart lighting market going, and it has now released the most affordable lighting kit we've seen. This starter kit gives you two smart bulbs, and a bridge that adds HomeKit compatibility. It works with Amazon Alexa and Google Assistant.



Samsung SmartThings Starter Kit £199

smarthings.com

> Shop around and you can find this for a much lower price. It includes three different security sensors, a hub and a smart plug. The hub can also control some other manufacturers' devices too, allowing for easy extension of your smart home system later.



What's inside

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BOARD AGAIN

> Luis scrabbles to think of inventive uses for his old keyboards

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TRIPLE CLEAN

> There's more than one way to clean a keyboard



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LOVE YOUR MAC

EDITED BY **LUIS VILLAZON** >



REUSE OLD KIT

Inspiring ideas for revamping old Apple kit



In Luis's world, there's no such thing as redundant.

Repurpose your old keyboards

Vintage Macintoshes never stop being desirable. Long after they have retired, there will always be a grateful new owner happy to receive a Mac 512K, Mac SE or Mac Plus from my stockpile. Some will be stripped for parts, so that another, nearly working Mac can be restored. Others will just see their case converted into something retro and whimsical. Either way, the keyboard is just unwanted ballast. Consequently, I have a lot of them piled into

a large cardboard box. And this is a shame, because the early Apple keyboards are just as much design classics as the Macs they plug into. In *MF* #310, I converted one of them to work with USB and I still use that keyboard quite regularly. But even I don't need 11 keyboards! So instead I am going to upcycle them into something that will do justice to their design-classicky-ness, but which won't take up as much space. It will, I assure you, be retro and whimsical...

CLASSIC APPLE KIT: M0120P

> The original Macintosh computers shipped with a basic keyboard that didn't include a numeric keypad - or even arrow keys! Steve Jobs deliberately omitted the latter to force software developers to support the mouse. The M0120P numeric keypad attempted to rectify both of these oversights, although the arrow keys had an odd layout and had to share with some of the maths symbols. It uses a non-standard 4P4C connector cable, but even after 35 years, the key action is still one of the most satisfying of any keyboard ever.





Who needs 11 keyboards?
Mac-loving scrabble
players, that's who!

Key board games >

QWERTY scores 63 points on a triple word square

Admittedly, it might seem like a keyboard that you aren't going to type on anymore is completely useless. I mean really, at that point it's just a bunch of plastic letter tiles arranged in a loose grid. But hang on a second! What else uses letter tiles arranged in a grid? Scrabble! What could be more retro and whimsical than a Scrabble set using keys from vintage Macs?

The first step was to clean the keys. I did some tests with different methods of cleaning (see this month's How To guide) and after satisfying myself that none of them would do any harm to the plastic or the lettering, I went for the easiest, and loaded all the keyboards into the dishwasher. When they emerged an hour later, hot and steamy, I was in awe of how clean they were. They looked almost literally new! So new, in fact, that I was briefly tempted to just list them all on eBay for £20 each. But to do that, I'd need to test them and I couldn't

do that until they thoroughly dried out. I've no idea how long it would take for all the water inside the case to evaporate, but it's probably at least 48 hours and I'm much too impatient.

Numeracy niggles

A standard Scrabble set has 100 tiles, which makes it sound like you would only need four keyboards. But of course, the letter

If you lose any of the tiles,
just raid another keyboard!



Quick-fire questions >

What if the mounting prong on the keyboard snaps off?

> Provided that enough plastic still protrudes from the base of the key switch, it is sometimes possible to 3D print (or even hand carve) a mounting bracket that connects the remaining stub to the underside of the key. Use two-part epoxy to glue it on, for maximum strength.

What is the font on Apple keyboards?

> The earliest Macs use Univers 57 Condensed Oblique. In 1999 this was replaced with VAG Rounded, on the iBook and gradually introduced across the whole Mac line by 2007. If you are printing your own replacement keys and can't find VAG Rounded, Futura Book is a pretty close match. Since 2015, Apple has used its own San Francisco typeface, originally designed for Apple Watch, and now the system font in iOS, macOS and tvOS - see developer.apple.com/fonts for more about it.



One day, someone might demand to know why all the keys have been circumcised

distribution isn't even. There should be 12 'E' tiles, so to do this properly requires 12 keyboards and I 'only' have 11. I could have sanded the lettering off some or all of the keys, and relabelled them, but this seemed contrary to the spirit of the enterprise (not to mention, a lot more work). So I stole an E off one of my working Macs (a Performa 6200) and left a Post-it on the display to remind me where to look, in the unlikely event I ever need to use that computer. Removing the keys from older Macs is a surprisingly delicate operation. The plastic spurs that connect them to the switch are brittle after all these years, so I had to prise the key up gently, like a tomb raider removing the jewelled eyes from an ancient statue.

The various keyboards aren't exactly the

same, of course. Differences in the colour of the plastic and letter font are all part of the charm, but the different mounting mechanisms affect how well they perform

as Scrabble tiles. The best are from the Apple Keyboard (M0116) and Apple Keyboard II (M0487) that were used on the Macintosh Classic and LC models in the late 1980s and early 1990s. These have low profile keys with nice flat undersides. Next best are the mid-1980s compact keyboards with no numeric keypad. The keys are a little larger, with just a small lug on the underside. The keys from my two 1983 Apple Lisas are the worst. They have a huge forked prong on the bottom that prevents them from lying flat.

Protect the base

I could have cut off all the sticking out bits, but this seemed like an unnecessarily brutal mutilation. The Lisas are museum pieces and, one day, someone with more technical skill than me might get them working and demand to know why all the keys have been circumcised. Instead, I decided to 3D print some plastic bases for each key. They will connect to all the prongs and lugs, and provide a consistent, flat bottom - at the expense of wildly varying height.

In order to 3D print the bases, I needed to model them in a CAD app, and the easiest way to do that was to model the key itself first, and design the base from that. Well, maybe not the easiest, but certainly the most fun. I spent a happy couple of hours obsessing over various



House husband discovers simple trick for cleaning keyboards: sparkling results from the dishwasher!

HOW TO Restore the finish on an old Mac keyboard >



1 The hard way

The least invasive approach is to clean each keycap individually with a cotton bud or a tissue. If you have the patience, isopropanol is a good solvent that won't damage the plastic and it is widely available on Amazon. Gin or vodka is an acceptable substitute, but it isn't really any cheaper and it takes longer to dry.



2 The quicker way

If you want to save some elbow grease, you can pop all the keys off and throw them in the washing machine. Put the keys in a pillow case and knot the end to reduce the risk of losing any. You can use a washing cycle up to 60°C without harming the plastic. Skip the spin cycle and fabric conditioner.



3 The full monty

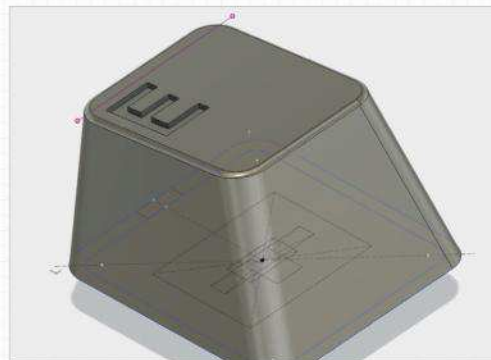
If the case is grubby too, or you don't want the hassle of prising off the keys, you can wash *old* keyboards in the dishwasher. Put the keyboard face down and run the ordinary wash cycle with half a dishwasher tablet. Amazingly, the electronics in the keyboard will be just fine. But give it a few days to dry out.

subtle curves and angles in Fusion 360 before I remembered I was meant to be working.

The bases fit very nicely and I fixed them in place with a smear of water-soluble glue, so I could soak them off again if I ever wanted to restore the keyboards to working order. There's just enough hollow space inside the keys to fit one of those tiny, round neodymium magnets, so I glued one of those in each key as well. With a sheet of metal under the Scrabble board, the magnets have just enough holding power to stick the tiles in place. So, now I have a Travel Scrabble set (provided you don't mind travelling with a large sheet of 2mm mild steel). And magnetic letters can also do double duty as a fridge magnet poetry set.

Print your own

Since I then also had CAD models for the keys themselves, I tried 3D printing a couple for fun. I didn't have the right colour printer filament - I don't think you can even get printer filament in the Apple shades of beige and cream - but printed in 'iron grey' they actually look pretty good. I could print replacements for the keys I have pinched for Scrabble and still have working keyboards! But no, Luis! Remember, the reason for this Scrabble project in the first place is that I *don't have a use* for that many keyboards. Still, I could print different coloured keys for W, A, S, and D and use one as a gaming keyboard...



The CAD model of a classic key is surprisingly complicated.

So, after all that, what have we learned? Although the starting point was to upcycle some otherwise useless keyboards, I think the most important discovery is that no keyboard is beyond redemption. Many of the older keyboards had already lost a key or two over the years. But the magic of 3D printing allows us to make functional (if not cosmetically identical) replacement parts. Provided you already have a 3D printer, this is undoubtedly easier than trying to convert a modern USB keyboard to work over the old ADB interface. And it's arguably a more authentic restoration technique too. And even for those of you that prefer to stick with Macs built in the last decade, you can take heart that no matter how filthy your keyboard gets, you can always restore it to pristine condition, simply by sticking its keys in the dishwasher.



You could always 3D print replacements for all the keys you have stolen for Scrabble.

Farewell, Luis

> Not content with transforming Macs, Luis is 'modifying' himself. We'd like to say a fond farewell, as Luis prepares to take his incredible knowledge and creativity to the world of academia.

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APPLE CHOICE

EDITED BY **ALEX BLAKE** >



BUYING ADVICE

Our authoritative reviews help you make more informed choices



PANASONIC LUMIX GX9
p80

> Manifesto - our ratings explained

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The prices quoted for products are correct at the time of writing and are

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> 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.

Panasonic Lumix GX9

Small size, big performance

Reviewed by PHIL HALL, ROD LAWTON

> £699.99 > FROM Panasonic, panasonic.co.uk

> FEATURES 20.3-megapixel sensor, Live MOS sensor, 260-shot battery life, ISO100 to ISO25600, 4K video at 30fps, 12.4x7.2x4.7cm body



The rear display can be tilted to give a better viewing angle when shooting from the hip.



Alex says...

> I'm not sure how to feel about the GX9. On the one hand, it's equipped with some great features and performs admirably. On the other, it feels almost like Panasonic has held back from what it could have been. That said, I'm still impressed by what it packs into such a small camera body.

This compact, high-performance camera uses the same 20.3MP Micro Four Thirds sensor that was in the GX8, minus the low-pass filter from the sensor. This is intended to improve fine-detail rendition, with the trade-off that it also increases the risk of interference patterns in fine textures and details. The image-stabilisation system has also been enhanced.

The Lumix GX9 comes with 4K video and enhanced 4K Photo modes. Here, the camera uses its 4K video processing power to capture images designed to be exported as 8MP stills. The 4K burst mode captures frames at an impressive 30fps, and the GX9's new auto-marking feature helps you find key moments when editing your videos later.

The 4K Post Focus mode is even more impressive. In this mode the camera captures a short burst using every focus point, and in playback mode you can simply tap on the picture to choose the focus point you want. This enables you to adjust the focus after you've taken the shot. And new in the Lumix GX9 is in-camera focus stacking, so you no longer need a computer to merge a series of images with different focus points into a single photo.

Build and handling

The GX9 is a touch smaller than its predecessor, with the chunky handgrip replaced by a much more streamlined affair. This makes it a neat little camera with a quality feel, although Panasonic has opted to drop the weather sealing featured on the GX8.

On the rear is a focus



The GX9's mount works with Micro Four Thirds lenses.

lever that can be used to switch between focus modes, but there's no dedicated joystick to select your desired focus area – that's done via the touchscreen or the four-way control pad, and the latter option is quite a clunky affair.

In an effort to keep the Lumix GX9 as trim as possible, the control buttons sit fairly flush with the body; however they're a bit too flush for our liking – we'd rather they were raised a bit more to make them easier to press.

The reliance on menus and icons for some adjustments might prove a little irksome for some, but the touchscreen is very responsive.

Performance

The electronic viewfinder (EVF) is good, but not great. Focusing speeds are very quick indeed. The built-in image-stabilisation system works very well – we found that we could happily shoot at 1/8 sec (and in some instances even slower) and still achieve sharp shots.

A problem not unique to the GX9 is the relatively modest battery





ALTERNATIVE CHOICES



Panasonic Lumix GX80
£734

- > FROM panasonic.co.uk
- > 16 megapixels
- > Live MOS sensor
- > ISO100 to ISO25600
- > 4K video at 25fps
- > 12.2x7.1x4.4cm



Fujifilm X-E3
£849

- > FROM fujifilm.co.uk
- > 24.3 megapixels
- > X-Trans CMOS III sensor
- > ISO100 to ISO51200
- > 4K video at 30fps
- > 12.1x7.4x4.3cm

(grain-like) noise visible at mid-range sensitivities if you inspect files closely.

At ISO1600/ISO3200, luminance noise becomes a bit more of an issue, while chroma (colour) noise also starts to creep into shots. At ISO6400, noise is noticeable, but detail still holds up well in raw files; we'd avoid shooting at ISOs above this.

If you're shooting JPEGs, the noise-reduction algorithm is a little too zealous for our tastes; noise is certainly reduced, but detail is sacrificed a bit too much, with high-sensitivity images looking somewhat 'waxy' in places.

As for dynamic range, there's plenty of flexibility at low sensitivities, allowing you to recover a decent amount of shadow and highlight detail from raw files. However, that flexibility is diminished as you increase the ISO, with more noise encroaching in shadow areas.

In many ways, the Lumix GX9 takes two steps forward over the GX8, but one step back. While there's perhaps a little too much reliance on the touchscreen interface for some tastes, this is a nice camera and a very solid performer – it just doesn't do quite enough to stand out from the crowd.

life of 260 shots (250 shots using the EVF). A trade-off for having a compact body is the limited size of battery you can squeeze in, although that number is 90 shots less than Fujifilm's equally compact X-E3. Panasonic is obviously aware that this is an issue, as the GX9 features a power-saving mode that can eke out 900 shots from the battery. It does this by putting the camera into sleep mode after it's been inactive for one second, with a half-press of the shutter release required to wake the camera up.

Image quality

Panasonic has made good strides in the area of colour rendition, and the Lumix GX9 produces natural-looking JPEG files with faithful colours. If you want to shoot mono images without having to spend too much time on editing, the new 'L. Monochrome' photo style is a welcome addition.

The camera delivers very solid performance when it comes to image noise. At low-sensitivity settings, images are nice and clean, with only a hint of luminance

Mac FORMAT VERDICT

> A solid camera that fits good features into a compact body, yet with a few niggles here and there.



- Compact design
- 4K video and photos
- AF selection fiddly
- Not weatherproof

Yi 360 VR

A 360° camera boasting 5.7K resolution

Reviewed by **JAMIE CARTER**

> **£354.99** > FROM Yi Technology, yitechnology.com

> **FEATURES** 5.7K and 360° video, 4K live streaming, automatic stitching

Image quality is impressive; colours are well saturated in both photos and videos

These days, in the world of 360° cameras, 4K is just not enough.

Since 360° videos are stretched as far as the eye can see, more pixels mean better images. This camera comes with 5.7K resolution at 30 frames per second (fps). It also has a host of manual controls, and streams in 4K to YouTube.

A 5.7K resolution won't produce pin-sharp 360° images, but the results are good, and we only know of one other camera that offers such a high resolution – the much pricier Garmin VIRB 360. The Yi's 360° fixed-focus Sony IMX377 image sensors capture 5760x2880 pixels – about 16MP, for both video and stills.

One of the main issues with 360° cameras is that it's impossible for the photographer to get out of shot. The Yi 360 VR gets over that by taking three separate still images, five seconds apart, of you standing in three clearly separate positions. Its software can then identify you in all three pictures, and remove you from the finished composite image.

You can adjust the exposure metering mode, exposure compensation, white balance and ISO (up to ISO800 for photos, and ISO6400 for video), and there's compatibility with external microphones (using a Yi-made adapter in the USB-C slot). There's also the option to capture 360° footage in bursts or as time-lapses, from images taken at an interval of between half a second and 60 seconds, while the Yi 360 VR can also shoot at up to 120fps (at 2K resolution).

Controls and charge

The Yi 360 VR is more substantial in size than some 360° cameras, but it slips easily enough into a pocket. Sadly, though, it isn't waterproof. On top of the device is a small OLED screen, which allows for reasonably easy toggling through the menus using two navigation buttons, and there's an on/off switch on the side. On the other side is a USB-C port for recharging, a micro HDMI output, a microSD



The 5.7K resolution is pretty remarkable for a 360° camera at this price point.

card slot, and a removable 1400mAh lithium-ion battery. There's a universal tripod/selfie stick thread (1/4-inch) on the undercarriage, and a tripod is even included in the box.

Battery life is a little short, lasting for about 50 minutes in our test. It's best to resist the temptation to transfer files between the camera and a phone via the Yi 360 VR's Wi-Fi; rather worryingly, this caused our test camera to heat up, and quickly used up battery charge.

Image quality is impressive. Both photos and videos have well-saturated colours, while noise and chromatic aberration are noticeably less than you'll get from cheaper 360° cameras.

Although the Yi 360 VR can perform in-camera stitching using a template, it's not very effective; the stitching line is rather obvious – particularly problematic if people's faces are positioned along the line.

The companion app is impressive, enabling you to control all of the settings on the camera, as well as presenting a live feed and offering stacks of editing and sharing options.

If you're a semi-pro videographer wanting to experiment with 360° video, the Yi 360 VR gives you most of the tools you need. Its 5.7K resolution, consistent colour and exhaustive manual tweaks are all plus points. It's highly ambitious and great value.

Mac FORMAT VERDICT

> Sharp and dynamic results – and the rare ability to shoot 5.7K resolution 360° video.



- ⊕ Crisp 360° images
- ⊕ Well-saturated and even colours
- ⊖ Basic auto-stitching
- ⊖ Not waterproof

Mophie Powerstation USB-C XXL

A chunky battery with a huge capacity

> **£119.95** > FROM Mophie, uk.mophie.com

> **FEATURES** High-capacity battery, USB-C fast charge, priority charge

Within the Powerstation USB-C XXL is a 19,500mAh rechargeable battery. Mophie claims

this will provide a 13-inch MacBook Pro with an additional 14 hours of battery life. The XXL label is apt. At 15x8cm, and weighing 400g, the power pack is hefty. It's covered in a fabric wrap that looks great and protects the battery from bumps and scratches.

The Powerstation has two sockets: USB-C, and a USB-A socket into which you can plug an iPhone or iPad



The fabric cover makes for a stylish power pack.

charger. If you plug the USB-C socket into a power outlet and connect an iOS device, the battery will pass through power to charge that device before itself. Or, you can plug your MacBook or MacBook Pro into the USB-C port (after charging the battery) to get a 30W supply. You can even power a MacBook and an

iOS device simultaneously. The Powerstation's battery can also be recharged from a connected MacBook Pro.

The Powerstation USB-C XXL did well in our tests, charging our 2016 15-inch MacBook Pro's battery from 25% to 45% while we used the Mac to edit video in iMovie for two and a half hours. **KENNY HEMPHILL**

Mac FORMAT VERDICT

> A large-capacity recharging option, with a hefty price tag.



- + Can add hours of use
- Quite bulky

Snugs True Wireless

The ultimate headphones for cable haters?

> **£269.95** > FROM Snugs Earphones, snugs.com

> **FEATURES** Bluetooth 4.2, sweatproof Liquipel nanotechnology, 500mAh built-in battery

These earpieces take wireless tech a step further by offering Snugs' signature custom-fit tips allied to a pair of Jabees Beebud headphones. Custom-fit tips are neat because there's no sound leakage, and audio quality is consequently much improved, and you get the benefit of natural sound suppression; Snugs boasts a reduction of -30dB.

We've always been impressed with Snugs' custom tips, but how do they fare in the Beebud alliance? In terms of audio, sound is

loud, but muffled, and the headphones lack liveliness. The Snugs tips do their best to carry the Beebud, but there's a limit to how much you can do with a £60 pair of wireless headphones. Matched to a superior headphone, such as the B&O E8, the setup would really shine. Of course, you can buy the Snugs tips separately (£169.95) and then add a pair of compatible headphones.

Operating the Snugs is easy, with a single button on each unit offering complete

You can specify the exact colour of each Snugs tip.



control using different combinations of presses. The included case has a 500mAh battery built in, which makes charging simple – just click them in place. A full charge takes less than an hour and you get around four hours of playback time. **EMILY MINA**

Mac FORMAT VERDICT

> The Snugs custom tips are good; buy the tips and add better quality headphones.



- + Amazing fit
- Average sound

Fujifilm Instax Share SP-3

A pricey way to catch special moments

> **£179** > FROM Instax, instax.co.uk

> **FEATURES** Wi-Fi, 318dpi square-format prints

The app has access to your camera roll; there's no drawn-out import step

The Instax Share SP-3 printer certainly costs plenty to run, with film in packs of 10 costing around £9. That's way more expensive than using a photo lab or even a desktop printer.

But the whole point of this printer is to produce a handy instant memento. On-the-spot photo prints are enjoying a significant resurgence for this very reason – and the Instax Share SP-3 provides them, without the bulk, cost and relative crudeness of an instant camera.

Instead, you simply send pictures from your smartphone to the printer, via Wi-Fi, from the free companion Instax Share app. The app has access to your camera roll, so there's no time-consuming import process.

Colour charm

The SP-3 isn't exactly pocket-sized, but it's small enough to slip into a shoulder bag and is entirely self-contained. It's powered by a rechargeable lithium-ion battery, and a coloured LED lamp on the top lets you know how much power it has left.

Also on the top is a row of 10 white LEDs that correspond to the 10 prints in each film pack. Every time you print a picture, an LED goes out. Swapping empty film packs for fresh ones is easy. You press a button on the side to open a large access door – don't do this if you still have unexposed pictures



With access to your camera roll, the Instax Share SP-3 can produce prints of special moments in a flash.

inside! – and remove the empty cartridge. New cartridges have a protective lightproof sheet. When the door is closed, the printer automatically removes and ejects this sheet ready for your first print.

The colour rendition of the prints is a little on warm side and there's quite a lot of contrast, so subtle highlight details tend to disappear. These aren't really issues, though, because the Instax Share SP-3 is about capturing memories, and the quirky, old-fashioned look rather adds to their charm.

Given the pretty high cost of both the Instax Share SP-3 and its film packs, it's impossible to offer any practical arguments for buying the printer. But of course, it's not about the price tag. The appeal is purely emotional, offering an easy and permanent physical token of a fleeting event.

ROD LAWTON



Square-format, retro-look prints are really popular, but the ability to produce them comes at a modern price.

Mac
FORMAT

VERDICT

> An expensive way to quickly capture priceless souvenirs.



- ⊕ Creates charming retro mementos
- ⊕ Really easy to use
- ⊖ The printer is costly
- ⊖ Expensive film packs



The sound reproduction will help you hear details you missed before.

Creative Aurvana Trio

High-resolution, triple-driver headphones that rock

› £129.99 › FROM Creative, uk.creative.com › FEATURES Triple-driver array, 5-40,000Hz, braided and replaceable cable

The Aurvana Trio headphones are part of Creative's premium line of high-resolution audio

products. Before we dive too deep into their sound quality, it's worth mentioning why triple-driver headphones are so much better than those with a single driver.

Inside each earbud is a triple-driver array; two precision-balanced armature drivers deliver clear mids and highs, while one biocellulose driver exclusively replicates accurate and powerful bass – so, instead of one driver being forced to produce all areas of sound simultaneously, triple-driver headphones divide and conquer the full audio range, often with spectacular results. These headphones have a measured frequency response of 5 to 40,000Hz – about double what the human ear is capable of hearing.

While the sound quality is substantially better with triple-driver headphones, the trade-off here is that they might be a bit larger than you expect. Due to their size and protrusion from the ear a bit, they're not exactly low-profile – and not necessarily the kind of headphones you'd want to use while lying in bed. That said, in an effort to make them as comfortable as possible, Creative packs four pairs of replacement tips in every box, including one pair of foam eartips that better conform to the shape of your inner ear and help seal out noise. The supremely light

design also means you can keep them in your ears for hours without fatigue.

Rollicking highs

Connecting the earbuds to the right-angle 3.5mm jack is a braided cable that drastically reduces cable noise and, as an added bonus, is completely replaceable if it ever begins to fray. On it, you'll also find a (rather plasticky) universal inline remote with a built-in mic and a pause/play control.

The sound is great, with crystal clear mids, rollicking warm highs, and hearty, controlled bass. In fact, Creative's Aurvana Trio headphones are possibly the best-sounding in-ear headphones we've ever tested. There's astounding clarity in nearly all areas, helping you pick up on small guitar flourishes or cymbal rolls in places you hadn't heard them in the past and, most of the time, can even help you distinguish between MP3 and uncompressed WAV files.

The clarity and sound reproduction smoothes out even the lowest-resolution music in your collection, and the broad frequency response helps cover the highs, lows and everything in between.

If you have the money for some truly spectacular in-ears, these are well worth the price. They're comfortable, sound great and offer extreme clarity in nearly all areas of the audio spectrum. **NICK PINO**

Mac FORMAT VERDICT

› Pricy, but one of the best pairs of in-ear headphones on the market.



- ⊕ Exceptional clarity
- ⊕ Extremely comfortable
- ⊖ Plasticky inline remote
- ⊖ On the expensive side

Travel accessories

Great gizmos for gregarious globetrotters

Travelling can be a great experience, but it also brings its own set of potential problems.

You can lose your valuable gadgets, run out of power and forget to pack the right adaptors – not to mention the constant hassle of keeping your stuff organised when you try to pack it. But fear not, as we've rounded up the best accessories for the gadget-conscious sightseer. With these accessories by your side, you'll be well equipped to head off on your travels with your trusty Apple kit in tow.

BentoStack XL

› \$49.95 (about £37) › FROM Function 101, function101.com › FEATURES Adjustable dividers, two silicone straps

› **Instead of haphazardly chucking your cables into a bag on your travels, use the BentoStack XL.** It's a neat compartmentalised box, giving you four adjustable dividers and two straps. It's ideal for storing your cables, adaptors, Watch straps and even an Apple Pencil. The XL version fits UK adaptors, too.



With four adjustable compartments, the BentoStack XL can keep all your accessories neatly packed away.



Apple World Travel Adapter Kit

› **£29** › FROM Apple, apple.com/uk
› **FEATURES** Plug adaptors for seven different types of plug socket

› **The last thing you want when travelling is to find out you can't charge your devices.** Luckily, Apple has you sorted with its World Travel Adapter Kit. It comes with seven plug designs covering North America, Japan, China, the UK, Europe, Korea, Australia, Hong Kong and Brazil, making charging a cinch if you pay any of these places a visit.



Anker PowerCore Speed 20000 PD

› **£49.99** › FROM Anker, amazon.co.uk
› **FEATURES** 20100mAh battery, USB-C and USB-A charging ports

› **When you travel, you don't always have easy access to charging points.** That means you want your devices to last as long as possible – which is where the Anker PowerCore Speed comes in. It's only small but can power an iPhone 7 six times over, an iPad Air 2 twice and even a 2016 MacBook once. It also comes with USB-C and Micro-USB cables, although you'll need your own Lightning cable.



Tile Slim

› **£30** › FROM Tile, thetileapp.com
› **FEATURES** One-year battery life, IP57 water resistance, 2.4mm thickness

› **It's a traveller's worst nightmare: losing something valuable in a place that's new and unfamiliar.** Make sure you avoid that happening with the Tile Slim. Pop it in your wallet or bag and you'll be able to track it with an app on your iPhone. It works the other way, too – tap it twice to make your phone ring, so you can find it if it goes astray. It'll also stick to flat surfaces using the included adhesive patch.



NOTE-TAKING APPS FOR iPad

Six apps that will help you record, store and keep track of your all-important thoughts

Reviewed by CARRIE MARSHALL



NOTE-TAKING APPS ON TEST...

- > Bear **Free** (Bear Pro **£14.99/year**)
- > Evernote **Free** (Evernote Premium **£44.99/year**)
- > GoodNotes **£7.99**
- > Notebooks **£6.99** (plus **£2.99** for PDF Reader)
- > OneNote **Free**
- > Whink **£4.99**

One of the best things about the iPad is its convenience and portability, which is why it's a great platform for taking notes. The size, shape and screen are ideal for scribbling, wherever you are, and the arrival of high-quality styluses such as the Apple Pencil can deliver a paper-like experience, backed up by the iPad's connectivity and rich media capabilities.

There's more than one way to take a note, though. Some of us are scribblers; others, touch typists. Some of us scrawl comments on photos; others prefer to record information using voice

Some of us are scribblers; others, touch typists. Some of us scrawl comments on photos; others record information using voice memos

memos. Some of us are all about the text; others mix and match every kind of media. As a result, the App Store is packed with apps promising to deliver the perfect note-taking experience, in a variety of different ways.

The apps we've looked at here run the gamut

between simple handwriting apps and do-everything writing environments where you could plan, research and write the Great American Novel. These are all very good apps, but their differences mean they'll appeal to very different people and excel in different ways. Some are ideal for grabbing thoughts on the go, while others are better suited to a desktop life. Some wear flowers in their hair; others are suited and booted.

If you intend to do a lot of handwriting, we strongly advise you invest in a good stylus, or Apple Pencil if your iPad is compatible.

Good doesn't necessarily mean having to spend a lot: we've had good results with inexpensive, simple styluses. Badly made models, especially ones with small points, can be a false economy; you'll spend so much

time correcting tracking errors and missing lines that you'd be better off typing instead.

With a good stylus, handwritten notes are wonderful; with a bad one, they're impossible.

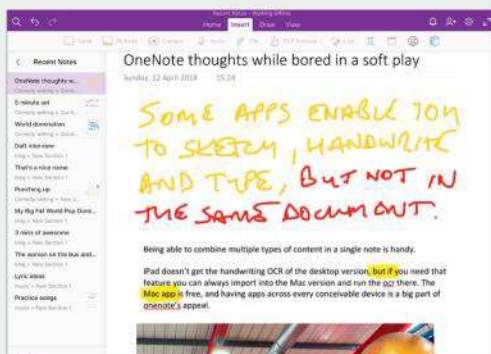
Whatever your preferred input method, take note of how we rate the top jotter apps available.

Things to consider...

Everything you need to know before getting started

1 Syncing to other devices
Can you easily get notes onto your Mac or your school or office PC, or will you need to export your work in a different file format?

2 Handwriting recognition
Most apps store handwriting as images, but if you want to be able to search, you'll need an app that offers optical character recognition.



Typing up a note is useful, but adding images, sketches and audio will make your notes far more memorable.

3 Drawing tools
Many apps offer simple sketching, but the results can be, well, sketchy. Shape correction can be helpful, although sometimes it tries to correct bits of handwriting, too.

4 Upload limits
If you're reliant on cloud storage, will you run out of space fairly quickly? Is there a data transfer limit, or can you sync as many notes with as many big images as you like?

5 Mixed media
Will you be happy using a single medium, such as handwriting or typed text, or will you want to create and store notes that include embedded images, files or audio commentary?

6 Room to grow
Will the app you're considering meet your note-taking needs not just today, but also in the longer term? Will your existing notes be easy to export if you change apps in the future?

How we tested

> We used our note-taking apps in the toughest environment imaginable: on our lap in a children's soft play area, trying to scribble with a stylus or tap on the screen. We also took our iPad Pro and stylus to night classes, and used them for our homework. In addition to writing notes, we imported existing documents, notes and blog posts where possible.



Higher...

PDF Expert

readdle.com

£9.99

> If your work revolves around PDFs, this is the app for you; it enables you not just to annotate but to edit them, too.



...or lower?

Notes

apple.com

Free

> Apple's own note-taking app is good, especially on iPads that support Pencil. Naturally, it uses iCloud to sync between devices.

Test 1 Key features

The main components



› Bear and Evernote resemble Apple's own Notes app, and are designed for typed notes rather than handwritten ones: for handwriting fans, Whink and GoodNotes are the apps for you. GoodNotes also gets handwriting OCR, so you can search your notes' contents, a feature OneNote hasn't brought across from its desktop sibling –

although you can always open your iOS-created notes in the desktop app later. OneNote is very good at organising all kinds of content, though, not just text, and it scales to really big projects.

If it's flexibility you're after, Notebooks is the winner here. It's a fully featured writing environment with Markdown support, file storage, PDF conversion, ebook creation, task management and an optional PDF reader/converter.

All the apps here offer instant syncing, and all bar Evernote are optimised for Apple Pencil.

TEST RESULTS

Bear	★★★★☆	Notebooks	★★★★★
Evernote	★★★★☆	OneNote	★★★★★
GoodNotes	★★★★☆	Whink	★★★★★

Test 3 Ease of use

Can you jot things down easily?



› As you might expect, the handwriting-focused apps – GoodNotes and Whink – offer the most paper-like experience. We think Whink knocks it out of the park: you just start scribbling and the app follows what you're doing, so if you realise you need to put in a photo or voice memo at a certain point, there's a long-

press menu to do just that. Using it feels like using magic paper. GoodNotes is a little less fluid.

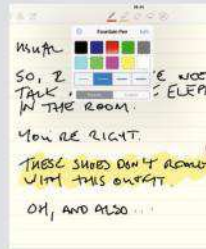
Evernote is simple enough and the drawing tools are quite good (bar an over-enthusiastic line corrector), but Bear is better: it's easy to format, tag, link and embed as you go along, and Markdown makes it easy to reuse content in other apps. The other apps are simple enough but feel a little overpowered: OneNote is very Microsoft Office-y and Notebooks felt a little clunky until we set default formatting and note options for quick starts.

TEST RESULTS

Bear	★★★★★	Notebooks	★★★★★
Evernote	★★★★★	OneNote	★★★★★
GoodNotes	★★★★★	Whink	★★★★★

Test 2 Extra elements

Features beyond the basics



› In addition to note creation, all of the apps here enable you to add images or draw sketches. Notebooks keeps them separate where the others embed the sketches in specific notes; it collates media in a note's containing folder rather than adding them to individual notes. Notebooks has a particularly useful

'new from pasteboard' feature that pastes copied text as a new note, and you can also get it to grab web pages.

With the free (optional) Office Lens app for both iPhone and iPad, OneNote becomes great at capturing written content and correcting poorly angled photos of presentations and whiteboards.

Bear and Evernote are straightforward enough with good tagging, but we preferred Notebooks and Whink. The former is great for collating varied content, and Whink is great for mixing up voice annotation, scribbles, handwriting and embedded media.

TEST RESULTS

Bear	★★★★★	Notebooks	★★★★★
Evernote	★★★★★	OneNote	★★★★★
GoodNotes	★★★★★	Whink	★★★★★

Test 4 Value

Are the features worth the price?



› This is an easy win for OneNote: Microsoft's largesse means it's the only app here that's completely free. Bear and Evernote are freemium with in-app purchases (Bear Pro is £14.99 a year, Evernote Premium a whopping £44.99); GoodNotes is a flat £7.99, Notebooks is £6.99 (plus £2.99 for the PDF Reader

module) and Whink is £4.99. So, OneNote is free, while GoodNotes and Whink come in at one set price. The others charge for different features: Notebooks charges extra for the PDF Reader; with Bear Pro, you pay to sync between devices, use themes and unlock export options; with Evernote Premium, you pay to remove device limits, increase upload limits and use PDF annotations. We think Evernote is the toughest sell, because it's really a collaborative working platform for business users and it's priced for deep pockets. The others are all priced more affordably.

TEST RESULTS

Bear	★★★★★	Notebooks	★★★★★
Evernote	★★★★★	OneNote	★★★★★
GoodNotes	★★★★★	Whink	★★★★★

THE WINNER

Whink

For input flexibility and ease of use, Whink takes the note-taking top spot

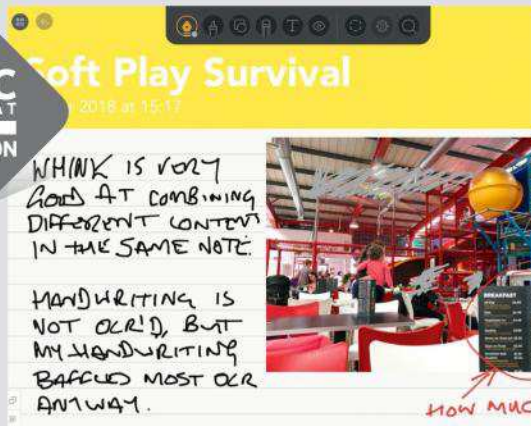
Like for like, OneNote leaves Evernote in the dust. The only niggle is that you have to use OneDrive to sync its contents. However, it's rather like Microsoft's other behemoth, Word: it can do everything, and sometimes you crave something simpler.

Something like Bear, perhaps. It's a brilliant app for writers, and it happens

Notebooks is a serious tool for serious business, while Whink feels more like a creative's canvas

to be handy for notes and lists too. It's very good, but limited in this company.

GoodNotes is better for stylus and Apple



Whink is more playful than other apps, but it's still serious: it makes mixed media note-taking utterly effortless.

Pencil users: it's useful for scribbling on PDFs, and making and finding handwritten notes. It isn't for power users, but it's practical and useful.

Notebooks is a serious tool for serious business, while Whink feels more like a creative's canvas. They're

both brilliant, flexible and genuinely useful, but they're going to appeal to different people. Whink is the one that most appeals to us.



Jo says...

> I really like Apple's improvements to the built-in Notes app, so I don't want to pay too much for a third-party option. I think Whink's £4.99 is a fair price, given the ability to input in a variety of ways and multitask with other apps while scribbling. I love the look of it, too.

> How do they compare?



> THE SPECS	> Bear	> Evernote	> GoodNotes	> Notebooks	> OneNote	> Whink
PRICE	Free (Bear Pro £14.99/year)	Free (Evernote Premium £44.99/year)	£7.99	£6.99 (plus £2.99 for PDF Reader)	Free	£4.99
WEB ADDRESS	bear-writer.com	evernote.com	goodnotes.com	dropbox.com	onenote.com	whinkapp.com
SYNCS VIA	iCloud (Bear Pro)	iCloud	iCloud	Dropbox	OneDrive	iCloud
DESKTOP APP?	Yes	Yes	Yes	Yes	Yes	No
WINDOWS APP?	No	Yes	No	Yes	Yes	No
WEB ACCESS?	No	Yes	No	No	Yes	No
HANDWRITING	No	No	Yes	No	No	Yes
HANDWRITING OCR	No	No	Yes	No	No	No
AUDIO RECORDING	No	Yes	No	Yes	Yes	Yes
MARKDOWN	Yes	No	No	Yes	No	No
SKETCHING	Yes	Yes	Yes	Yes	Yes	Yes
PDF ANNOTATION	No	No	No	Yes (additional option)	No	Yes
KEY FEATURES	★★★★☆	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
NOTE TAKING	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
EASE OF USE	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
VALUE FOR MONEY	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
OVERALL	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★

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

MacFamilyTree 8.3

Genealogy on the Mac is now slicker than ever

Reviewed by **JR BOOKWALTER**

> **£54.99** > **FROM** Synium Software, syniumsoftware.com
 > **NEEDS** OS X 10.10 or later

Synium has rolled out a cascade of free updates, dramatically improving performance

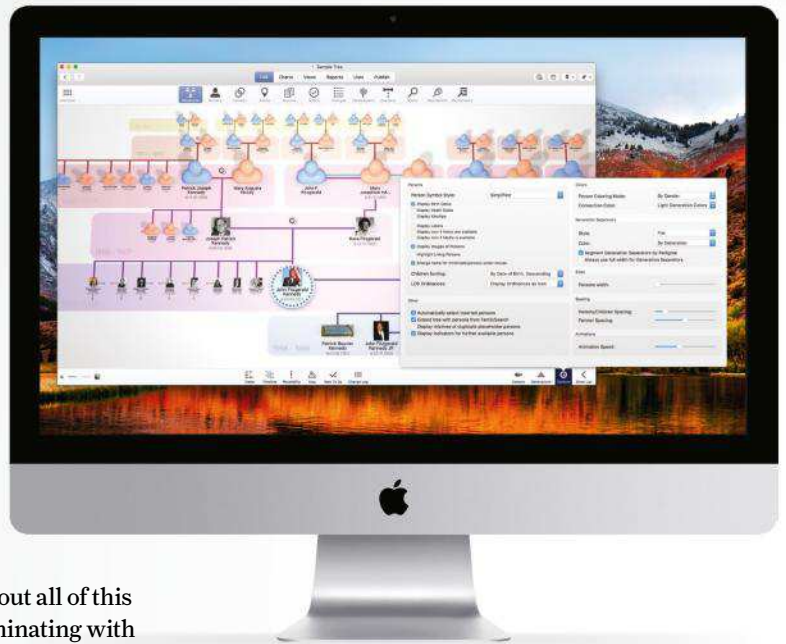
When it comes to Mac apps for tracing your genealogy, nobody does it better than Synium.

As evidence, we submit the latest release of MacFamilyTree 8, which has added so many new features over the last two years that the developer could have easily christened it 9.0 and charged accordingly for a whole new version.

Thankfully, it chose to roll out all of this in a series of free updates, culminating with version 8.3, which dramatically improves the software's performance, especially while working with the Interactive Tree. This feature is our favourite way to edit a family tree, and the adoption of Metal 2 – graphics acceleration software built in to High Sierra – allows for smoother animation and improved text rendering.

Graphically rich

The Interactive Tree benefits from other improvements, notably the ability to hide the sidebar for viewing across the entire window width. Generation separator options make it easier than ever to see who's related at a glance, while new Camera settings offer control over



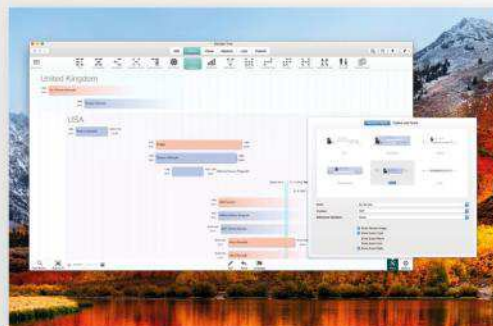
The Interactive Tree mode now offers more ways to customise lighting and shadows on images.

lighting and shadows over images. At last, you can even print out this graphically rich overview of your family tree.

While the Interactive Tree benefits the most, visuals have been improved across the board without losing the app's look and feel. Bloodline and indirect relationship paths including adoptions have been added as display options, along with six Timeline styles that offer a fresh look at tree data in a single click. Other new features include duplicate detection and merging two different GEDCOM or MacFamilyTree databases with full control over the results.

All this slickness comes at a price in terms of system support – you'll need a recent Mac, capable of running High Sierra. If you're stuck on an older system version, you're left stranded on the previous version of the app.

Likewise, Sierra or later is required for CloudTree support, which allows real-time collaboration with an unlimited number of family members and devices. This sharing method is more robust than the former version's ability to sync using iCloud Drive, although that option remains.



With a free update to MacFamilyTree 8.3, six built-in styles make it easy to change the Timeline's look.

Mac FORMAT VERDICT

> Easily worth the dosh if you're starting with genealogy, and great as a free update.



- + Awesome free updates
- + New Camera options
- + Performs really well
- Limited export options

Agenda

Note-taking, reimagined

> **Free** > **FROM** Momena, agenda.com
 > **NEEDS** macOS 10.12 or later

Mac FORMAT VERDICT

> A unique take on Mac note-taking that will appeal to calendar-minded users.

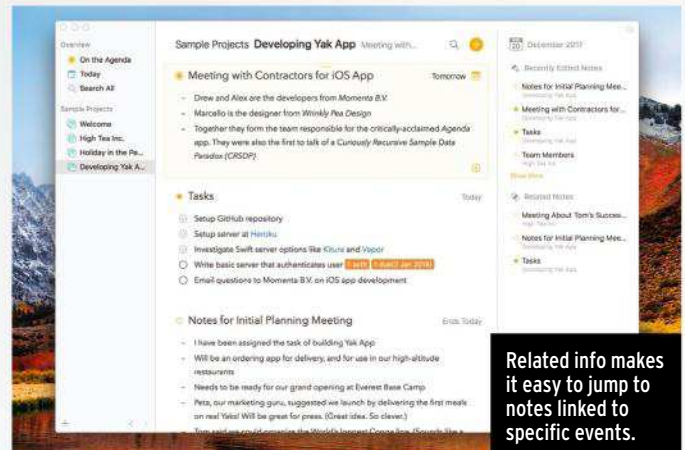


- + Date-focused notes
- Limited text styling

Agenda bridges the divide between note-taking and calendar apps, adding a project-based workflow.

This approach comes in handy for linking notes to events. The refined interface is designed around your agenda, with a collapsible pane to view upcoming events and jump to related notes; you can search across all projects at once, filtering by date, people or hashtag.

There are sample projects to hand, and you can import Markdown or Apple Notes. The latter is basic – folders



Related info makes it easy to jump to notes linked to specific events.

are converted to projects, but entries lose formatting, including links and images. New notes offer basic styles and formatting, but you can't change font or text size.

The lack of a companion app or collaboration features is disappointing, but the former should be coming soon; notes can be synced with other Macs, however.

Premium features like new calendar events, saving searches and removing watermarks cost \$24.99 (about £20). Additional features are worth paying for though, as any features the developer adds in the 12 months following purchase will be included, and are permanently unlocked. **JR BOOKWALTER**

Tayasui Sketches

A stylish art app for iOS

> **Free** > **FROM** Tayasui, tayasui.com
 > **NEEDS** iOS 9 or later



Mac FORMAT VERDICT

> Brush editing is limited, but overall Sketches excels.



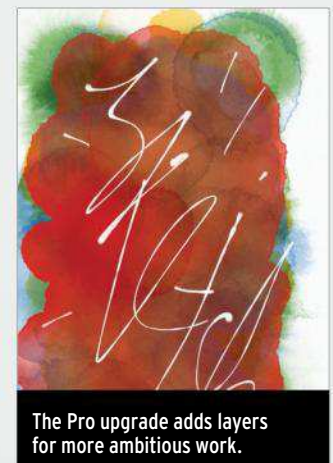
- + Easy to get started
- Fixed resolution and brush types

Tayasui Sketches is an iOS app for drawing or painting. On the iPad, it has a clean, minimal interface, with tools down the left side. On the iPhone, it's pared down even further, showing just one brush and an eraser; you can tap to fill the screen with more choices.

Used with either a finger or a stylus, Sketches adds variation and smoothing to create stylish strokes. For finer control, a £5.99 Pro in-app purchase supports Apple Pencil and a range of third-party pressure-sensing



Tools aren't fully editable, but there's adequate variety.



The Pro upgrade adds layers for more ambitious work.

styluses, such as Adonit's Pixel. The upgrade also adds layers, pattern fills and a colour mixer. Brushes aren't fully editable as in Procreate, but you can alter size and opacity. The default settings are well judged, from the satisfyingly scratchy pen to watercolours that mix until you 'dry' them. A two-finger tap activates unlimited

Undo, so you can experiment freely. You can also record your drawing process. Sketches leaves room for improvement: layer-blending modes are few, you don't get tone or colour adjustments, and the canvas is fixed at screen resolution – though Retina devices provide enough pixels for most purposes. **ADAM BANKS**

Rise of the Tomb Raider

It seems that Lara has moved on, but has the series developed, too?

Reviewed by PHIL SAVAGE

› £39.99 › FROM Feral Interactive, feralinteractive.com

› NEEDS macOS 10.13.4 or later, 2.3GHz Core i5, see website for graphics cards

The combat remains highly enjoyable; stealth and action are deftly blended

The opening of Lara Croft's latest adventure had us worried.

It starts with Lara trudging slowly through snow, the only requirement being to hold **W** as the game plays itself around you. We had flashbacks to the previous game's interminable, set-piece heavy intro. During a cutscene-laden climbing tutorial, we missed a prompt, fell and died. We managed it on the next try, climbed a bit higher, and had to watch another cutscene where Lara falls but is fine. Here we go again? Actually, no.

The opener is frustrating, but over quickly. Rise then sticks to a mostly consistent level of interactivity. There's still plenty of set-piece spectacle, but these pace-breaking action segments trust you to read clues and react. This is emblematic of Rise as a whole. It's not that Tomb Raider's missteps have been eradicated, but they have been dramatically reduced. Slo-mo quick time event sequences, awkward conversations, and by-the-numbers miniboss fights take up a lot less of the 15-or-so hour running time.

Lara's adventure starts in Siberia, where she's hunting the Divine Source. There's an important difference in the plot this time: Lara has initiated her quest. Though things soon spiral out of control, she's no longer an unwilling participant in events, which is crucial to how she is treated; she no longer feels like a victim of her environment.

The story is still clumsy at times, yet much better in some regards. Lara has a resolve that didn't exist before, and that means there's no clumsy disconnect between the story of a woman traumatised by her actions and the gleeful feeling of killing off a camp full of bad guys. It's just as well, because the combat



Explore thoroughly and you'll uncover optional tombs that add to the longevity and satisfaction.

remains highly enjoyable. Stealth and action are deftly blended. Most foes begin unaware of Lara's presence, giving you scope to creep around. With patience, and using objects as distractions, it's possible to systematically clear out most patrols. Often, it's more fun to quietly take out a few foes than start a fight.

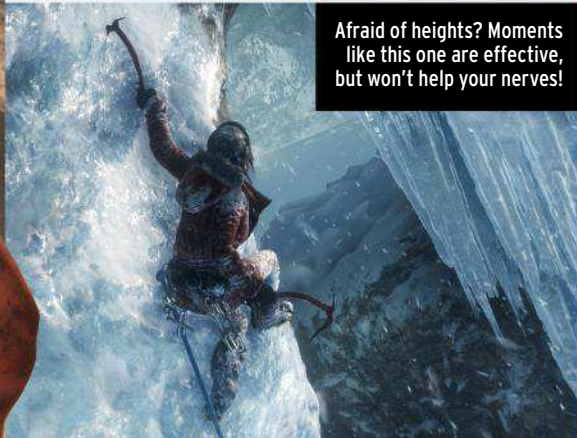
Crafty croft

Lara has access to a small selection of weapon categories – pistol, rifle and shotgun – with various styles of each. Most feel good to fire, the panicked inaccuracy of the automatic rifle being the only real exception. Pistols feel lightweight and clinical, while the pump-action shotgun is chunky and gratifyingly deadly. Once again, the bow is the star of the show. Having to draw back and charge shots provides a nice rhythm to the combat, especially when paired with some of the skill upgrades. We especially liked the feel of the rapid fire skills, which let you instantly fire fully charged follow-ups after your first shot. Aimed correctly, even heavily-armed guards fall with a single salvo.

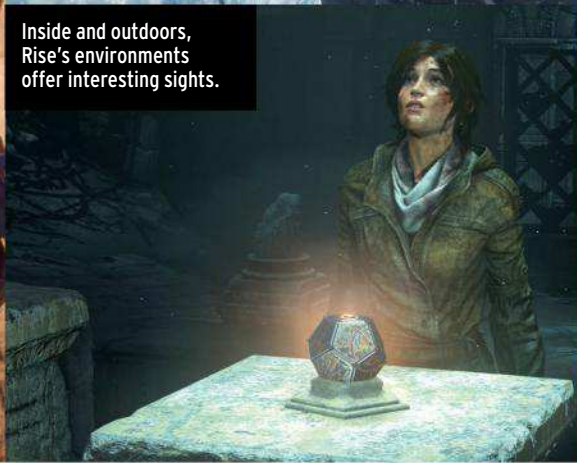
Lara is now able to craft combat tools on the fly. Arrows and special ammo can



In the second outing of Lara's rebooted story, she sets her own agenda.



Afraid of heights? Moments like this one are effective, but won't help your nerves!



Inside and outdoors, Rise's environments offer interesting sights.



SYSTEM REQUIREMENTS

Can your Mac run it?

> The oldest Macs supported are 27-inch iMacs from late 2012 with a 2GB Nvidia 680MX chip, though lower end Macs (13-inch MacBooks and 21.5-inch iMacs) need to be more recent. The game played well enough on our MacBook Pro (Late 2016, 4GB Radeon Pro 460), but defaulted to a mere 1280x800 resolution. There were dips below 30fps, but the built-in benchmark reported a frame rate of 51fps on average.

be created at any point, but you can also use things found in enemy camps. A bottle can be turned into a Molotov cocktail; a petrol can into an improvised explosive device. This costs resources you've acquired, but we were never so low that we couldn't set light to clustered soldiers. You can craft combat tools even as you move Lara with the keyboard; as usual, we recommend using a non-Apple mouse or a gamepad. Moving between cover while grabbing a petrol can is frictionless, and gives combat a welcome feeling of fluidity.

Columbus, eat your heart out

When not fighting, you're exploring large, open hub areas – sprawling, intricate environments that, for the most part, you can leisurely pick your way through – the only distractions coming from the odd wolf, bear or big cat. Navigating uses a standard set of interactions, thrown together in various combos – jump, swing, grab, attach – each requiring a specific key press. It's a simple, streamlined system, and you'll seldom run into problems. It's a shame there's not more danger, but the presentation does a lot of the heavy lifting. Scaling giant buildings

or huge cliffs still feels risky, even as the interactions involved are slim.

Optional challenge tombs boast some of Rise's most intricate puzzle design. Each is short, but they use the standard interactions in interesting new ways. If there's a downside to the game's exploration, it's that collectibles still feel like the end goal rather than a bonus along the way. Lara's route through an area is rarely in question, especially due to Survival Instinct, an optional view that highlights your next objective, pertinent puzzle pieces, resources and collectibles.

We miss the cavernous brain teasers of Lara's early adventures. Lara visits plenty of ruins this time, but they're all solved through familiar and comfortable interactions. With a few notable exceptions, surprise comes through spectacle rather than design.

In many ways, Rise is peak sequel design: a very similar game with a set of expanded and additional systems. But it's better because you spend more time engaging with those systems. It doesn't fully eradicate the missteps around the edges of interactivity, but it lets you spend longer enjoying the core action and exploration.

**Mac
FORMAT
VERDICT**

> Rise of the Tomb Raider is a little too streamlined in places, but it does a lot to improve upon its predecessor.



- ⊕ Captivating setting
- ⊕ Great opportunities to experiment
- One main city
- Story is nothing new



OmniOutliner 3

A superb app for organising ideas

› £9.99 (Essentials); £38.99 (Pro) › FROM The Omni Group, omnigroup.com › NEEDS iOS 11.2 or later

Think of the app as a repository for all your stuff



Mac FORMAT VERDICT

› Essentials is great for most needs; if you outgrow it, upgrading to Pro is affordable.



- ➕ Essentials is decent
- ➕ Export options
- ➕ Customisation in Pro
- ➖ Pre-filled templates

OmnioOutliner 3 comes in two versions: Essentials, which offers the basics, and Pro, which adds tools for power users. The free trial enables you to try both: if you choose Essentials at the end of it, you can later upgrade to Pro for £19.99.

The name OmniOutliner is a bit of a misnomer, because there's much more to the app than outlining. Think of it more as a repository for all your stuff, ranging from your project to-do list to study notes or the literary masterpiece you're writing. The Pro version includes file attachments, such as images and audio recordings, which makes it handy for college work and projects involving meetings.

The app works on both iPad and iPhone; using the latter means losing a lot of the space available to the bigger iPad app, but it's useful if you're syncing via Omni's own OmniPresence sync or Apple's iCloud Drive.

To start using OmniOutliner, you just start typing. If you want to indent, tap or the indent button; if you want to go the other way, it's and or the outdent button; and if you want a new line, just tap or the + button. Collapsing and expanding sections is just a matter of tapping the arrow next to them.

Straightforward stuff, but it's what you do after you've written that's interesting. For example, when you filter, you don't get the

traditional highlight in a block of text. The app hides all the rows that don't match, making it easier to see what you're looking for. You can select multiple rows to drag and drop, which is useful, and in the Pro version you can drag images and files as well as text from other apps.

Pro benefits

There are tons of keyboard shortcuts for formatting and highlighting if you've got a hardware keyboard. You also get a small but decent selection of predefined templates – although irritatingly they're pre-populated, so you need to delete content to insert your own. You can now print and export to PDF, CSV, HTML, docx, pptx, and tabbed text. The Pro version adds Excel support and OPML links.

Pro also benefits from OmniAutomation scripting (as per OmniGraffle and OmniFocus), password encryption, custom templates and themes. It also offers more styling options, the ability to have more than one column, and the option to save filters. It's very powerful and feels closer to a dedicated business writing app than an outliner.

If you're a student, Pro is the one to go for; it makes managing even the most enormous outlines a breeze, and the ability to include media is a real plus. For us, though, Essentials does enough. **CARRIE MARSHALL**

Gyroscope Health

Track everything about yourself

> **Free** > **FROM** Gyroscope Innovations, gyroscope.pe
 > **NEEDS** iOS 9.3 or later

Mac FORMAT VERDICT

> An ambitious app that delivers, if you sync it with multiple apps.



- ⊕ Tracks pretty much everything
- Not for the privacy conscious

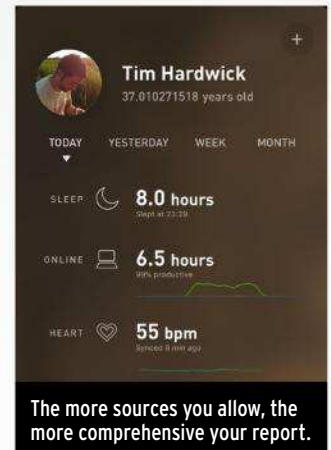
Third-party app Gyroscope tries to go one better than Apple's Health, by integrating data points and more into a unified personal profile with detail-rich report cards.

Initial setup involves granting the app permission to retrieve data from a variety of sources. The more sources you allow the better, to facilitate this "operating system for the human body".

A good example is the way Gyroscope tries to detect your sleeping habits. The app's algorithmic AI uses



Each report card shows tracked data as a visual graph or map.



The more sources you allow, the more comprehensive your report.

step count and combines it with data from RescueTime to decide if you were asleep. It then looks at location data from Moves or Foursquare, and modifies recorded sleep times if it sees locations changing during periods that it 'thought' you were asleep.

We found Gyroscope's sleep/activity tracking to be more accurate than the Fitbit

app alone, but only when all data sources were available – disabling just one makes feedback a lot less insightful.

The plethora of customisable report cards (some of which require a Pro subscription) is impressive, and all can be shared with fellow Gyroscope users and via social media integrations. **TIM HARDWICK**

The Sims Mobile

A pocket-sized life

> **Free** > **FROM** Electronic Arts, ea.com > **NEEDS** iOS 9 or later

Mac FORMAT VERDICT

> Not the full Sims experience, but a funny, streamlined pocket version.



- ⊕ Beautiful art and animations
- Less personality than The Sims

Like The Sims FreePlay released seven years ago, The Sims Mobile is a freemium game.

This version is a focused experience, doing away with complete freedom of choice in favour of 'stories' – small chapters of life based on career, relationship and hobbies, with rewards for completing each stage. Perhaps you'll be a doctor, trying to figure out the mysterious Llama Flu, or an aspiring foodie learning the cooking ropes. Each one is accompanied by quirky writing, as well as unique



Everything is done through 'stories', which are completed with daily tasks and hangouts.

and funny interactions, and rewards that range from money to experience points, to new clothing.

There are multiple currencies in play, and it is with these that you buy everything: clothes, furniture, even new Sims. Without paying for a single piece of content, you can earn enough to buy that new oven you've had an eye on, and with careful, attentive playing, you can rake in the simoleons in no time.

The Sims Mobile is well made, with custom animations and objects that are impressively detailed. Your Sim will heave a sigh when they fail, sweep their paramour off their feet, and stir a soufflé mix with such panache that it's hard not to see those people on-screen as real life humans.

It's a simplified version of the Mac game, for sure, but that's not necessarily a bad thing – it's well suited to mobile play. **KATE GRAY**

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.

UPDATED JUNE 2017
EXPECTED 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



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



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

Nuisance calls

You'll have received a lot of emails over the last few months from companies asking for your explicit permission to keep you on their mailing lists. This has been spurred on by the General Data Protection Regulation (GDPR), which came into effect on 25 May. But while good companies can be expected to stick to this law, not least because the fines for breaking the rules are hefty, you may yet receive unwanted contact from nefarious sources.

When it comes to phone calls and text messages, iOS provides the ability for third-party services to help you filter incoming calls and messages using apps like Hiya (free, bit.ly/hiyaio). Hiya uses a database of spam and scam callers' numbers to warn you on the incoming call screen – or outright block this sort of intrusion. Once you've installed an app of this kind, you need to turn on its services in Settings > Phone > Call Blocking & Identification.



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
UPGRADER	iPhone 8 (4.7-inch display)	CAPACITY: 64GB PROCESSOR: A11 Bionic FACE ID No CAMERA 12MP photos, 4K video	£699
HIGH END	iPhone X (5.8-inch display)	CAPACITY: 64GB PROCESSOR: A11 Bionic FACE ID Yes CAMERA 12MP photos (dual-camera), 4K video	£999



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
UPGRADER	9.7-inch iPad	CAPACITY 128GB PROCESSOR A10 CONNECTIVITY Wi-Fi CAMERA 8MP TOUCH ID Yes	£409
HIGH END	12.9-inch iPad Pro	CAPACITY 256GB PROCESSOR A10X CONNECTIVITY Wi-Fi CAMERA 12MP TOUCH ID Yes	£919



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.



Apple 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
 £400 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
 £530 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
 £269 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
 £749 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
 £258 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.

> **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
 £230 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
 £250 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
 £100 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

£349 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

£249 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

£350 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

£150 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

£400 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

£156 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

£170 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!

> 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.

> OUTLINING APP (iOS)

OmniOutliner 3

£9.99 for Essentials, £38.99 for Premium omnigroup.com



> Sometimes you just need to get your ideas down quickly. For times like that, you need to get OmniOutliner 3.

It's extremely easy to get started, and enables you to quickly search and reorganise your notes. The Pro version adds encryption, automation, custom templates and much more. It's the best way to jot down and organise your ideas.

> 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.

> 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.

> 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.

> 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.

> 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.

> 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).

The Macmillan...

... Collective!

BY MCMILLANPHOTO

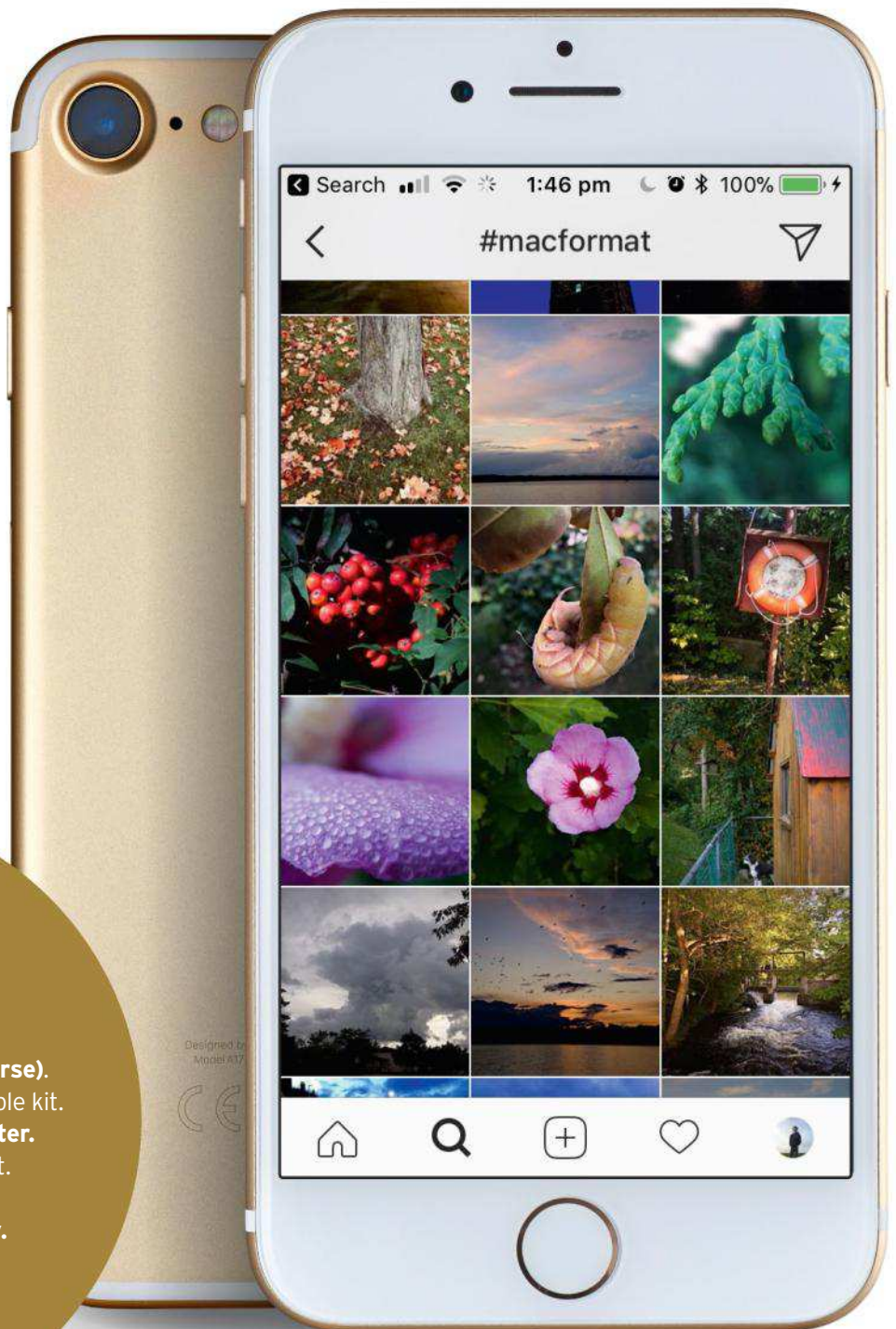
We're in a brilliant situation here at MacFormat Towers, in that you photography fans are supporting our Photo Stream page so enthusiastically, we're struggling to choose individual images! This month, we've actually chosen a collective from Greg McMillan as he's posted so many stunning shots.

Greg actually runs his own iPhone photography website (shotoniphoneonly.com), so be sure to check out more of his fantastic shots online.

Share your pics with us using the hashtag #MacFormat on Instagram. In each issue, we'll pick our favourite to feature on this page.

WHAT TO DO!

- › **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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RANDOM APPLE MEMORY

Intel transition

Adam Banks remembers when Apple swapped its own processors for industry-standard Intel chips



© Image courtesy of Apple

Apple's shift to Intel chips was not entirely unexpected, despite previous criticisms.

Speaking at the Worldwide Developers Conference (WWDC) on 6 June 2005, Steve Jobs announced to the world that the Mac was abandoning the PowerPC processor line that Apple had been manufacturing in partnership with IBM and switching to the rival Intel chips used in Windows PCs. Amid much-discussed delays to the PowerPC 970, aka G5, the move wasn't entirely unexpected. But the decision came out of the blue, with Jobs revealing Mac OS X had secretly been tested on both platforms for years.

Despite the fractious relationship between Apple and IBM, PowerPC had given the Mac a new lease of life. In 1997, an Apple TV commercial showed Intel's Pentium II lumbering along on the back of a snail, contrasting its reputation as 'the fastest chip in the world' with the PowerPC G3 - 'up to twice as fast'. In 1999, Apple

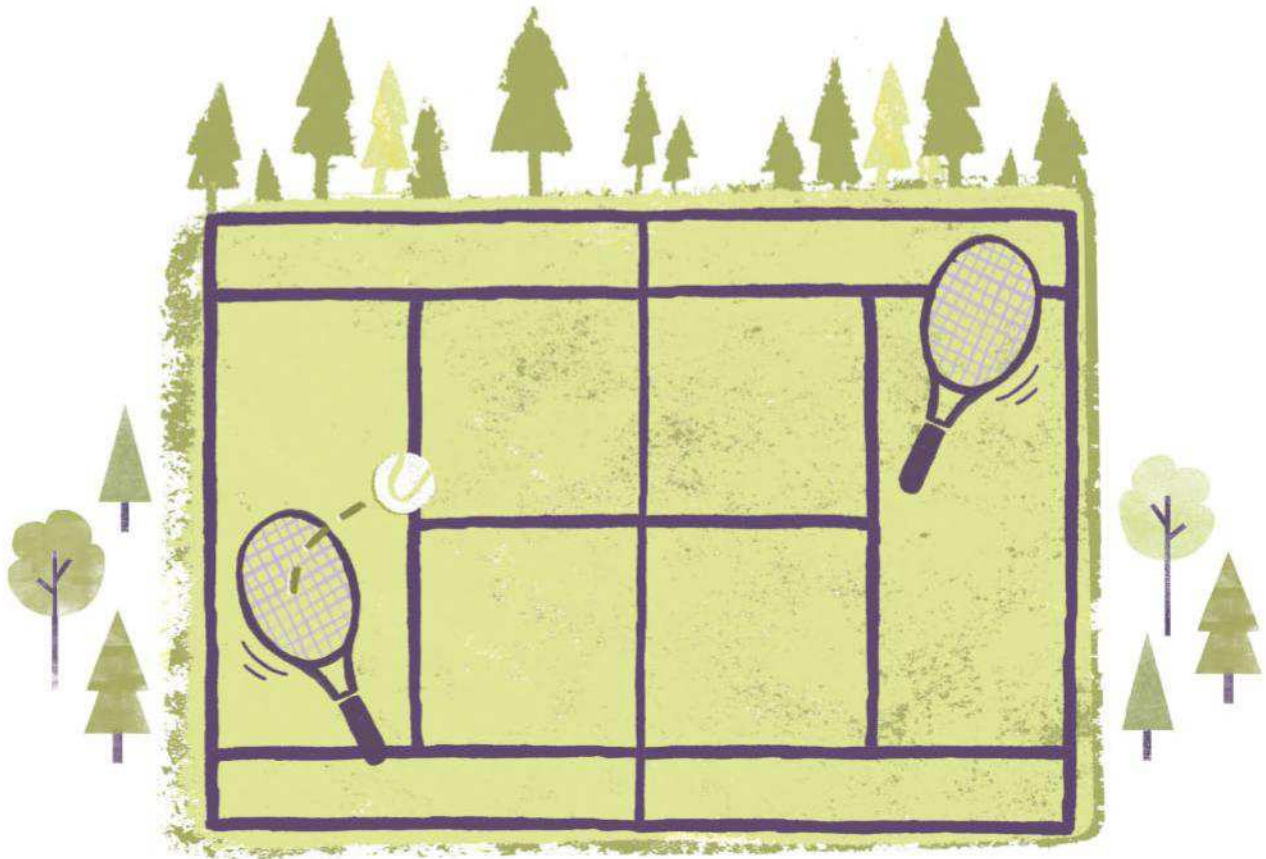
hailed the Power Mac G4 as 'the first personal computer classified as a weapon by the US Government'. The claim, referring to a threshold for technology exports set 20 years earlier, was cheeky, but true.

So, giving up on the G5 looked like snatching defeat from the jaws of victory. "I don't know that Apple's market share can survive another architecture shift," worried Insight 64 analyst Nathan Brookwood, echoing the views of many. In fact, the following decade saw Mac shipments grow steadily, while the PC market declined.

Whether sticking with PowerPC would have been better or worse, we'll never know. But a year later Jobs was able to report, again during WWDC, that the transition — aided by the introduction of "universal binaries", allowing developers to release apps that worked on both old and new computers — was "the best and smoothest in the whole history of the industry".



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