INSIDE APPLE'S AIRPODS

THE WORLD'S BEST-SELLING APPLE MAGAZINE

Macworld

MARCH 2017

EVOLUTION OF THE

Macbook Pro

25 years of Apple's laptops

iPhone turns 10

MacBook Pro troubleshooting tips

Contents

Welcome...

Welcome to the latest edition of *Macworld*. In a moment of unexpected nostalgia at its most recent media event, Apple pointed out that it was the 25th anniversary of the PowerBook. Since 1991, the tech giant has gone through seven distinct eras when it comes to its laptop strategy and design. On page 34, we look at the evolution of the MacBook Pro.

Unfortunately, Apple's latest slim line computer didn't have the most auspicious of launches. On top of people complaining about everything from USB-C limitations to a paltry 16GB memory ceiling, several hardware issues have come to light since actual end-users got hold of the machines. On page 28, we take a look at the biggest, strangest and most awkward problems that have been reported, explaining how to tell whether you're affected and what to do if you are.

If you've taken the plunge and have bought a new iPhone 7/7 Plus, we explain how to set up Apple's latest handset on page 105. And if you are tempted to buy a pair of AirPods, then we reveal the tech that powers the earphones on page 129.

Plus, we've our usual reviews, features and tutorials, so you can get more out of your hardware.

Cover image: Wesson Wang (tinyurl.com/hjbr2Lm)

News: Apple's Q1 results

Records for the iPhone and Services, but the iPad still struggles, reports Jason Snell

It's fair to say that, from a financial results perspective, 2016 was rough for Apple. Yes, the company still made billions in profit on massive revenues, but Wall Street wants to see growth and the massive iPhone sales of 2015 – when the company introduced the larger-sized iPhone 6 and iPhone 6 Plus – were just too big for 2016 to match.

But it's a new fiscal year, and Apple's latest financial results, announced last month, suggest that the story of Apple in 2017 will be different.

The company took a page out of its 2015 playbook, setting an all-time record for revenue, and provided guidance that it will likely show year-on-year revenue growth again next quarter. The company broke a bunch of other records, too – for Apple Watch, Services, and the Mac.

To be fair, Apple really does holiday quarters right. (Even the year-ago holiday quarter

was a record.) It's the company's biggest quarter of the year by far, but that means there's than much more at stake. Apple's 2016 holidays were good. Here's a deeper dive into some of the other interesting things we learned as a part of Apple's regular disclosure of numbers and give-and-take with financial analysts about Q1 2017.

The iPhone might be unstoppable after all

Most of the Sturm und Drang about Apple's 2016 involved a fall-off in iPhone sales from the prior year. But the smartphone is still huge. In the holiday quarter of 2016, Apple sold more handsets than ever before, and iPhone revenue comprised a whopping 69 percent of Apple's total revenue. (No other budget line could even manage 10 percent of the total.)

According to Apple CEO Tim Cook, iPhone 7 sales were greater than Apple's own internal expectations, and the company wasn't able to make the 7 Plus fast enough to meet demand until January, after the quarter had ended. According to Apple, the plus model saw "exceptionally strong demand," higher than in previous years as a part of the overall product mix, and set a record for the most Plus models sold in a quarter.

Perhaps buyers were motivated by the phone's two-camera system to step up from the smaller model. Regardless, it's a phone that costs more – and the average selling price of the iPhone went up last quarter.

With great success comes great fear about what comes next for the iPhone, of course. Apple suggests that year-over-year performance

for the iPhone will be similar next quarter as it was for this one, which would suggest that iPhone sales will slightly improve year-over-year, but it won't be dramatic.

Services is a monster in waiting

Apple has been promoting its Services budget line, which includes the App Store, iTunes, Apple Music, Apple Pay, and iCloud, for a few years now, and given its impressive and consistent growth, that makes a lot of sense. The Services line set a revenue record during the holiday quarter, led by the biggest quarter for the App Store ever.

To put the $7.2 billion in Services revenue in perspective, that's barely less than Apple made on the Mac last quarter, and more than the iPad. The firm expects the size of its Services business to be the equivalent of a Fortune 100 company sometime this year. Apple's systems are driving 150 million paid customer subscriptions, which includes both Apple subscription offerings and third-party subscriptions via the App Store.

That's big, but look at the ambition here: As Apple grows the installed base of Apple products, it expects services revenue to keep growing. In the next four years, according to Tim Cook, Apple expects the Services line to double. That's huge.

Apple feels comfortable with its wearables

Apple doesn't disclose actual sales numbers for Apple Watch, so we're left to dine on the scraps of information that come out during these quarterly financial disclosures. This was a good quarter for the watch, though: Cook said Apple Watch units

and revenue were all-time highs. What's more, Apple found the holiday demand for the Apple Watch so strong that the company "couldn't make enough."

This is a hard time for the wearables market, with Fitbit laying off people and most smartwatches being considered busts. The Apple Watch may not be an enormous product for Apple, but it's clearly successful, and last fall's release of new software and new models helped goose sales to new highs.

But the Apple Watch isn't the only wearable on Apple's list: there are also AirPods, of course. Cook didn't say much about the AirPods, and we doubt very many of them even managed to ship during the quarter. We did find it interesting, however, that Cook discussed AirPods immediately after the Apple Watch, and then noted that Apple sees "huge growth potential for wearables." If you aren't considering AirPods as much a part of Apple's wearable-device strategy as the Apple Watch, you might want to think twice.

The MacBook Pro made a whole lot of money

Last autumn's release of new MacBook Pros had about the effect you might expect: Mac revenues hit an all-time high. Because the MacBook Pro models are expensive, the net result was a major spike in the average selling price of the Mac. It led to this oddity: while Mac revenues were a record, Mac unit sales weren't.

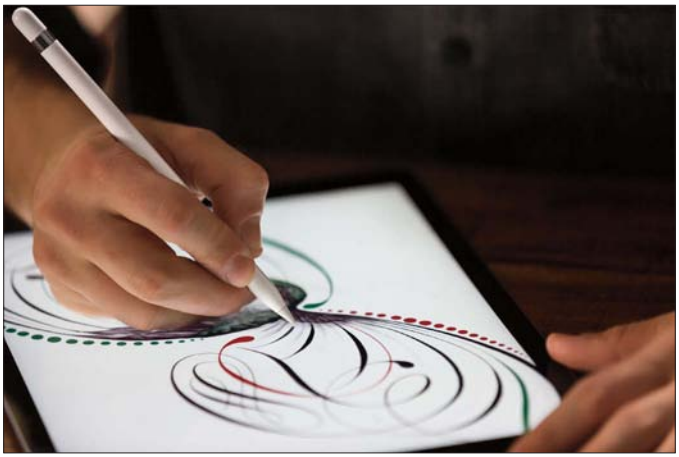
As we tweeted some of these results during the event, we were surprised to find more than one angry person replying to the reports on Mac sales. By now it's no secret that a lot of people were unhappy with the details of the MacBook Pro launch, but we hadn't realised that some of them were really excited about the prospect of watching the roll-out fail, as Apple reported bad Mac sales numbers that indicated that the market had turned its back on Apple's new laptops.

Nope. Didn't happen. Biggest Mac revenue quarter ever. Rightly or wrongly, we don't think Apple is going to look at this quarter's results and rethink its MacBook Pro strategy.

The iPad... exists

Another quarter, another disappointing result for the iPad, which was down a bunch year-over-year, with average selling price taking a big hit. No, the iPad still hasn't hit rock bottom. Given that only one new iPad model shipped all of 2016 – the 9.7in iPad Pro – maybe it's not too surprising that it wasn't a hot holiday item. We wonder if that's a flaw in Apple's strategy of selling older models as lower-priced options; people might be exited by a 'new' iPad, even if it's made out of cheaper or older tech, but if all you give them is a discount on last year's model, will people be motivated to buy?

We don't know. Books could be written on the peculiar journey of the iPad. It's still dominant in the category of tablets priced over £200, which are the only tablets Apple is remotely interested in selling. But as a whole, the tablet market is just not there yet. Maybe we'll get some indication of where it is, someday. But all we know now is that things are still on the decline.



News: Qualcomm head slams Apple's lawsuits

Arguments over licensing explodes, writes Agam Shah

Senior executives at Qualcomm have slammed Apple for filing lawsuits that allege the chipmaker significantly overcharged it for licensing fees. The spat, which has seen cases filed in California and Beijing, was top of the agenda when it conducted a recent earnings call with analysts. "Apple has been actively driving regulatory attacks on Qualcomm's business in

jurisdictions around the world and misrepresenting facts and withholding information," Qualcomm president Derek Aberle argued.

The Cupertino-based firm is claiming that the chipmaker retaliated because it cooperated with a South Korean government investigation that ultimately saw the chipmaker fined $854 million for unfair licensing practices.

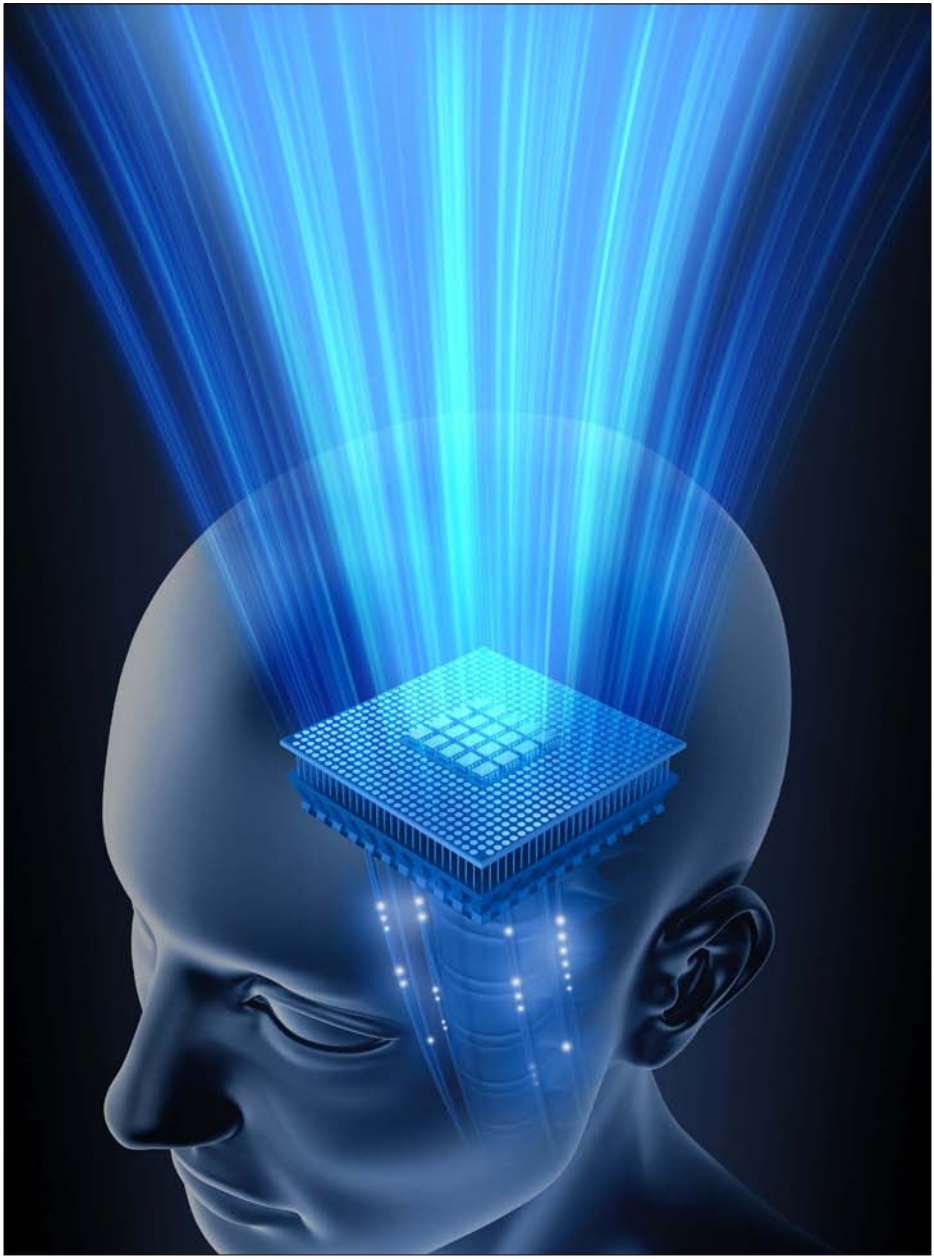
Aberle denied that the firm did any such thing, and the company objected to Apple making false and misleading statements. "We will prove that Apple's irresponsible claims of extortion are false."

In the California lawsuit, Apple is seeking $1 billion in compensation for excessive royalties paid. It argues in its filing that Qualcomm should charge royalties based on the price of the baseband chip in the mobile device, and not a portfolio of technologies.

Aberle said that was inconceivable, and not in line with how chip technologies have been licensed for decades. Licensing at the component level is inefficient, and a device or modem chipmaker would still need to take out licenses for other Qualcomm technologies in smartphones.

Besides modems, Qualcomm has a huge arsenal of intellectual property that also covers technologies such as real-time tracking and mapping, which forms the basis for companies that include Uber. The excess royalties in dispute are paid to Qualcomm by contract manufacturers such as Foxconn, which assemble the iPad and iPhone, and not directly by Apple.

"We hope Apple wouldn't interfere with those contracts," Aberle added.



News: Apple joins rivals to advance AI research

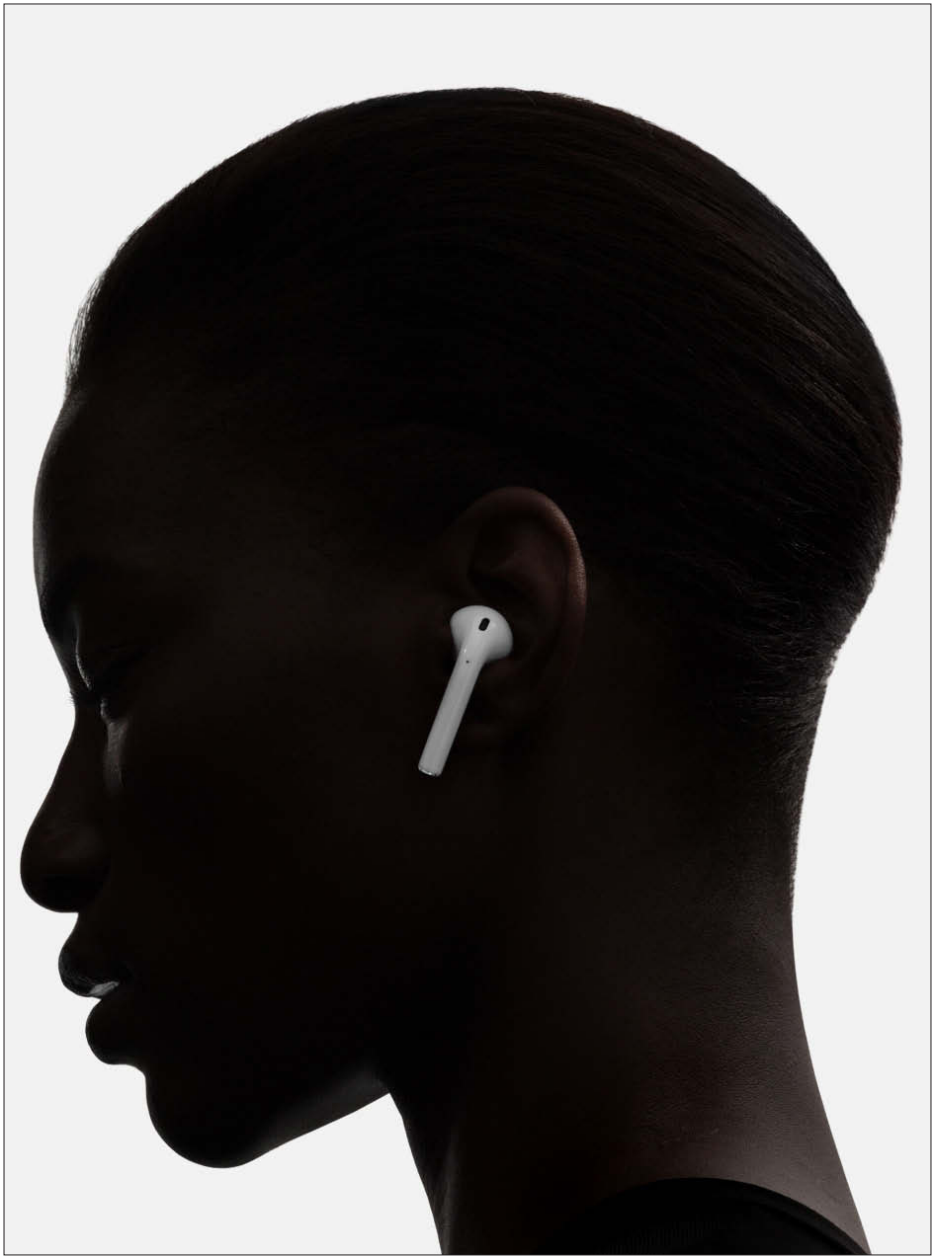
Apple joins the Partnership on AI. Agam Shah reports

Apple has joined rivals Google, IBM, Microsoft, Facebook and Amazon as it takes a step ahead to advance research and development of artificial intelligence. The Partnership on AI was founded in September 2016 to steer debate on best practices on AI. The group believes the technology could help in areas such as healthcare and transport.

Siri is currently Apple's most visible artificial intelligence technology but a larger strategy is still a subject of speculation. The firm will likely implement the technology in its mysterious autonomous car project, so self-driving vehicles can navigate and cruise the roads safely without a human at the wheel.

Beyond the Alexa voice assistant, Amazon uses AI to provide buying recommendations. Google recently said it was providing TensorFlow tools, so users can build a wide variety of AI capabilities into Raspberry Pi 3 and IBM's high-powered cognitive computers.

The group believes artificial intelligence holds tremendous promise and will lead to a big societal impact. The technology's impact needs to be discussed, and companies need to establish ground rules on how the technology is developed and deployed, according to the group.



News: Find My AirPods enters public beta

Anyone can beta test latest mobile OS, reveals Susie Ochs

Just two days after Apple unleashed iOS 10.3 to developers, members of the public beta program have access to it, too. Anyone who wants to kick the tires of the first public beta can join the beta program by visiting beta.apple.com and signing in with your Apple ID.

Its big selling point is a great new feature for AirPods owners, letting them locate a misplaced Pod by firing up the Find My iPhone app and having the earphones play a sound. This plays if the AirPods are anywhere in Bluetooth range of any of your Apple devices signed into the same iCloud account. If your Pods are out of range or totally dead, the Find My iPhone app can let you know where they were last 'seen' by Bluetooth. It's pretty handy.

That isn't the only thing new in iOS 10.3, though. The Settings app gets a new Apple ID Profile page, that collects all the information and settings tied to your Apple ID in one place, which should make Settings easier to navigate. Also in Settings, you'll see a better explanation of what is taking up your iCloud storage.

As always, be sure to back up your device before you upgrade to the beta. And then be sure to do your duty by reporting bugs with Apple's Feedback Assistant app, which is automatically installed.

News: Apple's plans for manufacturing in India

Executives put the case before officials. John Ribeiro reports

Apple's plans to manufacture in India made headway as executives of the company presented detailed plans to the country's federal government.

It may be some time though, before Apple gets permission for its proposal to manufacture in India as it reportedly involves a request for deep cuts

in the import duties for components. The meeting is said to have ended inconclusively, according to sources close to the situation.

"We've been working hard to develop our operations in India and are proud to deliver the best products and services in the world to our customers here," Apple said in a statement after the meeting. "We appreciate the constructive and open dialogue we've had with government about further expanding our local operations."

India is now one of Apple's fastest growing markets, with iPhone sales up over 50 percent in fiscal 2016 compared to the previous year. The high growth comes largely from a small user base of its products in the country, but with recent rollouts of 4G networks, the company expects more demand for its devices.

Samsung Electronics, followed by Chinese and Indian brands Lenovo and Micromax, led the Indian smartphone market in the third quarter largely because they are able to deliver their products at various price points, according to IDC.

Apple has previously proposed to India that it would like to import refurbished phones to sell at a low cost to India's price-sensitive consumers. That proposal was shot down by some sections of government because there were concerns that it could involve end-of-life products, leading to e-waste disposal issues.

Setting up manufacturing in India will also help Apple's bid to set up wholly owned retail stores in the country. Under Indian rules, foreign-owned, single-brand retailers have to source 30 percent of their products locally.

News: App developers able to respond to user reviews

Change coming in macOS Sierra 10.12.4, writes Roman Loyola

The user reviews in the iOS and Mac App Stores can be a mixed bag. Sometimes, a user provides useful information to help you make a purchasing decision. But often these reviews are filled with complaints about problems that were encountered while using the software. When a developer addresses those problems in updated versions, the review lingers.

In a future update to iOS 10 (10.3) and macOS Sierra (10.12.4), developers will have a chance to address user reviews in the App Store. The

release notes for iOS 10.3 state that developers will be able to respond to a user review, and the response will be available for others to see. The notes also say that this feature will be available in the Mac App Store.

Apple doesn't provide any information on how the response system itself works. Hopefully, it'll work in such a way to make it easy for the developer to respond. As Many Tricks' Rob Griffths points out on Twitter, something like a notification system would help. Popular apps get more reviews, and having to manually browse each review could even be discouraging to developers.

The release notes also state that there will be a new API for asking users to review and rate an app while still using the app; you won't be switched over to the App Store app. According to The Loop's Jim Dalrymple, who talked to Apple about the app reviews API, developers will now be limited to three review requests per year, and if a user does leave a review, the requests will stop. Dalrymple also reports that there will be a "master switch" to turn off review notifications from all developers, and that iOS 10.3 will allow you to label a review as Helpful via 3D Touch.

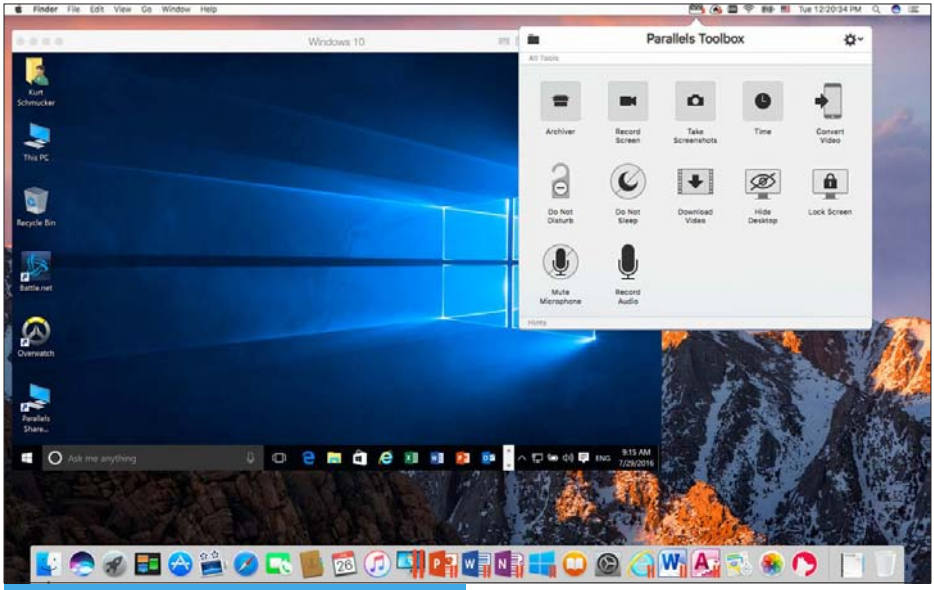
With such a wide selection of software, user reviews play a key role when you need to make a buying decision, but sometimes a review can be misleading, have wrong information, or talk about issues that the developer has addressed. The ability to let the developer respond to a user review should result in a better user experience in the App Store, as well as better customer relations for the developer.

Review:
Parallels Desktop 12

£64 inc VAT • parallels.com/uk ★★★★½

Mac users are fortunate to have not one but two excellent commercial virtualisation software packages to choose from, not to mention less-polished free alternatives like Virtual Box. In what has now become an annual ritual, VMware and Parallels have updated their respective Fusion and Desktop products to coincide with the recent release of macOS Sierra.

In 2015, both companies delivered ambitious new versions to capitalise on back-to-back debuts of Windows 10 and OS X El Capitan, but the latest editions are somewhat more subdued



The only 'new' Parallels Desktop 12 feature is the standalone Toolbox application, which consolidates 20 Mac utilities into a single menu bar icon

by comparison. VMware marked the occasion by launching Fusion 8.5, a maintenance update with no new features.

Having celebrated its tenth anniversary for Desktop earlier this year, Parallels encouraged engineers to come up with at least one unique new feature to justify the upgrade to version 12, although the company's usual relentless innovation produced a mixed bag this time around.

Open the Toolbox

Ironically, the marquee feature of Parallels Desktop 12 (£79 one-year Pro Edition or Business Edition subscription; £64 Student Edition one-

time purchase) isn't part of the core software at all, but a bundled standalone application called Parallels Toolbox (sold separately for £7.99) which is installed via Preferences. Toolbox consolidates 20 common, everyday tasks into a single menu bar window, making them easier to find and use.

These tools offer one-click simplicity for downloading or converting video, recording audio, muting the microphone, or performing system tasks such as locking the screen, hiding the desktop, preventing your Mac from going to sleep, and Do Not Disturb, which temporarily pauses notifications and Dock activity. Convenient? Yes, but none of the utilities are particularly special or unique,

Why run only the latest version of macOS Sierra when you can install others as virtual machines and run them at the same time?

and power users are likely to have their own alternatives already installed.

Others are grouped into categories, providing functionality for taking screenshots, screen recording, archiving files, or managing time. We found the stopwatch, alarm, timer and date countdown in the latter group particularly handy, since we typically defer such tasks to my iPhone or Apple Watch. Toolbox strictly works on the host OS – it has nothing to do with enhancing Mac, Windows or Linux virtual machines.

One unfortunate side effect of Toolbox is that you'll now have three separate Parallels icons taking up space on the menu bar: one for Toolbox,

Parallels Desktop 12 can also be used to run Windows, and works seamlessly with the latest Windows 10

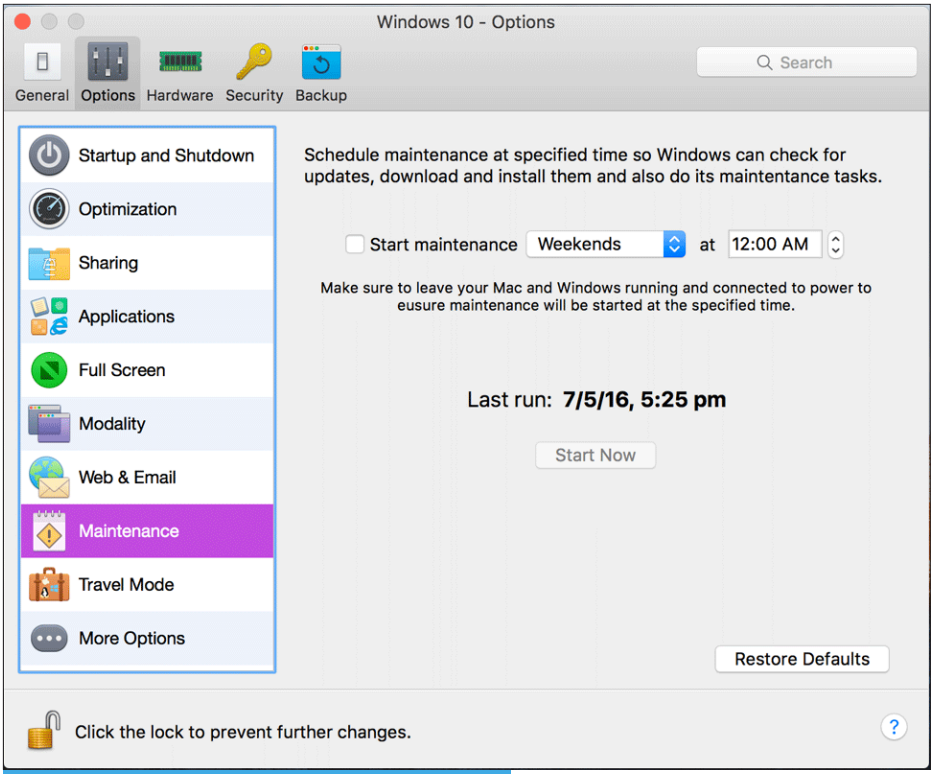
another for Desktop (when it's actually running, of course), and a third for Parallels Access, the company's £13.99 per year remote access service (included with annual Desktop subscriptions). There's clearly room for some consolidation here, and the individual tools also add icon clutter to Launchpad, but at least they can be organised into a single folder there.

Always ready

If you spend an equal amount of time in Windows and macOS, Parallels Desktop 12 offers a number of welcome enhancements. Performance has been boosted across the board, with 25 percent faster access to shared folders and snapshots, and noticeably speedier suspend and resume – under five seconds on my 27in iMac Retina 5K.

VMs can now be configured to launch automatically when your Mac starts up, leaving them paused in the background while idle to avoid consuming valuable CPU time. (Remarkably, this continues to work even after quitting Desktop.) Located under Startup and Shutdown in the Options tab, 'always ready in background' is accompanied by a handful of custom settings that determine how VMs behave when launched, closed, or shut down.

One of our biggest Windows 10 pet peeves is the heavy-handed approach to automatic updates. We don't use Windows daily, so it every time we launch Parallels Desktop, performance is degraded as updates start installing in the background. The new Maintenance option allows such tasks to be blocked until the scheduled time, such as a



Hate Windows 10's pushy software updates? Now you can block them until a more appropriate time with the new Maintenance feature in Parallels Desktop 12

weekend when my iMac isn't in use. (VMs must be open at the time.) The program includes one year of free online storage (500GB) from Acronis, which can be used to back up your virtual machines.

Desktop 12 also makes using Windows on the Mac more seamless. Word, Excel or PowerPoint documents in Safari can be configured to open in their respective desktop Office 365 applications, and passwords entered in Internet

Parallels Desktop 12 includes a one-year subscription to online cloud backup service Acronis for safely backing up virtual machines up to 500GB in size

Explorer or Microsoft Edge can now be saved in your Mac keychain.

Last but not least, Parallels offers independent screen resolutions for multiple displays. In full-screen mode, my iMac runs Retina Display resolution, while the adjacent 2in Thunderbolt Display works as an extended 2560x1440 desktop, each in their own Space. (Sadly, there are no independent settings for backgrounds.)

There is at least one area where Desktop 12 takes a step back. Contextual menu shortcuts have been inexplicably removed from Control Centre,

If you missed out on a free update to Windows 10, you can purchase a copy directly inside of Parallels Desktop 12 and install it right away

which we always found quite handy for quickly reclaiming storage from my Windows VMs without having to open the Configure window.

Macworld's buying advice

If you already have an annual subscription, installing Parallels Desktop 12 for Mac is a no-brainer. Although the new Toolbox utilities aren't compelling enough on their own to justify £34 for a perpetual license upgrade, the performance improvements and macOS Sierra support certainly are. **J R Bookwalter**

Feature: MacBook Pro troubleshooting tips

A few owners of the 2016 MacBook Pro have experienced hardware problems. Keir Thomas reveals how to fix these

Last year's MacBook Pro hardly had the most auspicious of launches. On top of people complaining about everything from USB-C limitations to a paltry 16GB memory ceiling, several hardware issues have come to light since actual end-users got hold of the machines.

Over the following pages we take a look at the biggest, strangest and most awkward problems that have been reported with Apple's slim line laptop, explaining how to tell if you're affected, and what to do if you are.

Keyboard

Several reviewers have already pointed out that the new MacBook Pro's butterfly mechanism keys are noisy, akin to old-school mechanical keyboards, but users in community forums are reporting issues with keys not working on their fresh-from-the-box models. Even worse, the fault can be intermittent.

What's causing the fault

This is likely to be a manufacturing and/or design issue. Still, developers have reported since the release of macOS Sierra that Apple reworked the input subsystem, so there's a small chance it might be a software issue.

How to tell if there is a fault

You'll know immediately if you have this issue because certain keys will either not work at all, or will register twice when you hit them. So, for example, tapping P will type PP.

How to fix the problem

Some users report being a little heavy-handed when typing, or even hammering the faulty key many times with your finger, can cure the issue. Alternatively, if this does turn out to be a software issue, then a future macOS Sierra update might provide the fix, although you'll obviously have to sit on your hands until then.

Instead of potentially damaging the keyboard even further by heavy-handed typing, or waiting for a software fix that might not materialise, we would advise returning the machine to Apple for a replacement.

USB-C/Thunderbolt 3 incompatibility issues

The fact that the new MacBook Pros feature only USB-C/Thunderbolt 3 ports, and therefore require adaptors to connect just about any external hardware, is old news. However, there are reports that not all adaptors work correctly.

How to fix the problem

Buying only Apple's own USB-C or Thunderbolt 3 adaptors is the obvious solution. Buying third-party models will probably be cheaper but, as Apple says, only those certified by Apple are guaranteed to work, and there are still relatively few of those.

Apple might provide a future update to macOS Sierra to include support for non-compatible USB-C/Thunderbolt hardware but knowing the firm like we do – and coupled to the fact Apple has its own range of adaptors – we wouldn't hold our breath waiting for a fix. If you're affected then we reckon it's best to bite the bullet and get new Apple-approved adaptors.

Speakers

Shortly after the MacBook Pro got into users' sweaty hands, reports of loud crackling and popping noises through the speakers started to appear on forums. However, the noises only occur if the user boots into Microsoft Windows using Boot Camp. It does not happen if the user is booted into macOS Sierra. Some have even reported that their speakers were permanently damaged by the noises when Windows was booted, which meant the speakers no longer worked when they booted back into macOS. The right speaker in particular seems to be affected in this way.

What is causing the problem

It's not yet clear if the crackles are caused by a logic board issue or perhaps just poor audio drivers within Windows. The latter seems the most likely.

How to tell if your MacBook is affected

You'll know if you're affected by this issue because you'll hear the noises described above should you boot into Windows. Interestingly, if you access Windows via virtualisation software like VMware Fusion or Parallels then the issue does not arise.

How to fix the problem

It might sound glib, but the best way to avoid this issue is not to use Boot Camp to boot into Windows, at least for the moment. Virtualise instead. If, however, you simply have to use Boot Camp, then ensure headphones are attached via the 3.5mm audio jack when you do so. This will avoid the MacBook Pro's speakers being used. The crackling/pops will not be heard in the headphones. Notably, users affected by the issue report that simply turning the volume control down has no effect; the loud crackling and pops continue.

Apple will probably update the Boot Camp drivers at some point in the future, which will hopefully provide a fix for this issue. If your system has been damaged by the crackles and pops then there's obviously no other choice than to make a warranty claim.

Trackpad three-finger drag not working

When Apple introduced multitouch trackpads they also introduced three-finger drag, which is a gesture whereby dragging three fingers across the trackpad had the effect of instantly clicking and then dragging whatever was under the mouse cursor. Drag with three fingers across text, for example, and it would be instantly highlighted.

In more recent releases of macOS/OS X Apple has moved this feature to the Accessibility section of System Preferences, but it still works in the same way. In particular, users report that it only works in the centre of the trackpad, or that it works with some apps but not others.

How to tell if there's a problem
You'll know if you're affected by this because it won't function reliably.

What's causing the problem
macOS includes clever software to detect if the user's palm accidentally touches the trackpad while typing and with the increased size of the trackpad in the new MacBook Pro range there's been speculation the problem might be caused by this palm detection going awry.

How to fix the problem
As with many issues here this will probably be fixed by Apple with either a firmware update, or a future macOS update (or possibly both). Until then, all you can do is either live with the issue, or turn off three-finger drag.

Feature: The evolution of Apple's laptops

Apple's PowerBooks, iBooks and MacBooks have come a long way in 25 years, writes Jason Snell

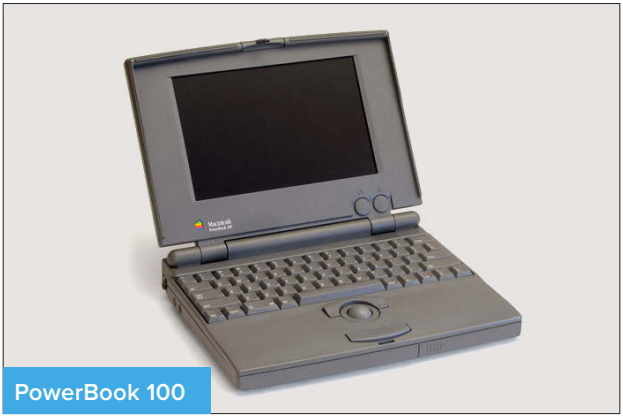
In a moment of somewhat unexpected nostalgia at its most recent media event, Apple pointed out that it was the 25th anniversary of the PowerBook. (It's good to know that, 27 years later,

Apple still would rather nobody remember the Mac Portable.) This writer has been a Mac laptop user since the original PowerBook era. That ancient history is our history. Since 1991, Apple has gone through seven distinct eras when it comes to its laptop strategy and design.

The classics: The 680x0 era

The original PowerBooks (and, yes, the Mac Portable) used the Mac's original processor, the Motorola 680x0 series. The first generation of PowerBooks took the world by storm, which is why it's their anniversary that Apple noted.

This writer's first PowerBook was from this era, though it wasn't in the original generation, but in the second wave, released in 1992. In the autumn of 1992 as a student our rationale for buying a PowerBook was that we could write stories anywhere. We got the message that a PowerBook 160 (capable of displaying 16 shades of grey) had arrived for pickup the day after we went home sick for two weeks. It would have been the perfect time



PowerBook 100


PowerBook Duo

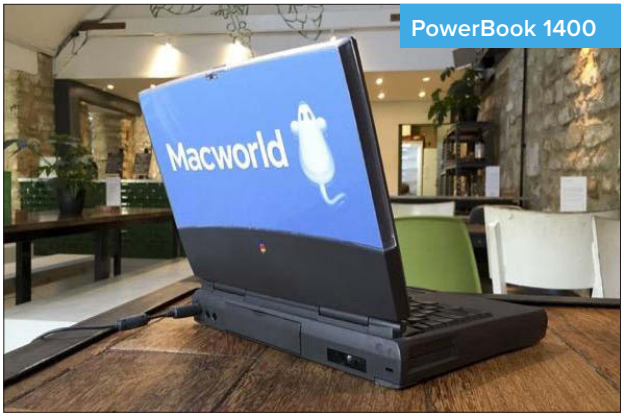
to break in the PowerBook, but instead wrote a bunch of short stories in longhand.

This era also saw the introduction of the PowerBook Duo, one of the most interesting Macs ever made. It was a legitimately small laptop and was Apple's only real experimentation with the idea of a laptop with a docking station. The Duo Dock sucked in the laptop and connected it to an external display, expansion cards, a video card, and even a processor upgrade. Though the Duo was unlike any Mac ever made, its successors include the MacBook Air and the one-port Retina MacBook.

The PowerBook 500 series, code named 'Blackbird', was Apple's first major PowerBook redesign. We know people who loved those laptops, though we never had one – and in our opinion, they never really paid off people's initial excitement about them.

Four digits: The PowerPC era

The next era of Mac laptops really put the 'power' into the PowerBook name. The PowerPC processor



PowerBook 1400

entered, and all the numbers went from three to four digits. Apple released an updated version of the PowerBook 500 series, the PowerBook 5300, and its batteries started catching on fire.

This writer's laptop of this era was the PowerBook 1400, a grey laptop with a delightful twist – a clear slide-out window where you could put custom art to make your laptop your own.

The most interesting laptop of this period was the Duo's successor, the PowerBook 2400c. It was a PowerBook that was hard to find, didn't sell particularly well, but was big in Japan. After the 2400c was discontinued, Apple offered an updated model just for the Japanese market. We had one in the Macworld Lab, and we remember marvelling at how small it was.

Black plastic: The G3 era

The PowerBooks added PowerPC G3 processors at about the same time that Steve Jobs returned to Apple. The first G3 PowerBook was just a PowerBook 3400c with a different processor. Jobs


PowerBook G3

(and Jonathan Ive) didn't exert their influence until the true Desktop Invader arrived, the blacker-than-black PowerBook G3.

This was a laptop from a new Apple. The big white Apple logo on the back was the first sign. The rubbery wrapping materials and curved edges were another tip-off. This design persisted through three hardware generations, including the addition of FireWire. We had one of these laptops – they were huge (with a 14in diagonal display), but they


iBook

were incredibly cool looking for the time. Apple's first real consumer-focused laptop, the iBook, also premiered during this era. Powered by a G3 processor and wrapped in translucent plastic reminiscent of its desktop cousin the iMac, the original iBook looked a bit like a toilet seat. It was adorable, right down to the flip-out plastic handle.

Silver laptops: The G4 era

Today, if you think of a Mac laptop, you probably think of a silver slab with a big Apple logo on it. This is the era where that started. Apple's first attempt to make the ultimate silver laptop was the Titanium PowerBook G4. It was a mind-blowing product for the time, at just 1in thick. We remember this model fondly, because it's the laptop we used to post the first pictures of our new baby daughter in 2001. A couple of years later as a toddler, she would grab the back of my PowerBook's display and snap it right off its hinges.

She wasn't a super-powered baby. Apple learned a lot about materials science from the Titanium

PowerBook G4

PowerBook, including two key points: Titanium was light but brittle and that paint flakes pretty easily off of metal. The Titanium PowerBooks looked great when they were new, but they were prone to breakage and their paint got scuffed quite easily.

These lessons led Apple to make a decision that it's still following today: Make laptops out of anodized aluminium. The Aluminium PowerBook G4, introduced in 2003, was a lot larger than today's models, but it's still recognizably a modern Mac laptop. We fell in love with the 12in version of the PowerBook G4, beginning a love affair with small laptops that continues to this day.

Enough power: The Intel era

Steve Jobs eventually got tired of putting the word 'power' on every professional Mac, and Apple's abandonment of the PowerPC processor was the perfect time to move away from the name PowerBook. And so in 2006, Apple put the 15-year-old name, as well as the more recent iBook, out to pasture and replaced them with the MacBook and MacBook Pro. Thus began the Intel era.

To be honest, the names and processors changed, but the look of Apple's laptops largely remained the same. The polycarbonate iBook – a plastic version of the standard Mac laptop design rather than the fanciful original design – morphed into a new Intel-based MacBook. We loved the original 13in MacBook, especially the black colour variant, and that was our main Mac for a few years. We'd write about professional systems for Macworld and then go back to using a consumer laptop, but the size of that MacBook

couldn't be beat. And it was impossibly easy to replace the hard drive.

Let's get small: The MacBook Air era

While the MacBook Pro has continued to be refined, and added a Retina display in 2012, the biggest change in Apple's approach to laptops came in 2008, when the Air arrived on the scene.

The first MacBook Air was a curiosity, an underpowered (and under-ported) device that was impossibly thin and light. Two years later, Apple's second crack at the MacBook Air – in 13- and 11in variations – turned the curiosity into a legitimate hit. By most accounts, this is the most popular Mac laptop model of the past six years.

As a fan of small laptops, we grabbed on to the 11in Air and still haven't let go. Later models could be ordered with fairly powerful i7 processors and came with fast SSD storage. This writer's three-year-old MacBook Air is still powerful enough to handle pretty much any task we ask it to perform.

Today, the MacBook Air era is coming to an end. The 11in model is now only being sold to education markets and the 13in model seems unlikely to ever

be updated again. But the thin, light Air pointed the way forward for Apple's entire laptop product line.

Today: The Space Grey era

It definitely feels like the current MacBook and MacBook Pro models belong to a new era, one that's just beginning. From the introduction of USB-C connectors to the option to get a Mac laptop in a colour that's not silver to the presence of the Touch Bar, Apple's laptop design is following new rules than it has in the past.

But everything old is new again. My PowerBook 160 weighed just over 3kg, featured a 25MHz processor, 4MB of RAM, a 40MB hard drive, a modem, a floppy drive, and ADB, Mac serial, and SCSI ports. The MacBook weighs 920g, has a 1.1GHz processor, has 8GB of RAM, 256GB of flash storage, and one USB-C port. Who knows what the future holds?

Feature: Why iCloud is a big challenge for Apple

Apple's fast-growing Services business is also its weak spot, argues Dan Moren

Apple is fond of talking about its secret sauce, about the things only it can do because of its unprecedented combination of hardware, software, and services. But for all that it has been very successful with its strategy of making the whole widget, from soup to nuts, it's pretty clear that all three of those areas aren't exactly on equal footing.

Hardware, sure. The company's been making computers since the late 1970s, and it's never seriously moved away from that – let's not talk about the awkward fumbling of the clone years. Likewise its software, which has gone from revolutionary operating system to also-ran back around to venerable and respected veteran of the computer industry.

But then there's services. Services have and continue to be a weak spot for the company, and its biggest challenge in 2017. This chink in its armour has left Apple vulnerable to its competitors, for many of whom services are a strong suit.

iCloud

Oh, iCloud. At some point you probably held such promise, but these days, it feels a bit like you've wandered off on your own in the supermarket and can't remember what you came in for.

Take, for example, iCloud Drive. We've been using it to store some data over the past couple years – invoices and other documents where we work primarily in Numbers and Pages – and it's made some small strides in that time, such as allowing users to make more or less arbitrary file hierarchies, just as they would anywhere else in macOS. But lately we've run into issues, like files that will never quite finish syncing to my computer, or documents that aren't downloaded when we need them, typically in iWork for iOS.

iCloud Drive's conceptual problems have been compounded by Apple's recent attempts to 'simplify' matters by offering to move the Desktop and Documents into the cloud. Just the other night,

When iCloud Drive makes your Desktop and Documents files harder to find, that's a sign it still needs work

we went to save a PDF for my dad, who rarely stores files locally on his Mac at all, and figured we'd just drop it in Documents. But when we went to show him how to access the Documents folder in the Finder's sidebar, it took us a few minutes to find it, because it was listed underneath iCloud.

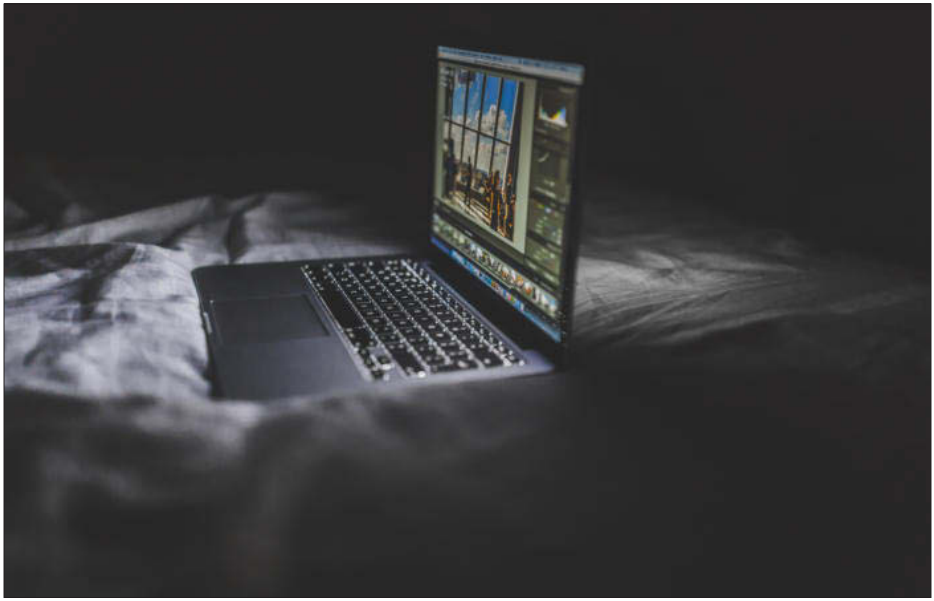
Look, the idea of storing files in the cloud isn't inherently a bad one. Dropbox has done this for years now, but it manages to pull it off because it also treats those files like they are local to the computer, making the cloud and sync portions of the service more or less transparent. (Part of the problem is that iCloud Drive seems to be Apple's attempt to free up disk space on the less capacious solid-state drives it now offers across its line.) But Apple hasn't necessarily earned the trust in its cloud services that we place in Dropbox.

The same goes for Apple's iCloud Libraries for music and photos, which have hardly been bulletproof themselves. We spent parts of the past week coaxing Photos on a Mac to download pictures from a trip to India last year – pictures that should have been automatically synced. And while we've generally been pleased with the iCloud Music Library, it hasn't been without its share of problems in mismatching music or losing data.

Sticking together

Here's the thing: at the end of the day, hardware and software are the bricks in the wall that Apple is building. Services are the mortar that keeps everything together. And that mortar has been showing its cracks for a while now. Over the past few years, Services has become a more and more important segment to Apple – the company even put a spotlight on it back in the first quarter of 2016. But a lot of that attention has focused on the revenue-generating aspects of the App Store and iTunes Store rather than on the increasingly central iCloud. (It probably remains the Apple product that we hear the most bizarre situations and read the most perplexed email about.)

Meanwhile, competitors like Google, Amazon, and Microsoft aren't sitting around twiddling their thumbs, but rather are putting energy into their respective services as well. And even if none of them can claim to have the same success with both hardware and software that Apple has had, services presents them with a new opportunity to take on Cupertino in its weak spot. Hopefully Apple's ready to meet this latest challenge head on in 2017.



Feature: Night Shift for macOS Sierra on the way

Night Shift, the feature that has made iOS devices easier on your eyes, is coming to the Mac. Oscar Raymundo reports

Apple Night owls are going to love the forthcoming Mac update. Apple has included 'Night Shift' mode in the first developer beta of macOS Sierra 10.12.4. Night Shift originated in iOS 9.3 to make your iPhone display easier on your eyes when used in the dark.

Similarly, Night Shift for macOS will change the screen's colour temperature from a harsh blue to a warmer yellow, so that you will have fewer issues

going to sleep after using your Mac. On iOS, Night Shift turns on automatically around sunset and resets back the next morning. You can also turn it on manually in iOS's Control Centre, which you access by swiping up on your screen.

Apple released Night Shift after some studies found that the harsh blue light emitted from our devices prevents our production of melatonin, thus screwing with our internal clock and making it harder for us to fall asleep.

"The big problem is that there's no solid evidence that mobile screens' colour temperature is the real culprit, nor whether devices and monitors can shift enough to matter if they were – or even if blue light on its own is the trigger," wrote *Macworld* contributor Glenn Fleishman when Night Shift was first introduced.

Night Shift on macOS might be more helpful than in iOS simply because, according to sleep experts, a device's screen size and light intensity does play a factor in lack of melatonin production. The bigger the screen size, the more intense the light being emitted, hence the higher chance that you won't get a good night's rest.

Overall, shifting the colour temperature on a device of any screen size might not be enough. Most sleep experts recommend turning off all devices at least two hours before bedtime – Night Shift activated or not.

"Disruption of sleep is not just melatonin suppression; it's what you're doing to your brain to keep it alert," Mariana G. Figueiro, a professor at Rensselaer Polytechnic Institute and the program director of its Lighting Research Centre, told us.

Feature: MacBook Pro's Touch Bar adds security

It seems Apple has put a Watch under the hood of the MacBook Pro's touch-based interface for security, writes Glenn Fleishman

For years, people have speculated about whether Apple would ditch macOS in favour of iOS, shedding desktops and turning laptops into something like an iPad Pro in a fixed clamshell. A version of iOS has apparently come to the Mac, but not in a way that anybody expected. The new Touch Pad has a separate brain, a custom T1 ARM processor system-on-a-chip (SoC), that looks to be running a stripped-down variant of iOS, possibly derived from watchOS.

Steve Troughton-Smith, an iOS developer known for deep examinations of how the operating system ticks, put the pieces together, some of which rely on information provided by Apple during on-the-record press briefings and on its site, and

some from examining files within the newest release of Xcode, which allows developers to take advantage of Touch Bar.

It makes sense, because Apple has paired Touch ID in iOS with its custom Secure Enclave chip, a tamper-resistent security vault that's separate from but intertwined with an iPhone or iPad's processing circuitry. There's a Secure Enclave chip in every Touch Bar, just as in every iOS device with Touch ID.

When you enrol your fingerprints in Touch ID, the underlying data is pushed into Secure Enclave, and can't be pulled back out. When you touch the sensor after that, the characteristics of your fingerprint get sent to Secure Enclave, which determines whether they're a close enough match. Secure Enclave is used for other purposes, including storing and processing authorization information for Apple Pay.

Apple also confirmed in a briefing that the T1 also controls the ISP (image signal processor) for the FaceTime camera in the MacBook Pro, which is a dandy thing indeed. While it may seem like an overstated risk, an undesirable party gaining access to your camera without your knowledge is a huge vulnerability. Some super geeks dig in and remove video driver software, though malware that can exploit your system can certainly reinstall it secretly. Others put tape over the camera, a surprisingly effective low-tech strategy. However, routing camera access and data via a more heavily secured separate processing system reduces the surface area substantially of an attacker trying to gain access.

The Touch Bar and macOS interact with one another, with macOS rendering graphics and pushing them to the Touch Bar, which handles touch-interface events and sends them to macOS to interpret. This sounds like two small children driving a car: one can see the road and use the steering wheel, while the other is down below pushing the accelerator and the brake pedal.

Fewer paths to exploit

Apple having a separate processor and OS to handle Touch ID is good news for consumers, because iOS, watchOS, and tvOS are more clamped down than macOS, which remains more open to inspect and manipulation as a general-computing platform. While iOS has suffered exploits, there should be even fewer paths to the Touch Bar to find and trigger flaws, as it acts as a peripheral rather than running apps directly.

At the time of the announcement, we assumed Apple could never make a Touch Bar-equipped keyboard, because of the necessary security required for a Secure Enclave chip and connection to a processor. But given that the T1, the Secure Enclave, and the Touch ID sensor are tightly integrated, this entire subsystem could make its way into a Touch Keyboard. Such a keyboard would probably draw too much power to be wireless, and because of the graphics rendering and touch events would require a consistent and fast connection for responsiveness, either USB-C or USB Type A.

Because Touch Bar runs separately, macOS doesn't have to be in an active state for a user to

interact with Touch ID. Apple says you'll be able to unlock your Mac (and switch among enrolled users with fast-user switching) with Touch ID, but hasn't provided the full workings yet. Unlike an iOS device, which is effectively fully secured when asleep, a Mac has just a thin veneer of protection unless it's powered down.

We recommend always having FileVault 2 enabled on your Macs (via the System Preferences > Security & Privacy). It's the optional, built-in, full-disk encryption that locks away the encryption key until you power up and log in. Behind the scenes, a cold boot from a powered-down state launches a special login via the Recovery Disk, as your startup volume remains encrypted and unavailable.

Can Touch ID let you bypass entering a password at a cold start? No. As with iOS, Apple has a variety of conditions under which Touch ID can't be used, and you have to enter your passcode to re-enable it. One of those is a restart (whether a power down/power up or a system initiated reboot), because a restart assumes you might not want someone else to gain access to the device, even if they have access to – well, to you.

Biometric authentication via a fingerprint on a Mac raises the same security and safety issues it does for iOS. If you're at risk of domestic or criminal assault or unwarranted government intrusion, your fingerprint can be used to unlock a Mac just as easily as an iPhone.

You might choose to not use Touch ID on a MacBook Pro for the same reason, or be just as sure about powering down your Mac as you would an iOS device.

Feature: Guide to System Preferences in Sierra

The third part of Craig Grannell's in-depth series

iCloud options

Using the iCloud pane, you manage your details for Apple's iCloud service and also the components that are activated on your Mac. If you haven't signed in, the pane will simply be two fields – Apple ID and password – and a Sign In button.

Once signed in, you'll see your avatar, username and iCloud email address to the left of the pane, along with Account Details and Set Up Family/ Manage Family buttons.

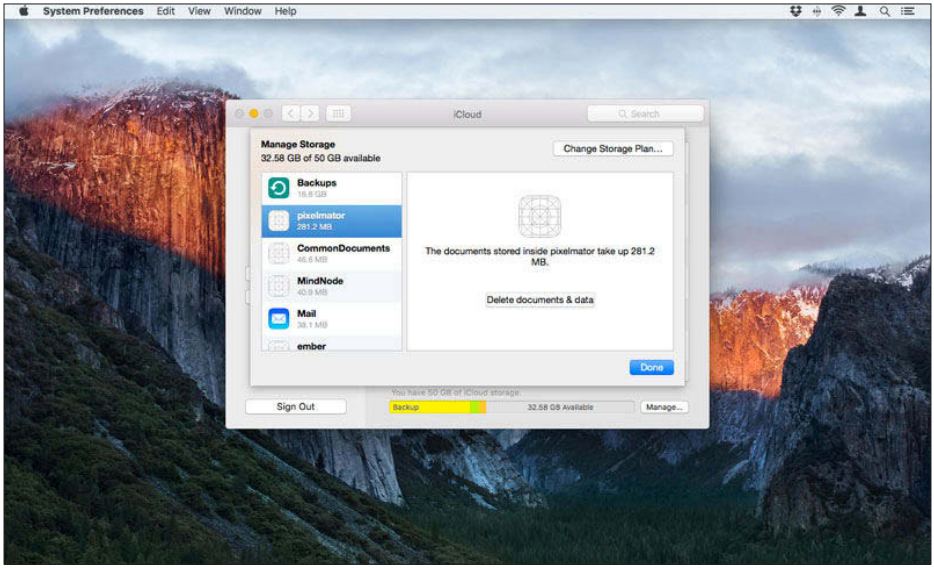
Click Account Details and type in your password to gain access to a sheet that enables

you to edit the following: your name (under the General tab); email addresses and other means of contact, primary postal and email marketing preferences (Contact); security details, including your birthday, password, security question, and rescue email address for an emergency account reset (Security); Apple equipment using this Apple ID (Devices-requires verification to access); and primary payment method (Payment).

Set Up Family/Manage Family, respectively, enable you to set-up or manage family sharing. Use the '+' button to add new family members by sending them an email invite. For a child without an account, you can create a new Apple ID for them.

Back in the pane itself, the larger right-hand area enables you to activate or deactivate various services and data types iCloud can share between your devices: iCloud Drive (click Options to see an apps list); Photos; Mail; Contacts; Calendars; Reminders; Safari (bookmarks and open tabs); Notes; Keychain (passwords and payment data); Back to My Mac; Find My Mac.

Underneath, a bar details the status of your iCloud storage, for which Apple provides 5GB for free (and we think, could do with being a bit more generous). If you need more space, click Manage and you can delete existing back-ups from iOS devices, or specific app data. Alternatively, click Buy More Storage and select an option to change your iCloud storage plan. For 79p monthly, you get 50GB in total; £2.49 gets you 200GB; for £6.99, you get 1TB; and for £13.99 you get 2TB. You can later downgrade if you no longer need the extra storage.

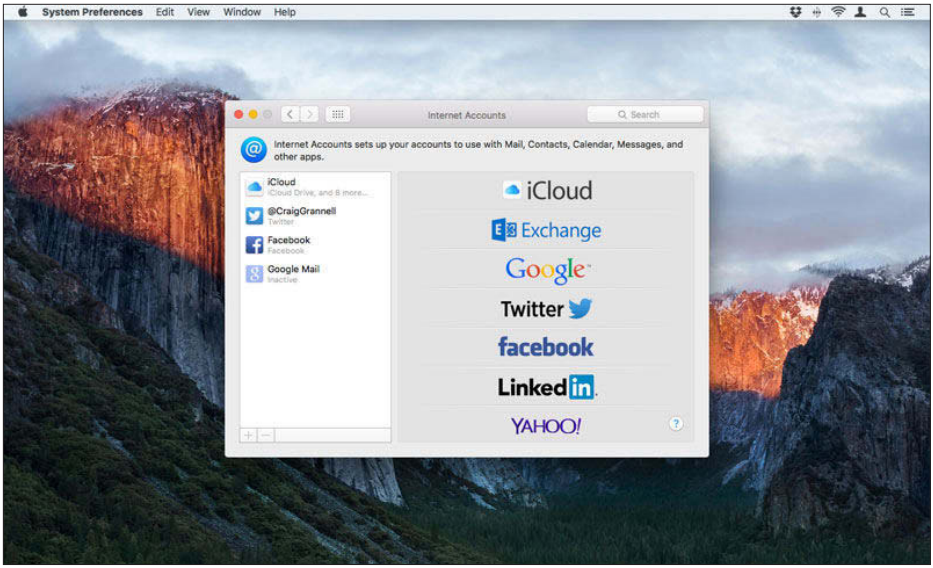


If you decide you don't want to use iCloud at all on your machine, click Sign Out. However, if you're using an iCloud account and password to log in to your Mac, you'll then have to click Stop Using iCloud and create a new password specifically for the Mac.

Internet Accounts

The Internet Accounts pane defines your online accounts at the system level, enabling services and apps to hook into them with your permission, potentially saving you typing in the same usernames and passwords time and time again. If you've set up iCloud already on your Mac, it will appear in the sidebar. To the right, you'll see a list of popular services you can add an account for.

To add a new account, click on a logo and a sheet will ask for information that's relevant for



that particular service (usually a username and password, but sometimes other details too). On adding your details and clicking Next, you may see an overview regarding what the service will be allowed to do with your data. For example, signing into Twitter allows you to post photos and show links from your timeline in Safari; sign into Facebook and data will be integrated with Contacts and Calendar.

Once accounts are created, they can be selected in the aforementioned sidebar. Doing so loads their information into the area where the service buttons are otherwise displayed, enabling you to update their configuration. For example, Facebook provides the means to disable the account or just its connection to Contacts and Calendars, along with buttons for grabbing new profile photos and updating your password and account

description. Twitter has a button for updating details in Contacts, and text fields for updating your password and account description.

Any configured email accounts give you settings for updating the name, description and password, and apps the account is used with; behind an Advanced button, there's the means to update other aspects of the account's details, such as its IMAP hostname, the port used, and whether the account uses SSL.

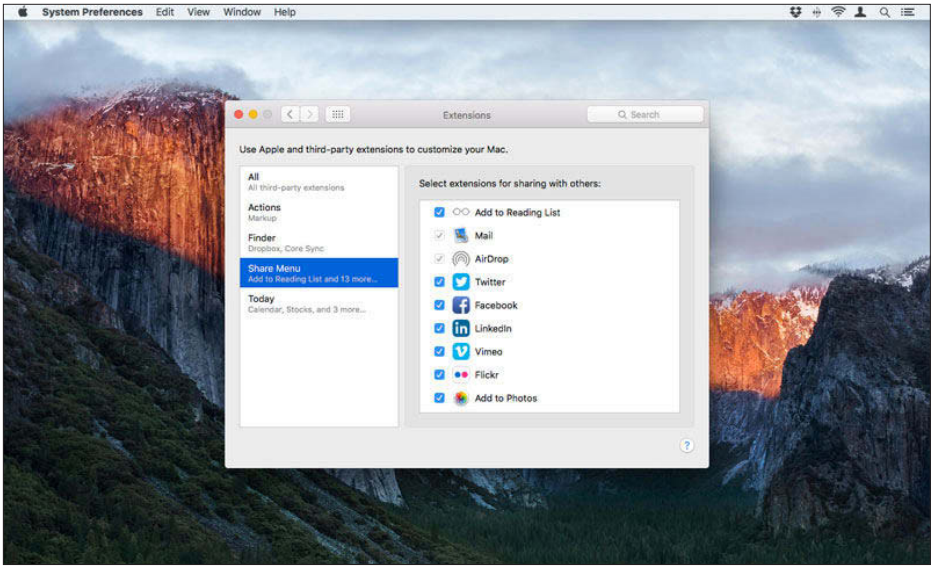
To delete one of the accounts entirely, select it in the sidebar and click the '-' button. Be aware that in many cases, deleting an account may remove data from relevant applications. Facebook offers a more nuanced approach: you get the choice of deleting Facebook contacts or keeping them, even if the account itself is removed.

Extensions

Extensions enables you to control and enable/disable installed Apple and third-party extensions that can be used to customise your Mac. You select a category from the left-hand side of the pane, and relevant items are then listed on the right-hand side. Each can be activated or disabled by checking or unchecking its checkbox.

Available categories and extensions will depend entirely on what applications you have installed on your Mac. A new Mac will lack third-party extensions. However, install the likes of Dropbox and Fantastical and you'll see additional options. Photos lists installed extensions for editing photos.

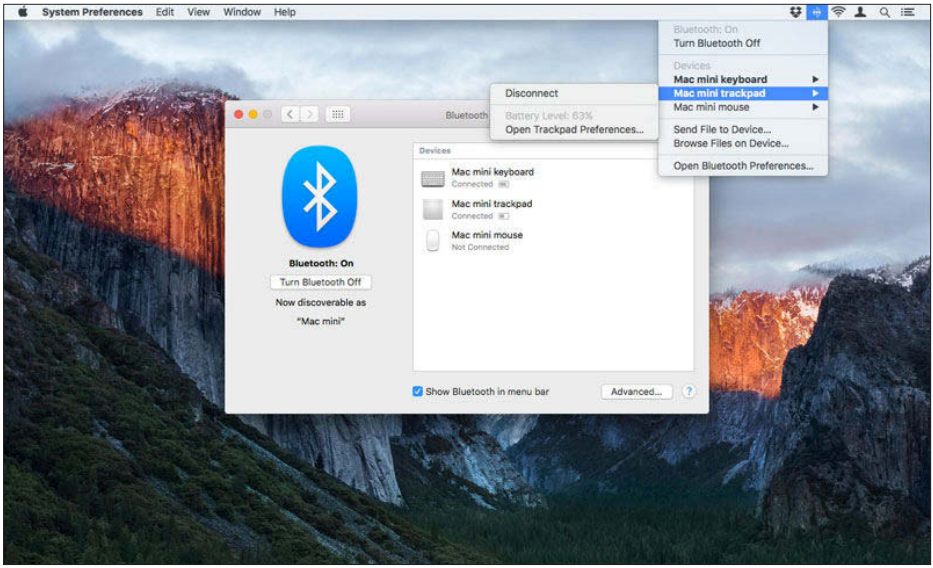
The item categories are straightforward. 'All' lists all installed extensions and groups them by



app. ‘Actions’ lists content extensions, such as Apple’s own Markup, used for annotating imagery in compatible applications (like Mail) when you hover the cursor over an image and select Markup from the pop-up menu. ‘Finder’ lists extensions that directly integrate with Apple’s file manager, such as Dropbox. ‘Share Menu’ enables you to control what appears in the Share menu found in supported apps, like Safari and Finder. And ‘Today’ determines which widgets are available in Notification Centre’s Today view. In all cases, disabling an extension in System Preferences makes it unavailable system-wide. Note that app-specific extensions, such as those for Safari, are not yet listed in this pane.

Bluetooth

The Bluetooth pane is used for controlling any Bluetooth devices your Mac is paired with. Using



the button under the huge Bluetooth logo, you can turn Bluetooth on your Mac on and off; when it's active, your Mac's name is displayed under the button. (You may need to know it when trying to connect certain hardware.)

The main part of the panel lists devices paired with the computer and their current status. Hover the cursor over an item and a cross button appears, which when clicked removes the item from the list. Note that if you remove an item and then want to use it later, you'll need to pair it again with your Mac.

At the bottom of the pane is a checkbox that enables you to show Bluetooth in the menu bar. This menu extra provides a faster means of turning Bluetooth on and off, along with enabling you to connect/disconnect hardware and ascertain its battery level. It can also be

used to send files to connected devices and browse files already on them.

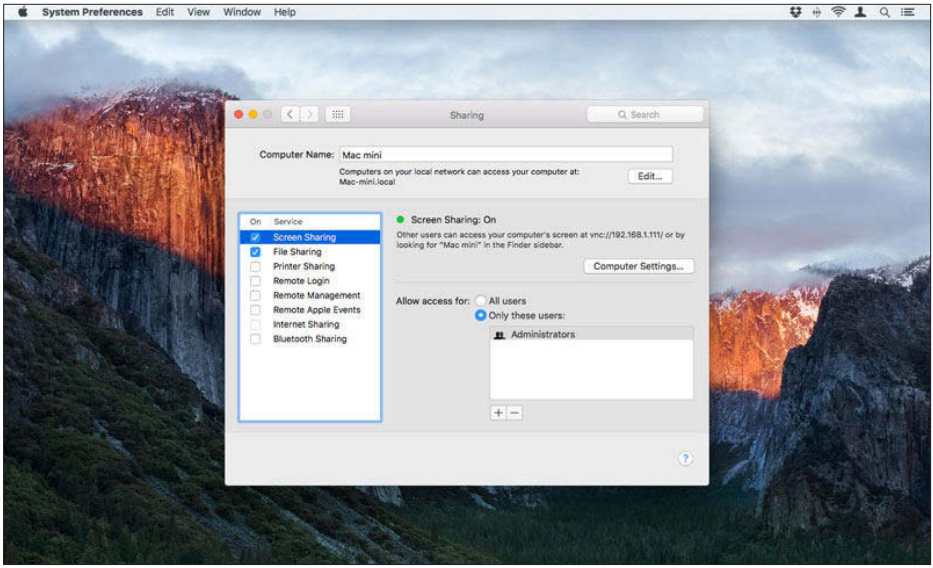
The Advanced button provides a few further options: opening Bluetooth Setup Assistant if no keyboard is detected at startup; doing the same if no mouse or trackpad is detected; and allowing Bluetooth devices (such as a keyboard or mouse) to wake the computer.

Sharing

The Sharing pane opens up various aspects of your Mac to other computers on the network. The top of the pane shows the computer's name, which is editable, and the left-hand section lists services available for sharing. Tick a checkbox to activate the service. On selecting a service (regardless of whether it's active), its options appear to the right.

DVD or CD Sharing enables you to share a built-in or connected optical drive across the network. This is useful if you've a new Mac lacking a drive but an older one that happily takes CDs and DVDs. Note that data sent between machines is not encrypted and you can have the computer alert when someone else tries to use the drive.

Screen Sharing enables the Mac's screen to be shared. The 'Allow access for' section of the main pane provides control over who can access the shared screen: all users, or specified users and groups, added or removed using the + and - buttons. The 'Computer Settings' button provides access to allow anyone to request access, and to allow VNC users control with a specified password. When Screen Sharing is active, the shared Mac can be found under 'devices' in the Finder sidebar of



other machines; clicking ‘Share Screen...’ begins the sharing process.

File Sharing activates a Mac’s Public Folder, which has a Dropbox into which anyone on the network can drop files. The ‘Options...’ button in the System Preferences pane opens a sheet with settings for activating or deactivating connection types, and the ‘Shared Folders’ and ‘Users’ panels, respectively, optionally enable you to share additional folders and provide various access types to specific users or groups. Connect via Finder (select the computer in a networked Mac’s Finder sidebar, then click ‘Connect As...’) with relevant username/password credentials and you can navigate all the files/folders for the relevant account.

Printer Sharing provides the means for sharing a connected printer across the network. Aside from a

button to open the Printers & Scanners pane, there are panels for printers you can share and to state which users are allowed access.

Remote Login enables someone to log in to the Mac from another computer on the network, using SSH and SFTP. Again, you can define access privileges for individuals or groups.

Remote Management works with Apple's Remote Desktop, and is designed for people having to manage a network of Macs. There's the familiar field for setting user access, but it has an additional Options button (also seen when Remote Management is activated), which enables you to select tasks remote users are allowed to perform. Click 'Computer Settings...' and a sheet provides checkboxes for: showing Remote Management status in the menu bar; determining whether anyone may request permission to control the screen; and stating a password for VNC viewers. Four fields can have information added for display in a System Overview report.

Remote Apple Events, when activated on a Mac, allows applications on other Macs to send Apple events to it. An event is a task being performed on a Mac, such as opening a document or printing. So with this option activated, an AppleScript running on another Mac on the network could potentially open and print a document on your Mac.

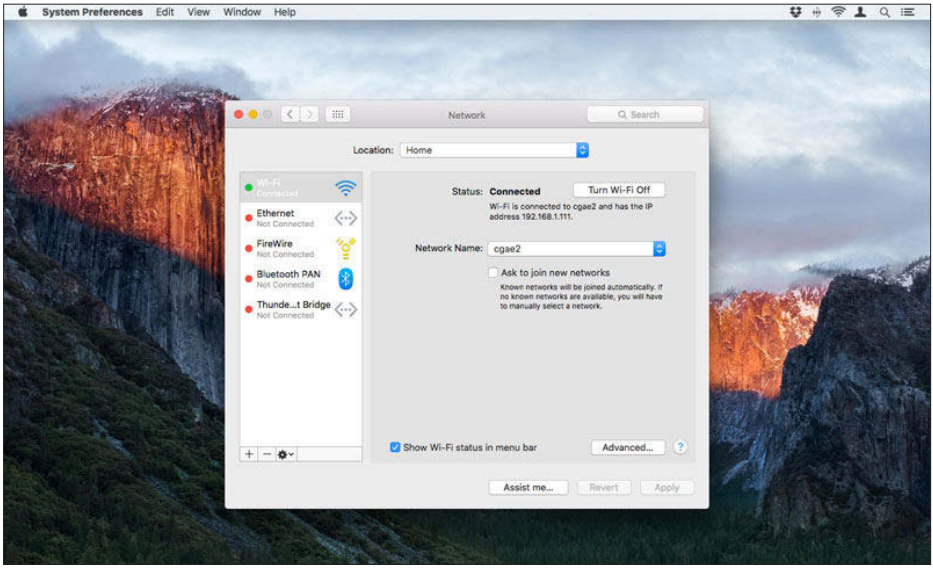
Internet Sharing makes it possible to share a Mac's internet connection from the source selected in the menu to another Mac's port, the type outlined in 'To computers using'. (Sources, such as Wi-Fi and Ethernet will vary by Mac.) This can be useful for computers lacking connectivity, for example,

sharing your Mac's Wi-Fi connection over Ethernet to an old or damaged machine.

With **Bluetooth Sharing** active, the Mac can share files with other Bluetooth enabled devices. The first two menus determine what happens when files are received (Accept and Save, Accept and Open, Ask What to Do, or Never Allow), and where accepted items are saved. The second set of menus determines what happens when other Bluetooth devices browse the Mac. You can choose from Always Allow, Ask What to Do and Never Allow, along with selecting a folder others can browse.

Network settings

The Network pane is where you define network settings, enabling you to connect to the likes of wireless routers or corporate ethernet. It's one of

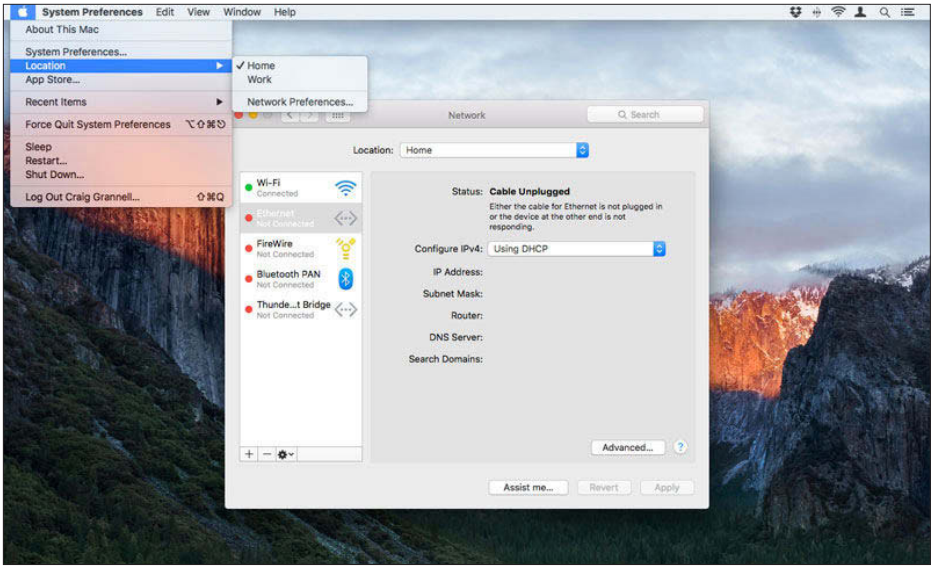


the more intimidating System Preferences panes, due to the sheer number of available settings and its relative complexity. However, the vast majority of users will rarely if ever have to venture into it, since more often than not just typing in a Wi-Fi password is all the networking effort most need to make.

The pane is essentially split in three. At the top is the Location menu, which defaults to Automatic, but which can be used to define specific set-ups for different places, such as home, work, or regular overseas haunts. The left-hand pane lists available connection types (or 'services' in Apple language), and the largest part of the pane outlines the status and settings related to the currently selected service. The foot of the window houses three buttons: 'Assist me...', Revert and Apply.

If you only ever use your Mac in one place, with one connection type, there's no need to use Location. However, if your Mac needs to connect to multiple networks with settings that are more complex than simply selecting a different Wi-Fi network from the menu bar, defining multiple locations makes sense. To do so, select the menu and then 'Edit Locations...'. Use + to add a new location, - to delete an existing one, and the cog button to duplicate or rename the currently selected location. With more than one location defined, a Location menu appears in the system-wide Apple menu; selecting an option there is usually faster than using the equivalent menu in System Preferences.

As noted, the left-hand pane lists available services, such as Wi-Fi, Ethernet and FireWire. (The specifics will depend on your Mac's hardware.) A



traffic light system denotes the status of a service: green for connected, red for off, and yellow for when on but not connected for some reason. On the last of those, text beneath the service's name may list a reason for the lack of connection.

The bottom of the pane has '+' and '-' buttons for, respectively, creating and removing services. On creating a new one, you choose an interface type and the service's name. Deletion is immediate but can be undone with the Revert button. The cog button lets you duplicate or rename the selected service, or to make it inactive. You can set the service order, to prioritise certain connection types. The other options include the means to import and export configurations, and 'Manage Virtual Interfaces', for editing a list of such interfaces.

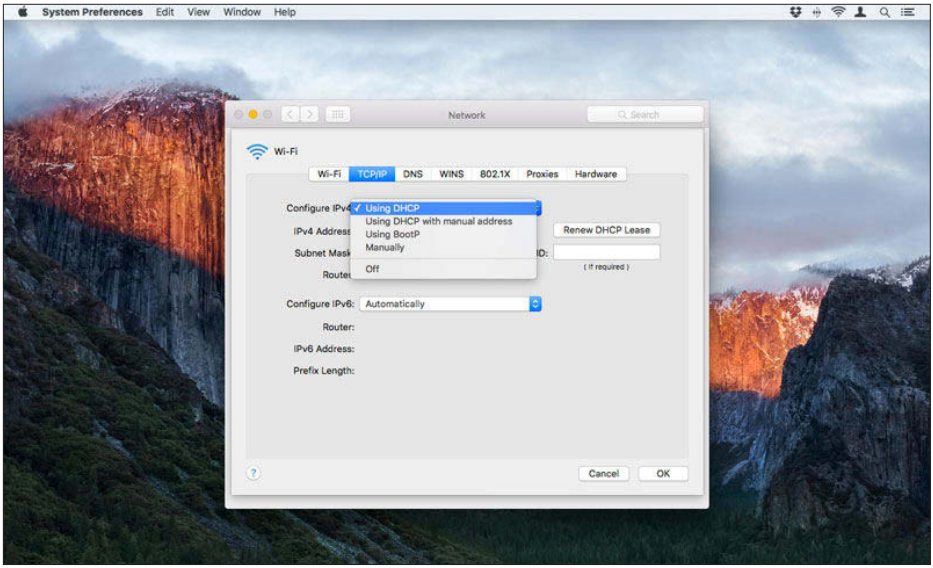
Any time one of the services is selected, its status and relevant configuration menus are

listed in the large pane to the right of the services list. For example, select Wi-Fi and you'll see its connection status, a button for turning it on and off, and details regarding the network's name and the Mac's IP address.

Below this, there's a menu for selecting networks, a checkbox that determines whether the Mac asks to join new networks rather than connecting to known ones automatically, a checkbox for showing Wi-Fi status in the menu bar, and an 'Advanced' button. By contrast, select Ethernet and you'll get the service's status and the means to configure network settings. 'Using DHCP' is the default, but choosing 'Manually' provides fields for inputting IP address, subnet mask and router details.

The Advanced button opens a multi-tabbed sheet that enables you to drill down into the fine detail of network connections. Available tabs will depend on the selected service, but may include: Wi-Fi, TCP/IP, DNS, WINS, 802.1X, Proxies, Hardware and Bridge Status.

The Wi-Fi tab is the one users are most likely to need at some point. It enables you to reorder known Wi-Fi networks, and it's best to drag most-used ones to the top, to avoid your Mac wasting time first searching for the others when trying to connect. You can select and delete any you no longer need (such as temporary airport, cafe and hotel connections you're unlikely to use again). The 'Remember...' checkbox when ticked makes it quicker to access a network previously joined (albeit with the potential to clutter the list, as already mentioned). Subsequent checkboxes



are primarily concerned with restricting network meddling by users, and are only worth activating in locked-down environments or for accounts created for inexperienced users.

TCP/IP is the protocol used to connect your Mac to the internet. Generally, connections will be automatic. However, if you've been provided IP, subnet mask and router details to manually input, this is where you do so. The tab also includes a 'Renew DHCP Lease' button, which is worth knowing about, because it forces your Mac to renew your current IP address; this can be useful in circumstances when there are many devices on the network and there's a clash that kicks your Mac off of a previously stable connection.

DNS server details are generally provided automatically. DNS is how computers associate domain names (like www.macworld.co.uk) with

numerical IP addresses. Some people prefer to override default DNS settings with the likes of Google Public DNS (8.8.8.8 and 8.8.4.4), which can under some circumstances be faster. There are also services for circumventing geolocation blocks through using specific DNS settings, thereby enabling you to access online content restricted to specific countries or get around blocking in certain territories. The DNS tab is where you'd add such settings.

WINS may be required if you connect to remote networks that use NetBIOS names; 802.1X is used to control access and beef up security, and network administrators will advise when you need to add or amend a profile; and proxies can be used to filter internet traffic – something only likely to be required in corporate environments, with you being assisted by an administrator. Hardware displays your MAC Address network identifier, and has a Configure menu that when set to Manually enables you to adjust the MTU (Maximum Transmission Unit) setting. When any changes are made, click Apply to confirm them. Now imagine the next line is in three-metre-high neon letters with a klaxon blazing alongside: do not make any changes to your network settings – and especially the more esoteric ones - unless you know what you're doing. This isn't a pane to mess about in, and you could find your Mac rather rapidly disconnected from the web and very alone on your office desk.

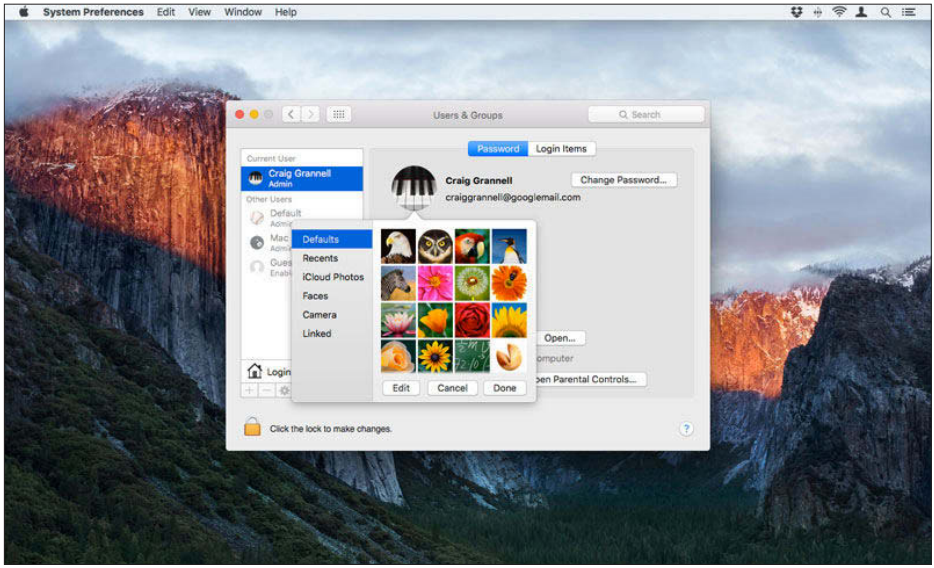
Still, if things do go wrong, clicking 'Assist me...' might help. You get two options here: 'Diagnostics...' provides checks regarding your current settings, attempting to squash any network

issues your Mac might have; and ‘Assistant…’ launches Network Setup Assistant, for walking you through the process of creating a new internet or local network connection.

Users & Groups

The Users & Groups pane is where you create and modify accounts for the current Mac. Even if the Mac has only one user, the ability to create new accounts can come in handy for troubleshooting; however, for any Mac used by multiple parties, understanding Users & Groups is extremely important from a security and Mac maintenance standpoint.

The pane has a padlock at the bottom. In order to make any changes to the pane’s settings, click it and enter an administrator’s username and password.



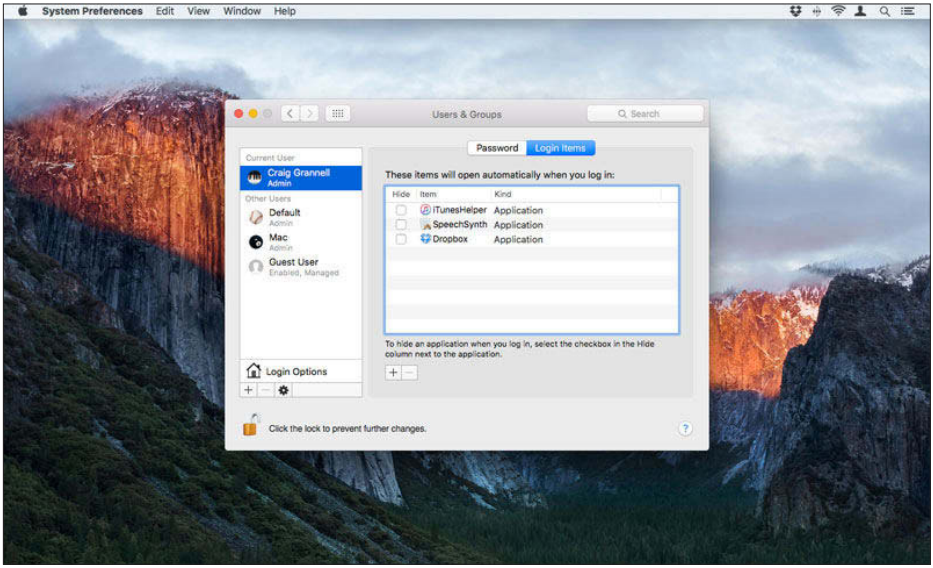
Accounts are listed in the left-hand sidebar. The current user is displayed at the top, and the others beneath, in the section 'Other Users'. For each user, you're shown their login image, account name, and account type.

Select the current user's account; the right-hand section of the pane will offer two tabs: Password and Login Items. Click Password and you'll see the account's icon, which you can click to edit. A new image can be chosen from a built-in selection or from whatever you have in Photos.

Click the 'Change Password...' button if you want to update the account's password. If the account uses an iCloud password (which ceased to be an option in macOS Sierra, you'll get the option to use a separate password or to change the iCloud one; on updating a password, you'll need to enter the old one, compose a new one, verify the new one, and add an optional hint. Any hint should be quite vague – do not type in something too close to the actual password, if you want your Mac to remain secure.

At the bottom of this tab is a button for opening the Contacts card for the current account, and some checkboxes; these denote whether the user can reset their password using an Apple ID, whether the user can administer the computer, and whether parental controls should be enabled. These checkboxes will be greyed out (and therefore cannot be changed) unless the current user is an administrator.

Under the Login Items tab, you'll find items that automatically open when the account logs in. Quite often, background utilities will be found



here. New items can be added using the '+' button and choosing an item from the sheet. Applications are the most common login items, although you can also select documents. Existing items can be removed by selecting them and clicking the '-' button. Too many items in the list may result in slower Mac start-ups and potentially even system conflicts. If there's something in the list you don't recognise, search for it online and if you deem it unnecessary, delete it from the list.

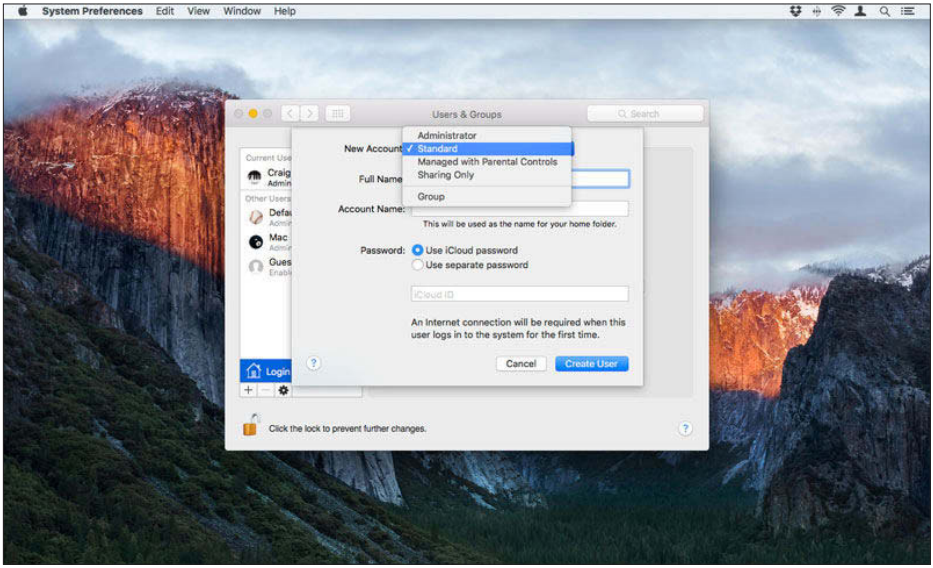
When an administrator is logged in, they have some control over other accounts. On selecting one from the 'Other Users' section in the sidebar, they can perform a password reset, allow admin accounts to reset the account password using an Apple ID, and toggle admin status/parental controls. Note that if another user's account is currently logged in, it cannot be selected in the sidebar.

Administrators also have access to the controls at the foot of the sidebar, which are for defining login options, and for creating/deleting accounts. Select Login Options and you will see a number of things that can be changed. Automatic login is on by default for a new Mac, but is best disabled for security reasons; doing so forces a password to be entered when logging in.

Beneath this is a setting for how the login window appears. The default shows a list of users, one of which is clicked before a password is entered. 'Name and password' is plainer and a little more secure, since you must enter both the username and password.

Five checkboxes then provide a range of further settings for the login window and account management: 'Show the Sleep, Restart, and Shut Down buttons' displays those buttons on the login screen; 'Show Input menu in login window' displays on the login screen the menu that enables you to switch languages (and therefore also keyboards), which is useful if people using the Mac require and are used to different keyboard layouts; 'Show password hints' determines whether hints are shown when a password is forgotten; 'Show fast user switching menu' provides options to place a switching menu in the OS X menu bar, and this can be displayed as the account's full name, account name, or just an icon; and 'Use VoiceOver in the login window' is self-explanatory.

A button beneath the checkboxes provides the means for entering the address of an Open Directory Server or Active Directory Domain during login.



Creating & deleting accounts

Below Login Options are '+' and '-' buttons, which, respectively, are for creating and deleting accounts. Click '+' to open the new account sheet, in which you must first define the type of account: Administrator, Standard, Managed with Parental Controls, or Sharing Only.

In all cases, you need to provide a full name for the account, an account name (macOS will automate this – turning the likes of Name Surname into 'namesurname' – but this can be overridden; the result will be the name of the account's home folder), and decide on the password that's to be used. Prior to macOS Sierra, this could be either an existing Apple ID/iCloud password or Mac-specific one. As of macOS Sierra, only the latter is an option. Click 'Create User' and the account will usually be created within a few seconds. Creating

a new account can also be a good idea if your Mac is being strange. Login to the account and see if the same issues occur; if not, they're most likely related to something on the original account; if so, some other problem is to blame.

Note that within the 'New Account' menu there's also a Group option, which only requires a name to be entered. On creating a group, you add existing users as members. You can then elsewhere assign shared file access privileges to the group.

To delete a group, select it, click the '-' button and then confirm your choice. To delete an account, select it, click the '-' button, and then decide what you want to do with the account's home folder that contains all of the user's documents and data. You can save it to a disk image, leave the folder in place, or delete it entirely. On making a decision, click Delete User and macOS will perform the chosen action. Note that if you're backing up your Mac, deleting someone's home folder may remove it from the back-up, and so only choose 'Delete the home folder' if you're certain you (and/or the account owner) no longer needs access to the data within.

Finally, the cog icon when clicked enables you to set a master password for FileVault, which can be activated in the Security & Privacy System Preferences pane. If the password is forgotten, encrypted data within FileVault will be inaccessible.

Parental controls

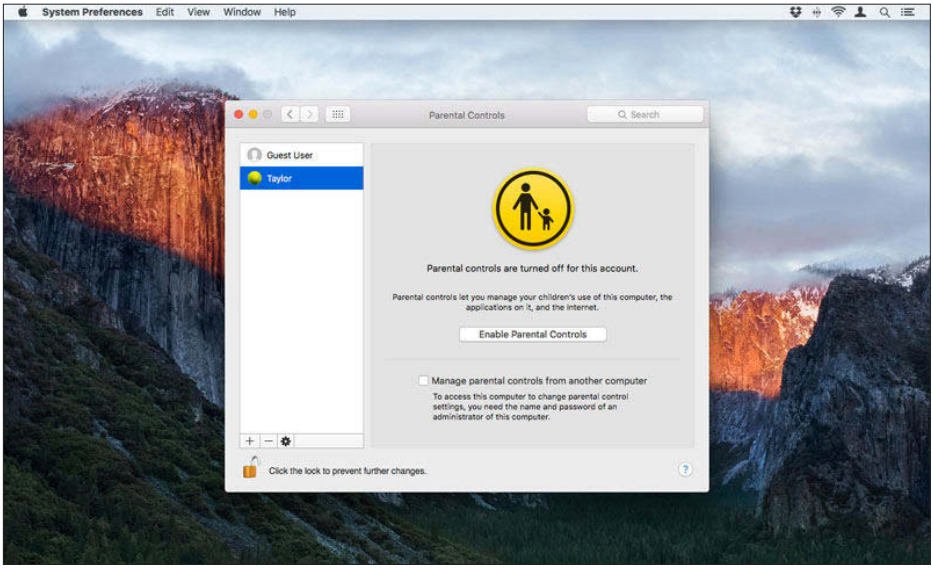
This System Preferences pane is for restricting accounts. Although it's primarily designed to limit a child's access to certain apps, the web, or the

entire Mac, its various options have scope for wider use, for example with the guest account.

You'll need to click the lock and enter admin details to make any edits inside Parental Controls. Prior to working on an account, you can optionally check 'Manage parental controls from another computer'; this makes it possible to define any given Mac's parental control settings from the Parental Controls System Preferences pane on another Mac, assuming you have relevant admin details for the remote computer.

If there are no accounts to manage, you can create a new user account with parental controls or convert the current account. If the current account is the sole administrator, you will first be prompted to create a replacement account.

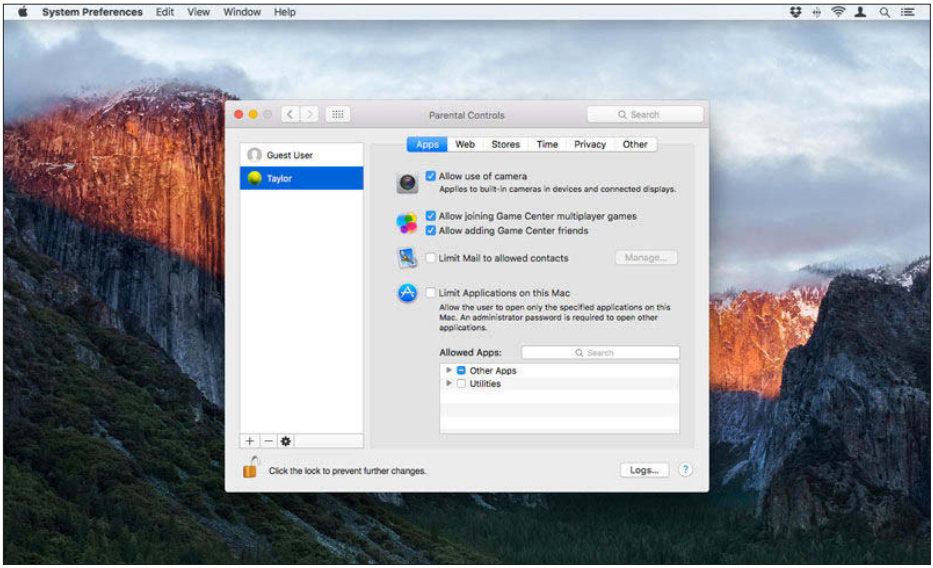
In theory, the pane should pick up existing accounts that can be managed, but if it doesn't,



select the account in the Users & Groups pane, tick ‘Enable parental controls’, and then click ‘Open Parental Controls’. You should now see the Parental Controls pane with accounts in a sidebar. If not and you still get the entry screen, quit and restart System Preferences and reopen Parental Controls.

From the sidebar, you can then select the Guest User account or any standard accounts on the Mac. Admin accounts cannot have parental controls assigned to them. If other networked computers allow controls to be managed remotely, they will be listed below the current computer’s accounts.

Using the ‘+’ and ‘-’ buttons at the foot of the sidebar, you can add a new account or remove an existing one, just like in Users & Groups. The cog button provides access to a menu for turning parental controls on/off for the current account, copying its settings, or



pasting previously copied settings. On selecting an account, you will see six tabs: Apps, Stores, Web, Time, Privacy and Other.

The Apps tab's first option is 'Allow use of camera'. This when disabled prevents the user accessing built-in cameras and also cameras in connected displays, but not those connected via USB. The next two boxes, which are pre-checked, allow the user to join Game Centre multiplayer games and add Game Centre friends. Next, 'Limit Mail to allowed contacts' when active restricts the user to contacting (via Mail) only specific approved email addresses. Click 'Manage' to open a sheet for adding these contacts.

You can optionally check 'Send requests to' and then type your email address in the adjacent field. On doing this, any attempts by the user to send an email to a non-approved email address will be sent to you. To populate the approved list, use the '+' button to add contacts. As you begin typing in a name, OS X will make suggestions based on people already in the Contacts app. Use the down cursor to select one such name and Return to confirm; alternatively, you can manually type a name and then tap Tab to add the email address. Once you have a list, select any name and hit '-' to remove it.

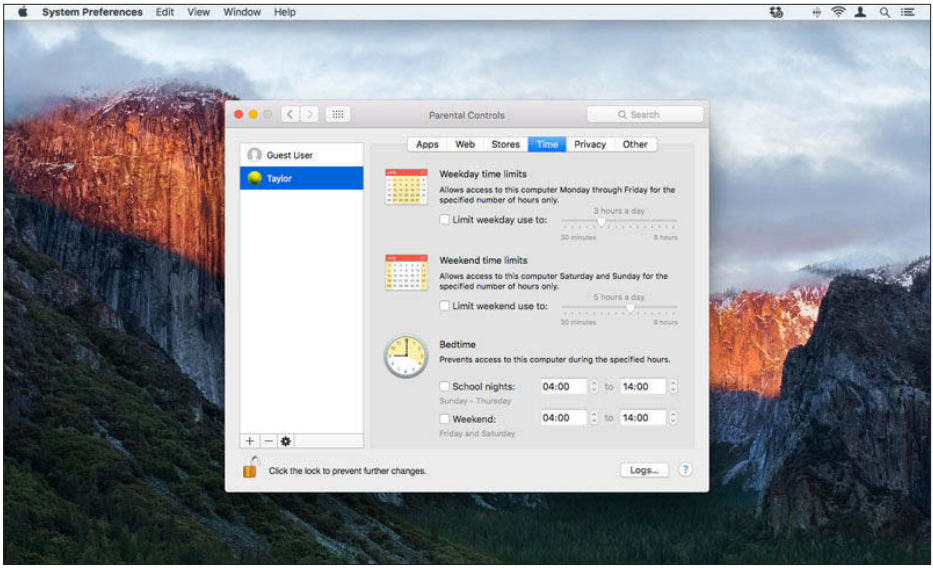
'Limit Applications on this Mac', when active, provides the means to restrict the selected account's access to apps. Said apps can be defined in the 'Allowed Apps' list.

Web is about defining website access restrictions. 'Allow unrestricted access to websites' makes no changes at the system level. 'Try to limit

access to adult websites automatically' attempts to do what its description says, and enables you to use 'Customize...' to always allow or never allow specific sites. We should note that automated filters are problematic, and often end up with false positives while letting many sites through the net. For younger children, supervise their web-browsing sessions, or make use of 'Allow access onto only these websites', which blocks anything not on the list below. This is predefined with a number of safe sites, but you can remove any of them and/or add your own.

Stores provides the means to individually disable the iTunes Store, iTunes U and iBooks Store. Further settings make it possible to restrict specific types of media: music with explicit content; movies up to a defined age rating (U, PG, 12, 15, 18); TV shows, Apps (4+, 9+, 12+, 17+), and books with explicit sexual content. Be mindful that Apple can be quite conservative with app ratings – apps that enable web browsing often end up as 17+; and so you may be better off using the Apps section to specify which apps the user has access to.

Time is for defining access to the Mac as a whole. Using the checkboxes, separate usage limits can be set for weekdays (Monday through Friday) and weekends (Saturday and Sunday), and these are initially, respectively, three and five hours. 30 minutes is the minimum setting for both, and eight hours is the maximum. With the Bedtime checkboxes, you can prevent access during defined hours for 'School nights' (Sunday night through Thursday night) and 'Weekend' (Friday night and Saturday night).



Privacy limits access to the user's data. The 'Manage Privacy' button takes you to the Privacy tab within Security & Privacy. The 'Allow changes to' checkboxes let you lock existing settings for specific data types and services, preventing apps from making any changes to them.

Other is a grab-bag of functions and features you can turn on or off, depending on the user and your own preferences. 'Turn off Siri & Dictation' blocks enabling Dictation in the Dictation & Speech System Preferences pane and Siri in the Siri pane. If 'Disable editing of printers and scanners' is on, the user cannot adjust printer and scanner settings. 'Block CD and DVD burning in the Finder' stops the user burning a CD or DVD – as if any kids would want to do that these days anyway.

'Restrict explicit language in Dictionary' is one for the purists, blocking so-called 'inappropriate'

content in the Dictionary app and related sources OS X may leverage, such as Wikipedia. 'Prevent the Dock from being modified' stops the user changing the Dock in any way.

And 'Use Simple Finder' gives the user a simplified desktop, aimed at the young or inexperienced. This disables windows in Finder, and only allows access to apps you define within the Apps tab of Parental Controls. The Dock is restricted to three folders: My Applications; Documents; Shared. A user whose account is set up to use Simple Finder can only switch to the full version of Finder via Finder > Run Full Finder when armed with admin details.

Finally, the 'Logs...' button opens a sheet that details app and web activity. Said activity can be shown for 'today', 'all', or time periods ranging from a week to a year. The two tabs, 'Applications' and 'Web', provide access to relevant lists and charts. Selected items can be opened using the 'Open' button.

Siri

Siri is a new feature as of macOS Sierra, enabling you to talk to your Mac and have it perform basic tasks. In the System Preferences pane, Siri can be enabled or disabled using the checkbox under the large Siri logo.

To the right, options exist for adjusting the language and voice Siri uses, which will initially be set to the defaults used for your account. You can turn on or off voice feedback from Siri.

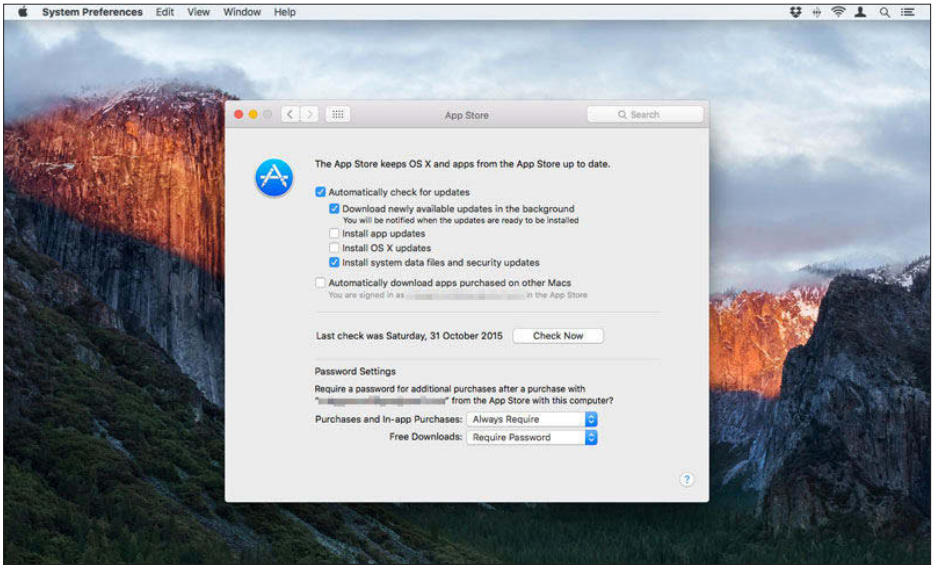
Two subsequent options enable you to define inputs for interacting with Siri – the mic input and

keyboard shortcut. Below these is a checkbox that determines whether or not Siri is shown in the menu bar.

App Store

This pane determines the behaviour of apps you've installed from the Mac App Store. If you're not using an admin account, you'll need to click the lock to make any changes.

Within the pane are six checkboxes. 'Automatically check for updates' does what it describes, and when active enables you to turn on or off the next four checkboxes. The first downloads newly available updates in the background (keep this on unless you're somewhere with a data cap, in which case temporarily disable it). The next three are for installing app updates, macOS updates, and system data files/security updates.



The other checkbox is for automatically downloading apps purchased on other Macs. This is useful if you use the same apps across a range of Macs, but again beware of bandwidth considerations and also storage if you happen to work with apps that take up a large amount of space.

At the foot of the window you'll see when the most recent check for updates was made, and a button to 'Check Now'. If the Mac knows updates are available, you'll get a 'Show Updates' button, which loads the Updates tab of the App Store app.

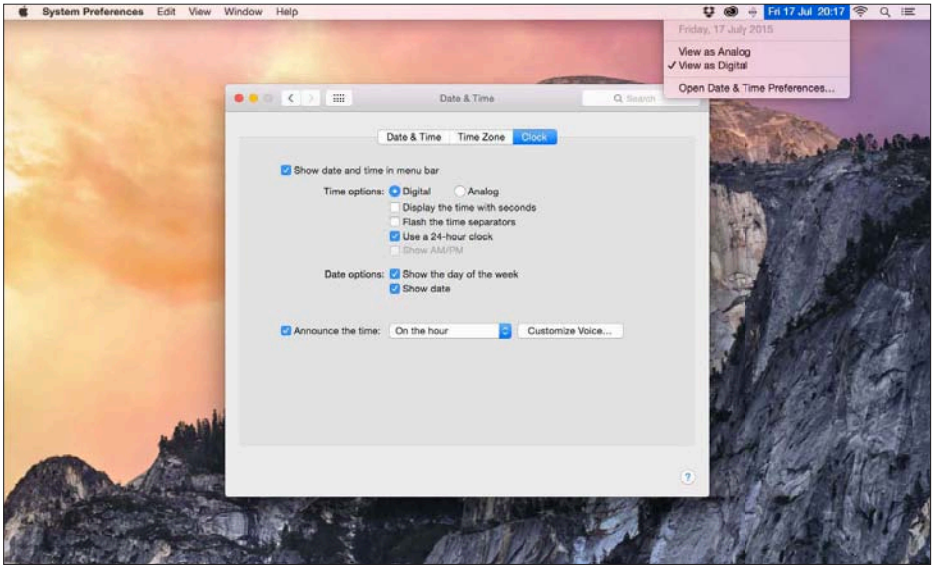
Note that if you're subscribed to the macOS beta program, you'll see a line stating your computer is set to receive updates. If you don't want beta updates to be shown, click Change and then the relevant button.

Date & Time

The Date & Time pane is where you adjust your clock, date and time zone. As of El Capitan, you need to add an admin password to edit its settings. Under the 'Date & Time' tab, you'll see a calendar and clock, above which is a checkbox. If the checkbox is ticked, your Mac's time and date will be set automatically, using the Apple server selected in the menu. If, for whatever reason, you want to override this (such as during a battery issue, which is causing your date to keep resetting), untick the checkbox and use the menus to change the time and date settings. A button at the bottom of the pane sends you to the Language & Region pane, for amending date and time formats across your system.

Under ‘Time Zone’, you get a world map and an outline of your currently selected time zone. If the checkbox in this tab is selected, your time zone will be chosen automatically, based on your current location. Again, this can be overridden – untick the checkbox and then tap a point on the map. macOS will estimate the location. If you want to fine-tune it, you can type a place into the ‘Closest City’ field.

Most of what you find in the ‘Clock’ tab is for adding the date and time to the menu bar. Turn on the clock by ticking ‘Show date and time in menu bar’ and use the radio buttons below to choose between digital and analogue options. The latter is quite small and therefore not especially clear when in the menu bar; when selected, it also greys out all subsequent menu-bar clock options. The digital clock has more settings, enabling you to optionally display seconds, flash the time separators, and use



a 24- or 12-hour clock. If you decide on a 12-hour clock, you can optionally show AM/PM indicators.

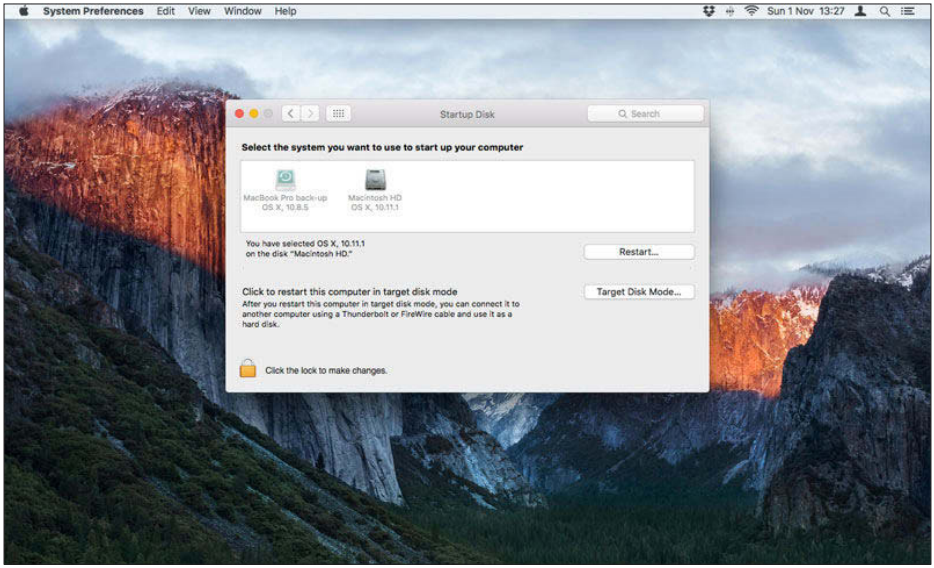
You can also add the day and date to the digital clock, using the checkboxes to the right of 'Date options'. The day is shown in abbreviated form – for example, 'Fri' for Friday; and the date is also abbreviated, to the likes of '17 Dec'. The final option is 'Announce the time', which is done hourly, half-hourly, or every 15 minutes. Using 'Customize Voice...', you choose a voice, speed and volume level for this feature.

Using Startup Disk

Using Startup Disk, you can determine the disk used to startup your Mac. What 'disk' means in practice is a partition, drive or volume with a viable operating system installed. You can also use this pane to restart your Mac in Target Disk mode, which effectively turns it into an external drive that can be connected to another Mac, whereupon you can copy across data and perform diagnostics and disk repairs.

On opening the pane, your Mac will locate and display disks that are potential candidates for restarting from. You'll see the name of each disk, and the operating system installed; standard Macicons will differentiate between local and externally connected disks. In order to see any further information or make changes, you will need to unlock the pane with an admin password. Hold the cursor over any icon and you will also see the build number of the relevant operating system.

In the displayed image, the Mac in question has an internal drive, and an old external back-up



drive from an archive is connected, which has on it an older Mac operating system (be it a previous version of macOS or OS X). Depending on your set-up, you may see additional external drives, or partitions from your Mac's drive, each of which may have different versions of macOS or OS X installed. In any case, selecting one of these and clicking Restart will cause the Mac to attempt to startup from that disk.

Having started up from another disk, be mindful it's like using an entirely separate Mac. If you're using an old backup/clone, Save dialogs will default to that disk and not your 'standard' one; additionally, systems on external drives may have significantly longer startup times than you're used to and be relatively sluggish to respond, due to the throughput speed from the hardware they're housed on. However, starting up from

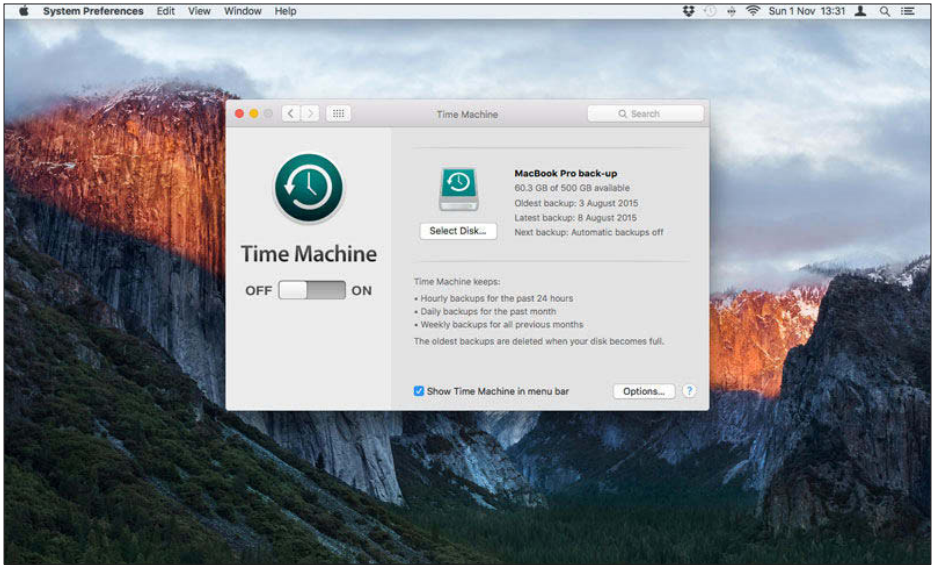
external disks can be useful. For example, you can use software or an old set-up that's no longer supported by the current version of macOS; alternatively, if your main disk dies and gets replaced, you can startup from a backup/clone and copy its contents back to your Mac.

Should you need to, it's also possible to change your startup disk during your Mac's boot process, rather than using the Startup Disk pane in System Preferences. To do so, hold the Option (Alt) key as soon as you turn on/restart. The Mac will scan for connected drives and present you with a list of options. Select one (use the cursor or left/right keys and Return) and the Mac will start from that disk.

The other option in the pane itself is clicking the Target Disk Mode button. Do so having connected your Mac to another via Thunderbolt or FireWire and it will, as previously noted, effectively become an external drive. If the Mac has a display, it will show the Thunderbolt or FireWire symbol. Target disk mode can also be triggered during startup/restarts by holding the T key.

Using Time Machine to back up a Mac

Apple's Time Machine system is designed to safeguard your Mac's data by backing it up to an external disk. If you've not done anything with Time Machine to date, the System Preferences pane will be in its default state. To the left is a massive on/off switch. On the right is a button used to select a backup disk, some information about what Time Machine does, a checkbox that determines whether Time Machine is shown in the menu bar, and an Options button.



Turn Time Machine on and it will list suitable disks for use. Generally speaking, the location you're copying to should have more free space than the capacity of the disk you're intending to backup. If you're unsure what size disk your Mac has, go to the Apple menu, select About This Mac, and click Storage. An overview will be provided that outlines the size of your disk (and those connected).

Bear in mind that if the disk is partitioned and you only intend to backup the one partition, the external drive only has to be larger than that rather than the entire disk. (So, for example, if a Mac's 500GB disk has been evenly split in two, the external drive would need to be larger than 250GB, not 500GB, although the more space you have, the more versions of documents and data Time Machine can store.)

On selecting a disk, you can choose whether to encrypt your backups via the checkbox; clicking Use Disk then gets everything started. Back in the main Time Machine window, you'll see a countdown to the next backup, and details of the oldest and latest backups (which will start out as 'None'). When a backup is taking place, you'll see how much data is being backed up, how much is left to go, and approximately how long this will take. Your first backup will probably take quite a long time, but subsequent ones should be faster, since less data will be copied.

Using Select Disk, you can update the disk used for backups, or even use multiple disks. With the Options button, you can exclude items from your backup. Click the '+' button and then select a document or folder. Its size will be listed, showing the impact on the entire backup.

Generally, there's not much point in omitting anything from backups, because that data will not be available if you later need to restore. The Options sheet also includes a checkbox so you can choose whether you are notified when old backups are deleted; on notebooks, there will also be a setting for whether Time Machine should backup while on battery power.

The final setting is the checkbox for showing Time Machine in the menu bar. The menu extra details the current backup, if one is active. In fact, the icon provides an at-a-glance view, once you know what to look for. When idle, it will be a block with a circular arrow around it, but when a backup is in progress, a second arrow is added; if an error occurs, the clock will become an alert icon.

The menu also enables you to skip the current backup and to enter Time Machine. The latter won't be much use immediately, but access it once you've been running Time Machine for a while and you'll be able to access previous versions of Finder windows, select old versions of documents and then restore them. Should a much bigger disaster befall your Mac, you can restore your entire Mac from a Time Machine backup. Hold Cmd+R during a restart, select Restore from Time Machine Backup, and click Continue. Select your backup disk and click Continue, and then the most recent backup, before clicking Continue again. The Mac will restore and restart. The subsequent Time Machine backup may then be a full one.

Round-up: Latest Mac games

Andrew Hayward looks at the best new releases

With so many serious things happening in the world of late, we all could use some fresh distractions to provide some light moments here and there. Here are 10 of the most exciting games released in the first month of the year, and the biggest releases so far are mostly smaller: indie games dominated January, but that's no complaint. Between Owlboy, She Remembered Caterpillars, Yuri, and the other games on this list, you have plenty of really options available.

1. Owlboy

Price: £18.99 from Steam (tinyurl.com/zkg7psp)

If you give a hoot about side-scrolling adventure games, then you'll surely want to give Owlboy some attention. It looks like a lost quest from a mid-1990s console system, but this long-in-development indie is definitely new and undoubtedly charming. You'll take flight as Otus, a mute owl who is trying – and often failing – to fight sky pirates.

The 2D graphics are totally mesmerizing, and the combination of action, flight, and puzzle-solving gives it a slightly unique hook from other platform-style games. Thankfully, this charming adventure didn't take long to hit Mac, arriving only a couple months after its PC debut, upon which it received strongly positive critical reviews.

2. Disgaea 2

Price: £13.49 from Steam (tinyurl.com/qh333v8)

Releasing on both Mac and PC a whopping 10-plus years after its original PlayStation 2 release, Disgaea 2 finally puts one of the top tactical RPG series on laptops and desktops. While the absence of the original game on Mac is curious (it hit PC last year), this is still a very worthwhile game to check out for fans of titles such as Final Fantasy Tactics or The Banner Saga.

However, while it too is a game built around turn-based battles upon grid-covered maps, Disgaea 2 has a very different tone: it's filled with very silly characters (including a group of Power Rangers-inspired warriors), plenty of humour, and some risqué artwork to boot. It's like an absurd, comedic anime series turned into a massive role-playing quest, so better late than never, right?

3. She Remembered Caterpillars

Price: £8.99 from Steam (tinyurl.com/h5nb7rt)

She Remembered Caterpillars is a hauntingly beautiful game about sending little creatures climbing around caterpillars and other terrain, all in an effort to solve each environmental puzzle. It's also, according to the Steam description, a "tale as the bond between parent and child," and a "fungipunk fantasy." In short, there's probably nothing else out there quite like it.

With each puzzle, you'll need to control the two differently-coloured characters separately, or perhaps combined together, or deal with other new colours and play mechanics that pop up along the way. The hand-drawn look and vivid colouring are really marvellous, and there's clearly something deeper happening beyond the increasingly perplexing challenges within.

4. Yuri

Price: £2.99 from Mac App Store

Yuri stars a tiny explorer who wakes up in a strange land on his bed, and then uses it to roll from side to side to explore the fantastical terrain. In practice, it looks like a small astronaut with a bed for a skateboard, doing kickflips on his comforter as he whisks through the environment.

The whimsical look is just one appealing part of this side-scrolling platform game, which challenges you to make precise manoeuvres as you encounter large creatures and other curious obstacles along the way. Unlike a lot of the intense, in-your-face games on this list, it looks very quiet and splendidly original; a dreamy little game to curl up with on your MacBook.

5. Milkmaid of the Milky Way

Price: £5.59 from Steam (tinyurl.com/j3cuz8t)

Love old-school adventure games? Also love rhyming poetry? Well, Milkmaid of the Milky Way might be the first game to marry the two things so splendidly, as this charming indie quest is told entirely through rhyming dialogue. It's a game about a solitary Norwegian farmer in the 1920s who one day sees a massive, glimmering gold spaceship right above her land.

The journey that follows is short (roughly three hours), but has been praised by players for its surprising sense of melancholy and relatable emotions despite the fantastic scenario at hand. It has the old-school look of an early-90s point-and-click game and plays much the same way as well, with the rhyming dialogue just adding another clever hook to the experience.

6. HoPiKo

Price: £4.99 from Steam (tinyurl.com/zecqajk)

HoPiKo was one of our favourite iOS games of 2015, and now it's also available on Mac if you'd rather play on a much larger screen. The core experience hasn't changed: it's an intense and frantic action game that has you flinging a little hero around obstacles and hazards and ultimately to a goal. The catch? Well, you can't stay on a platform for more than a second or two, otherwise it's game over.

The constant need to keep moving makes HoPiKo a serious challenge, along with a progression structure that requires you to clear five levels in a stretch without failure. The Mac version is £3 more expensive than the iOS game (£1.99), and from the Steam reviews, it sounds like some control quirks are still being worked out.

7. Gunman Taco Truck

Price: £8.99 from Steam (tinyurl.com/h3yfemf)

Gunman Taco Truck is, as the title suggests, a very strange little game. And that makes sense, as it was first designed by a nine-year-old. But it's not just any nine-year-old: it's Donovan Brathwaite-Romero, son of legendary game designers John (Doom) and Brenda (Wizardry) Romero.

In the game, you'll drive your food truck across a post-apocalyptic US in an attempt to reach the beautiful, nuke-free, taco-truck-less wonderland that is Winnipeg, Canada. And between shooting mutants on the roads, you'll stop to prepare delicious tacos for survivors, and maybe don't tell them the origin of those roadkill toppings. Even if you don't care about the family heritage here, Gunman Taco Truck has positive reviews on Steam at the time of writing and looks like light, goofy fun.

8. Pako

Price: £5.59 from Steam (tinyurl.com/jvf4yyg)

Here's another game that is an absolute delight on iOS and is also now available on Mac. Pako is an endless getaway game: rather than stick to a path as you dodge obstacles or pursuers, you'll zip around a crowded environment as you attempt to evade capture from police and other authorities.

It's the simplicity that makes Pako shine: you don't have weapons or complex techniques at hand, just a speedy little car that you'll wind around parked cars, houses, and trees in an effort to stay free for as long as possible. One hit will drop you, but luckily, you can pop right back into the mall parking lot or a suburban neighbourhood and try over and over and over again.

9. Memoranda

Price: £9.34 from Steam (tinyurl.com/hr87mz4)

Inspired by several short stories of famed author Haruki Murakami, Memoranda is a classic point-and-click adventure with what sounds like a very perplexing twist: your character, who suffers from intense insomnia, has 'lost' her name. And so she'll roam this world full of other sad, damaged people in search of it.

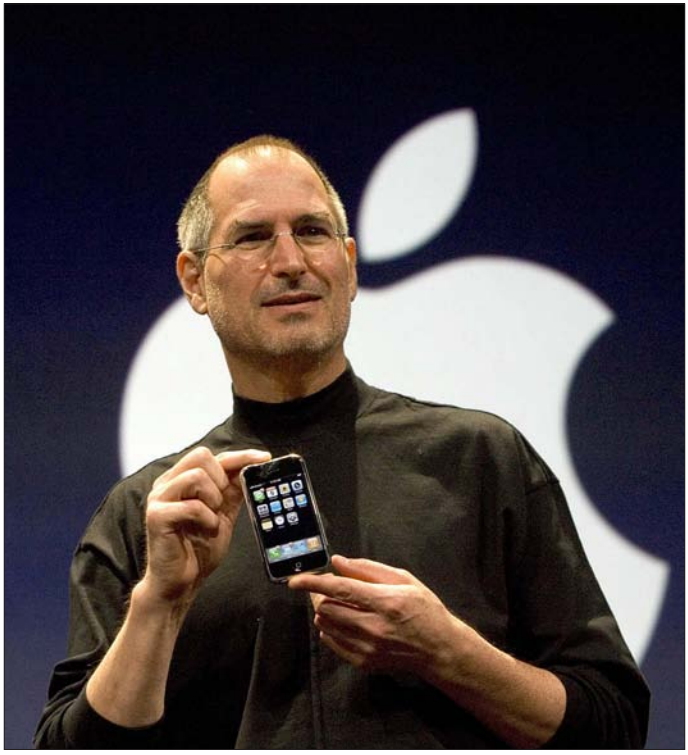
Memoranda is beautifully brought to life with a sharp, hand-drawn look, and even if you don't know Murakami's work, the dazzling aesthetic and surreal interactions should be pretty appealing. One note, though: Steam reviewers say that the character's delusions extend into the puzzle design, so you may find that the conundrums don't make a lot of logical sense. That is intentional, apparently, even though it could frustrate.

10. Red's Kingdom

Price: £5.99 from Steam (tinyurl.com/grcwhtz)

Here's another slick new game that launched on both Mac and iOS this month. Red's Kingdom is a puzzle-solving adventure that stars a roly-poly squirrel in search of his stolen nuts... and really, rolling is all he can do. Once he starts rolling, he'll go until he hits a wall or an obstacle, and then you can roll him in another direction.

Learning how to navigate each stage, from stop to stop and ultimately to the goal, is the real challenge here, although the isometric viewpoint has something of a Legend of Zelda-like appeal to it. Red's Kingdom also promises enemies to defeat along the way, as well as various secrets, although given the normal £1.99 iOS price tag for the same game, you might want to grab it there and save a few bucks.



Feature: The iPhone turns 10

Apple CEO Tim Cook promises “the best is yet to come”, writes Caitlin McGarry

It’s tough to remember a time before the iPhone, which ushered in the smartphone era and radically transformed our lives. A decade ago, on Jan. 9, 2007, Apple CEO Steve Jobs took the wraps off a touchscreen “iPod, phone,

and internet communicator" at the Macworld Expo. Little did he (or we) know then just how successful the iPhone would become.

Today, the iPhone is Apple's biggest seller by far. The company has sold more than a billion iPhones in the past 10 years. A lot has changed in a decade. The iPhone now includes an insanely good dual-lens camera in the 7 Plus, a built-in streaming music service, and we can't forget about the countless essential apps that weren't possible on Jan. 9, 2007. Apple built native apps for the first-generation iPhone but didn't allow developers to create their own. Now the App Store is a thriving industry unto itself with countless essential services.

"iPhone is an essential part of our customers' lives, and today more than ever it is redefining the way we communicate, entertain, work and live," Apple CEO Tim Cook said in a statement. "iPhone set the standard for mobile computing in its first decade and we are just getting started. The best is yet to come."

Rumours about the 10th anniversary iPhone 8 have been swirling since before the iPhone 7 and 7 Plus were announced. Reports indicate that Apple is working on a curved OLED edge-to-edge glass display with the Home button embedded right into the screen, plus wireless charging.

You can't help but laugh when rewatching the keynote announcement. Jobs was clearly delighted by the device and proud to show it off. "It's got a 3.5in screen," Jobs said. "It's really big."

"It's really thin," he continued. "It's thinner than any smartphone out there at 11.6mm."

ISSUE 116

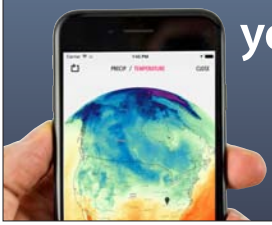
iPad & iPhone user

FROM IDG

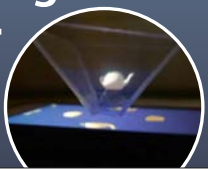
AirPods:

Complete guide to Apple's wireless earphones

Essential apps for your new iPhone



Turn your iPhone into a hologram projector



The iPhone now comes in 4.7- and 5.5in variations, both at 7.1mm. Last year saw iPhone sales slip and Apple's revenues shrink, which led some to speculate that the iPhone's best days are behind it. Apple's Phil Schiller, senior vice president of worldwide marketing, told Backchannel's Steven Levy that the iPhone "is so great that it has many years of innovation ahead."

Apple's competitors are shifting their focus from phones to voice assistants, an area where Apple was ahead with Siri but now lags behind rivals like Amazon.

"Some of the greatest innovations on iPhone over the last 10 years have been in display," Schiller said. "Displays are not going to go away. We still like to take pictures and we need to look at them, and a disembodied voice is not going to show me what the picture is."

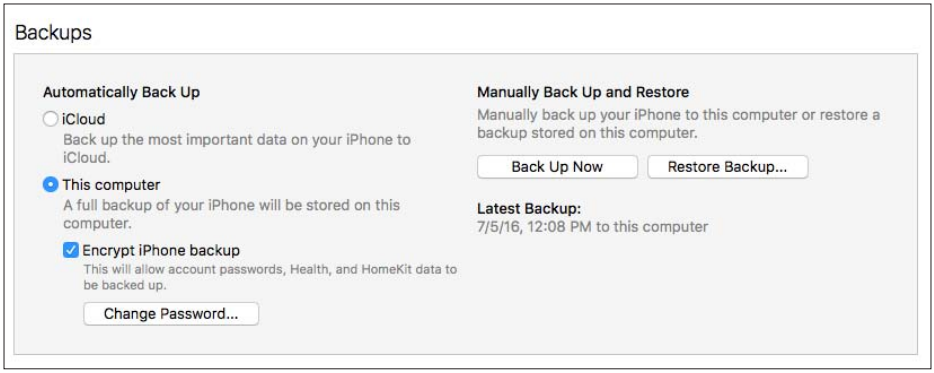
Feature: Getting started with an iPhone 7/7 Plus

Susie Ochs explains how to set up your new handset

Well, you did it. You pulled the trigger on a shiny (or matte) new iPhone 7 or 7 Plus. But before you head out to take a million 12Mp photos to fill up the super-sized storage, there are a few housekeeping details you should tend to first.

1. Back up and restore

This isn't poor planning, we promise – we like to back up our old phone after we have a new iPhone in hand, so the backup is as up to date as it can possibly be. While you can back up via iCloud or iTunes, we prefer the faster iTunes method. Connect your old iPhone to your Mac, launch iTunes, select your iPhone by clicking the little phone icon in the toolbar, and under Backups, choose This Computer. Checking Encrypt local backup is a good idea, so your account passwords and Health data gets backed up too – just choose a password you won't forget. Click the button to Back up now.



Because we encrypted our backup, the Activity progress we made was synced over to our new iPhone 7. That progress was wiped out on my Apple Watch during the process of pairing it to the 7, but when we opened the Activity app on the iPhone 7, that progress was sent back over to the Apple Watch

When the backup is done, connect your new iPhone 7, then tell iTunes you want to restore from the backup you just made. Later, you can switch back to iCloud backups if you prefer, in Settings > iCloud > Backup. But it never hurts to run a backup on your own Mac every now and then.

If you happen to be coming from an Android phone, there's a Move from iOS Android app that can assist you with setting up your Google account data in Mail, Calendars, and Contacts, moving your camera roll over, even transferring your Chrome bookmarks to Safari.

2. Finish the setup

There are a few remaining steps to finish up the setup process. You'll enter your iCloud account password, along with a second security code if you're using two-factor authentication on said

iCloud account (tiny moment of delight: we told it to send the code to my phone number, and because our iPhone 7 was already activated on that phone number, it entered the code for me). Then you'll agree to the iCloud terms and conditions, and set up how people can reach you over iMessage and FaceTime.

3. Set up Touch ID and Apple Pay

Yes, you should use Touch ID for maximum security – it's the quickest way to unlock your iPhone, and will let you set a more complicated passcode, since you don't have to type it in every time. So you so take the few moments to repeatedly press a finger on the Home button to register it. If you trust another human to unlock your phone, you can add their finger (or more of your own digits) by going to Settings > Passcode.

Since you need to have Touch ID enabled in order to use Apple Pay, this would be a good time to jump into Apple's Wallet app to set that up. If you're new to Apple Pay, just follow the instructions within Wallet to add a credit card or two. If you already had Apple Pay on an iPhone 6,

For best results, do not cover your debit card with a banana. Unless you're taking a screenshot to post on the internet, and then by all means, banana it up

6s, or SE, you'll notice that your credit cards have disappeared on your new iPhone. Why? For your security, of course. Your Wallet history will still be there, but you'll have to re-enter any payment cards you'd like to use with Apple Pay.

4. Choose the Home button's feel

The iPhone 7's Home button is less of a button than it used to be. Now it's not a separate cut-out button that moves down when you press it. It's fused with the rest of the iPhone's chin, so it no longer physically moves up and down. You can still find it with your thumb thanks to the metal Touch ID ring that surrounds it.

When you press the Home button, however, you'll still feel a vibration from the Taptic Engine, so it feels like you're clicking. (If you've used the Force Touch trackpads, it's the same effect – those don't physically click either, but a little vibration fools your mind into thinking they do.) It still takes a little getting used to the new feel, but to help the adjustment period, iOS 10 offers three click 'feels' you can choose from. On this screen, tap the 1, the 2, or the 3, and then press the Home button to feel the difference between those clicks. Pick the one you like the best, and then tap Next at the top-right. If you want to change it up later, just visit Settings > General > Home Button.

5. Update your apps

Great, now you should be on your home screen at last. We like to hit up the App Store first – you'll want the latest versions of all of your apps in order to take advantage of all the new abilities Apple has given developers in iOS 10. (Your new iPhone 7 ships with iOS 10.0.0, so we also updated to 10.0.1.) Adobe Lightroom, for example, now supports DNG, Adobe's RAW format. Drafts has an iMessage app that lets you share your notes in Apple's Messages app. And if you update Uber, you'll be able to have Siri order you up a car. We've got a list of some early iOS 10-ready apps for your convenience.

Don't forget you can have your apps auto-update by flipping the Updates switch in Settings > iTunes & App Stores > Automatic Downloads. Or, you can manually update your apps and just check out the 'What's New' release notes to see what changed.

6. Pair your Apple Watch

If you use an Apple Watch, you'll need to pair it to your new iPhone, to keep the Activity data flowing to your Health database, and keep your new phone's notifications flowing to your

We don't recall telling out iPhone to back up my Apple Watch. But what do you know – it did. It's nice not to have to set up our favourite watch faces again

watch. First you have to unpair your watch from your old iPhone, either in the Apple Watch app on your old iPhone (tap your watch, then the 'i' icon, then Unpair Apple Watch, then enter your iCloud password when prompted), or on the watch itself (Settings > General > Reset).

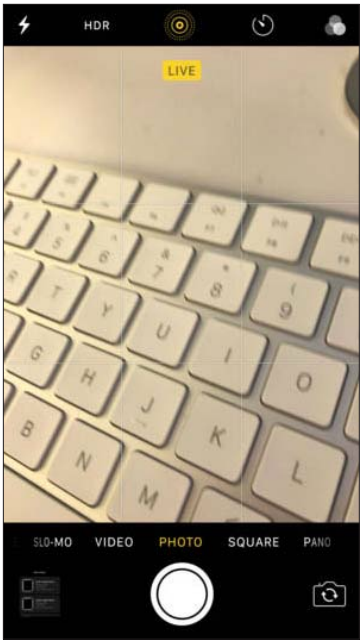
Then, launch the Apple Watch app on your new iPhone 7, which will walk you through the pairing process including setting a passcode, unlocking behaviour, and Apple Pay. If you're new to iOS 10, the Apple Watch app looks a little different, but it's still easy to use – the new Faces Gallery is especially nice.

You need iOS 10 to upgrade your watch to watchOS 3, which we definitely recommend. To upgrade, your Apple Watch needs to be connected to its charger, in range of your iPhone, and at least 50 percent charged. Then look for the Software Update option in the Apple Watch app.

7. Try the new camera

If you were lucky enough to snag an iPhone 7 Plus, you've got the most advanced iPhone camera ever in your hot little hand, and you're probably going to want to put it through its paces. Be sure to test the zoom feature, which switches between the wide angle camera (1x) and the telephoto camera (2x) when you tap the 2x or 1x button right above the shutter button. Unfortunately, the bokeh-friendly Portrait mode that Apple previewed at the September even isn't live yet – 7 Plus owners will get that as a software update later this year.

But the iPhone 7 camera is nothing to sneeze at. It's now 12Mp, with better low-light performance.



Tap the little firework-looking thing in the top toolbar to toggle Live Photos on and off. On is more fun, Off saves storage

Take some photos in a dark setting and in bright outdoor conditions, and they should both have more detail. Be sure to snap a few shots of the brightest colours you can find – a flower garden, for example – to admire the vibrant colours on the iPhone 7's screen, which has a wider colour gamut than before.

8. Edit a Live Photo

Apple introduced Live Photos with the iPhone 6s and 6s Plus, and the 4in iPhone SE supports them too. If your last iPhone didn't have this feature, you should definitely check it out. In the Camera app, turn on Live Photos by tapping the little icon that looks like a firework, in the middle of the top toolbar when you're in regular Photo mode. It'll glow yellow when it's enabled. Then when you take a photo, the iPhone will capture 1.5 seconds of video before and after it, so hold the phone steady for best results.

To see your Live Photos in action, you'll find them among your regular photos in the Photos app. When you swipe through your pics, the Live Photo animation will show for a split second, and then stop. To see the whole thing, 3D Touch on the Photo by pressing firmly and holding on the pic.

In iOS 9, you couldn't edit Live Photos. If you tried to edit one, you'd see a warning that proceeding with an edit would change the Live Photo to a static image that you could then crop, recolour, or whatever. But in iOS 10, Apple added the ability to edit Live Photos directly. You can crop them, add a filter, adjust colours and lighting, or even use the magic wand auto-adjuster at the top-right. There's still no way to trim a little bit off the front or back of a Live Photo's video, nor to select the exact video frame you want as the still image.

Several apps now support Live Photos too – Google Photos can keep them backed up, Facebook lets you post them, and Motion Stills can turn them into GIFs.

9. Add widgets to the Today view

iOS 10 got rid of the slide-to-unlock feature, because now you can swipe right on the lock screen to see your Today widgets, or swipe left to quickly open the Camera app. (Swiping up still shows your Control Centre, which is now split into two panes – three if you have HomeKit – and swiping down opens Notification Centre.) Once your phone is unlocked, those Today widgets are never more than a couple of swipes away. From the home screen, you can swipe right, and if you're in an app, just pull down the Notification Centre, which has the Today widgets in a second pane.

You can add new widgets by scrolling to the bottom of the Today screen and tapping the Edit button. There you can reorder the widgets you have, remove them from the list, or add new ones to the list by tapping the plus button next to their

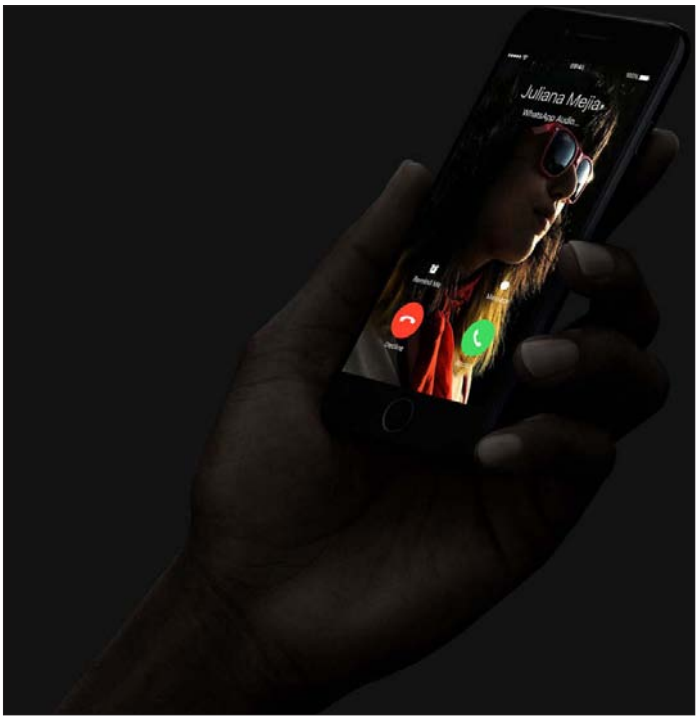
The widgets can be very handy for getting quick info without having to open apps

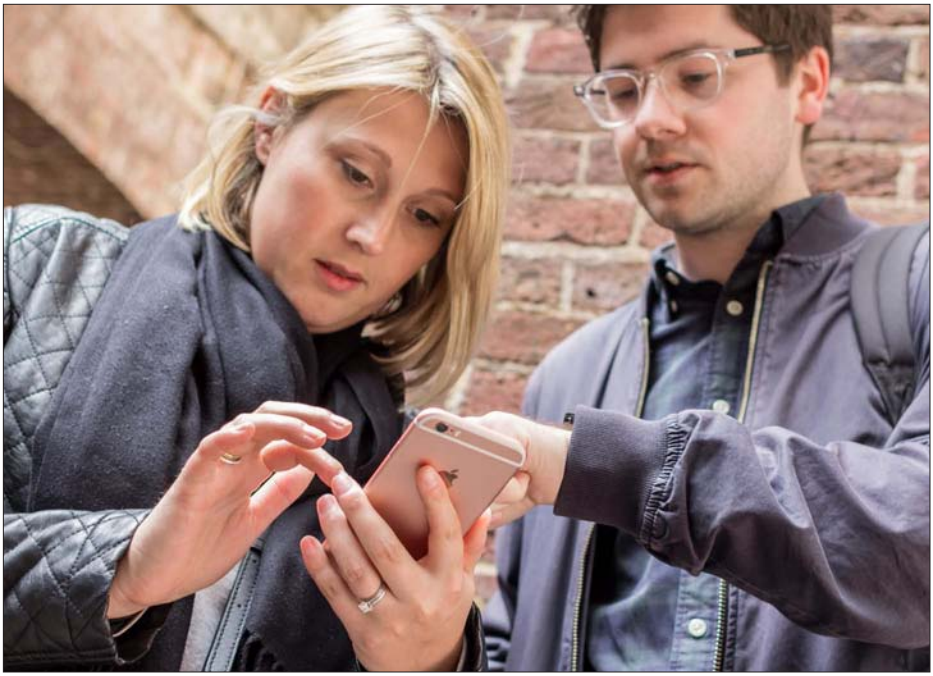
names. But there's an even more fun way new to iOS 10: 3D Touch. From any of your home screens, just hard-press an app's icon to see if it has a widget. You'll get a little peek at what it offers, with a plus button at the upper-right to tap if you want it permanently added to the Today widgets screen.

10. Figure out your headphone situation

Your iPhone 7 comes with a Lightning-to-3.5mm adaptor that lets you plug in any standard headphones you already own, as well as a set of EarPods with a Lightning plug instead of a 3.5mm plug. You can also pair a set of Bluetooth headphones, but that requires opening Settings > Bluetooth.

The AirPods finally shipped right before Christmas, and we like them a lot, but they do cost £165, and if you use Spotify instead of Apple Music you might be annoyed at the paltry Siri support. Apple also includes a pair of Lightning EarPods, as well as a Lightning-to-analogue adaptor. The Lightning EarPods do work with older iPhones too, but if you plug in both Lightning headphones and 3.5mm analogue headphones, the audio always defaults to analogue. If you yank the analogue headphones, the audio goes back to the Lightning pair. Of course there's no real reason to use Lightning EarPods with an iPhone that has a headphone jack. But you could.





Feature: iPhone 8 rumours

Rumours are already swirling about the 'revolutionary' 2017 iPhone. Caitlin McGarry and Oscar Raymundo report

People are still lining up to snag a brand-new iPhone 7, but that won't stop anyone from speculating about next year's iPhone. Why so early? Well, 2017 marks the iPhone's 10th birthday (see page 101), so Apple is reportedly gearing up to make its anniversary edition extra special.

If you passed on the iPhone 7 to wait for the iPhone 8 – or whatever name Apple decides to use – it sounds like next year's phone could be

the design refresh you were waiting for. Just don't expect the headphone jack to return.

What's the latest?

The rumour: Apple's revolutionary new iPhone 8 will sport a plastic OLED display that "curves all over," according to a report published in the Korea Herald and picked up by 9to5Mac. The report corroborates the rumour that Apple will release three iPhone models next year, a premium model with curved OLED display and two with flat LCDs. Furthermore, Apple is hoping to incorporate new 'sensing technology' in the curved display to help differentiate the iPhone 8 from other OLED smartphones. According to the Korea Herald, Apple has tapped Samsung Display to make an estimated 70- to 100 million plastic OLED units to use in the iPhone 8.

Plausible? If Apple is considering releasing an iPhone 8 with a curved display, then plastic OLED is the way to go, as glass OLED works best for flat displays. And now that we've seen Apple reserving certain features like a dual-camera for the more expensive iPhone models, we wouldn't be surprised if the curved iPhone 8 comes at a premium, too. Next year, we could very well see an iPhone 7s and 7s Plus with LCDs, as well as a brand-new iPhone 8 with OLED.

New red colour?

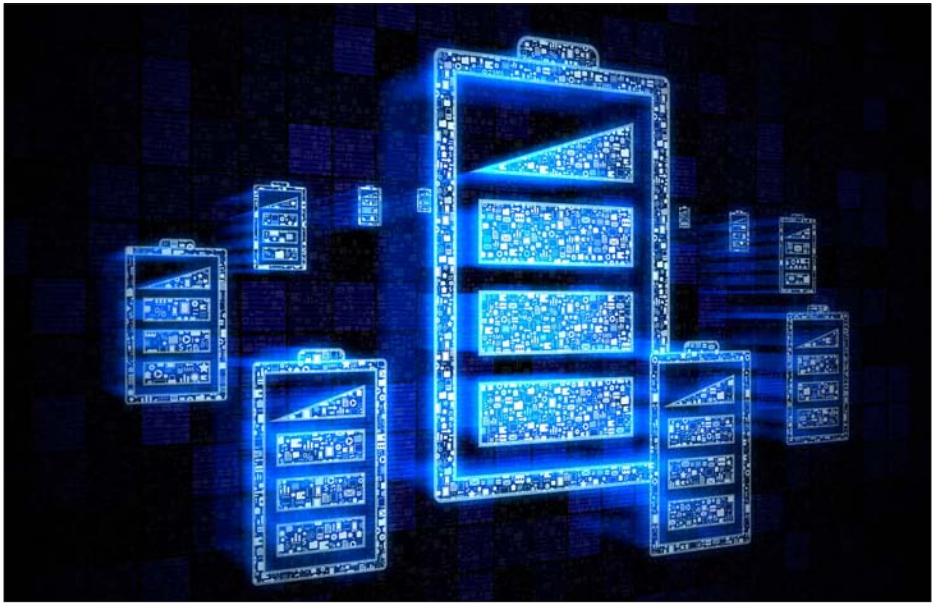
The rumour: Reports that Apple has three new iPhones in the works for 2017: iterative iPhone 7s and 7s Plus updates and a completely redesigned

all-glass iPhone 8. Conflicting rumours have different features in each phone, but here's a new one: The 7s and 7s Plus will come in a brand new crimson colour. According to Japanese Apple-centric site Macotakara, the S-model phones will be available in red in addition to the standard black, jet black, rose gold, gold and silver.

Plausible? Could be. Macotakara has a decent track record with Apple product rumours, predicting the phase-out of the iPhone headphone jack ahead of the pack. The blog cites Taiwanese suppliers who also say the 7s and 7s Plus will look the same as the 7 and 7 Plus, though KGI Securities says the opposite: that each of the 2017 models will be all-glass and have wireless charging.

Wireless charging?

The rumour: We're beginning to hear corroborations of earlier rumours. KGI Securities analyst Ming-Chi Kuo is doubling-down on his



prediction that the 2017 iPhone will have all-glass casing. According to Kuo, Apple is switching to glass in order to facilitate wireless charging. Even though some metal and plastic smartphones have wireless charging, using glass is faster and there are fewer frequency disruptions.

Good news: Kuo now expects Apple to put wireless charging in all of its 2017 iPhones, including the next-generation 4.7- and 5.5in versions of the 7 and 7 Plus. Apple could decide to limit the feature to its anticipated 5.8in bezel-less iPhone 8, but with the 7s and 7s Plus expected to be remade with all-glass casing, the addition of wireless charging might encourage more people to upgrade.

Kuo is counting on it. According to supply chain rumours, more iPhones are expected to be

produced in the latter half of 2017 than ever before. Suppliers are reportedly getting ready to churn out 120- to 150 million iPhones, beating out the 110- to 120 million iPhone 6 models produced in late 2014.

Plausible? Yes. The addition of wireless charging was one of the first reliable rumours we heard about the forthcoming iPhone 8, and we'll undoubtedly keep hearing about it until the device is released next year. If Apple is really committed to wireless charging, then switching to an all-glass casing also makes sense. It explains why Apple would choose to switch to glass in the first place. While the smaller iPhones might lack OLED due to production constraints, putting wireless charging in each model would go a long way toward making the next iPhone a must-buy.

Curved screen?

The rumour: The iPhone 8 could have a curved screen, meaning that it bends slightly around the edges. According to *The Wall Street Journal*, Apple is asking suppliers to created prototypes with curved OLED displays that have a higher resolution that Samsung phones. An iPhone with a OLED display will most likely be a more expensive, higher-end model. In addition, Apple is testing over 10 prototypes for the forthcoming device, which is speculated to include 'radical' new features to mark the iPhone's 10th year anniversary in 2017.

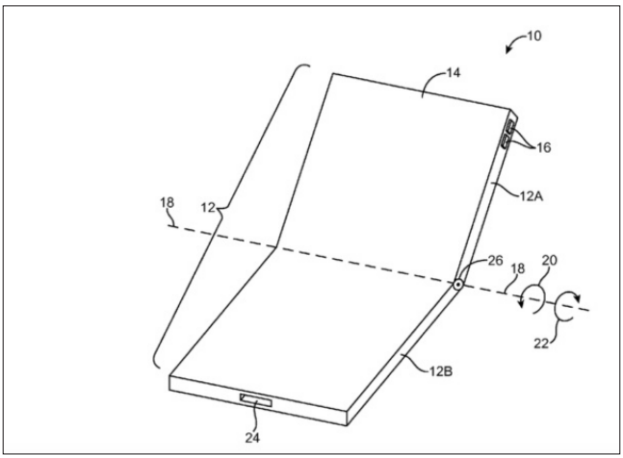
Plausible? We've already heard that Apple is looking into finally bringing OLED displays to its iPhone line. And it makes sense that the OLED

display would be reserved for a higher-end iPhone model, since these screens are more expensive to manufacture. With declining iPhone sales, there's a lot of pressure surrounding the launch of the iPhone 8. So, it's also not surprising that Apple is allegedly testing several prototypes to deliver a 'revolutionary' iPhone next year.

Folds like a book?

The rumour: You may be able to bend the next iPhone, similar to how you fold to close a book. Apple has just been granted a patent for a book-like iPhone design that used an OLED display that can fold in half.

Plausible? Just because Apple has the patent for this, doesn't necessarily mean that it will become a real product. Besides, Apple has just started to consider using OLED, so there may not be enough time to incorporate a bendable, foldable display on the iPhone 8.



3 new models?

The rumour: Apple will launch three models of the iPhone 8 in 2017, according to a new report from KGI Securities analysts. One model will sport a 5.5in OLED screen and a dual camera. One will have a 5.5in LCD screen, also with a dual camera. The third will be a 4.7in iPhone with an LCD screen and a single camera system, much like the current iPhone 7 model.

Plausible? KGI Securities is usually spot-on when it comes to iPhone hardware predictions, and for a while these supply chain analysts have been predicting that Apple will switch to OLED displays in 2017. Apple has already been using OLED displays on the Apple Watch and the MacBook Pro's Touch Bar, so using this type of display on the iPhone seems like a logical next step. Previously, Bloomberg reported that Apple is in talks with Sharp to be its OLED display supplier.

OLED offers a lot of benefits over LCD. Besides being more responsive, OLED gives Apple the option to create a bezel-less iPhone with a curved or bendable display, which would certainly boost the iPhone 8's wow-factor. This time around, the iPhone 8 is rumoured to be 'revolutionary'.

Return to all-glass?

The rumour: Apple may take a page from its own book and release an iPhone 8 with a glass front and back, similar to the iPhone 4 and 4s. The iPhone 8 and 8 Plus will, of course, be larger than those models, which were 3.5 inches. KGI Securities analyst Ming-Chi Kuo, who always has deep insight

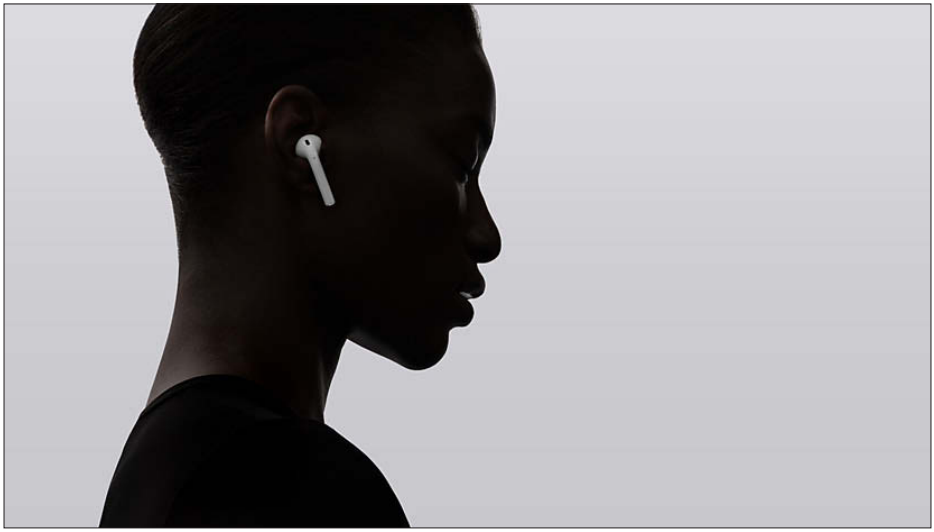
into Apple's supply chain, predicted that Apple will make lower-priced models with aluminium casing and more expensive versions with stainless steel. The glass would give the phone a glossy look, like the popular jet black iPhone 7, but be less prone to knicks and scratches than the brushed aluminium.

Plausible? Yes. It's all about the sourcing. KGI's Ming-Chi Kuo is typically spot-on when it comes to Apple hardware changes. It's possible that Apple is basing future design decisions on the success of the jet black iPhone 7, which is currently sold out through December. According to the KGI report, 30- to 35 percent of preorders were for the jet black model worldwide, and in China that percentage was higher – 45- to 50 percent.

An OLED display at last?

The rumour: So far, Apple has held on to LCD displays, but Apple is reportedly in talks with Sharp to be one of its main suppliers of OLED displays to use in next year's iPhones. According to Bloomberg, Apple wants to diversify its OLED sourcing so it has multiple options. Sharp is investing $566 million in OLED production factories which will start churning out displays by next June.

Plausible? Yep. The future is OLED, because the technology is more flexible than LCD and would allow Apple to make the iPhone bezel razor-thin and move the home button to the display itself. There are other applications made possible by switching to OLED screens, and we're sure Apple is exploring those for a future phone.



Feature: AirPods FAQ

Susie Ochs reveals everything you need to know

The AirPods are here. After a couple months of delays, Apple is taking orders for the £159 AirPods. But even though they're technically on sale, the AirPods will be scarce for a while – the Apple online store is estimating six weeks' delivery time, but you might be able to track down a pair at an Apple retail store. Maybe call ahead first.

How to pair AirPods to an iPhone and Apple Watch

Pairing your AirPods to an iPhone or iPad for the first time is ridiculously easy. If your device is running iOS 10, all you have to do is flip open the lid of the AirPods' charging case, and you'll see a

message on your nearby iPhone asking if you want to connect. (If your phone is locked, you have to unlock it first and then tap the Connect button. And if nothing happens at all, check your iPhone to make sure Bluetooth is turned on.)

That's it, you're done. Your AirPods will stay paired to this iPhone – and a paired Apple Watch, if you have one of those too. If you start playing a song on your iPhone, and then you start another song playing on your Apple Watch, the AirPods will switch to the Apple Watch.

How to pair AirPods with a Mac

If you've already paired the AirPods to your iPhone, and it's signed into the same iCloud account as your Mac (running macOS 10.12 Sierra), you don't have to go through the pairing process again. Just click the Bluetooth icon in your Mac's menu bar and you'll see the AirPods there.

Mouse down over them and click the word Connect when it comes up. Or you can Alt-click the volume icon in the menu bar (System Preferences > Sound > Show volume in menu bar if you don't see it already) and choose AirPods as your Mac's output device.

How to pair AirPods to anything else

What if you want to use the AirPods with an Android phone, or a Kindle Fire tablet, or even an Apple device that isn't running the latest and greatest OS? You can. The AirPods don't have a pairing button on them, but the charging case does. Stick the AirPods in the charging case, and then look for a round, white, barely visible button on the back of the case. With the case's lid open, press and hold that button, and you'll see the teeny-tiny LED inside the case turn white. That means the AirPods are in pairing mode, so you should be able to use the menus on the device you're trying to pair with to get them connected.

How to check the battery

There are a couple of ways to check the battery level on your AirPods. You can ask Siri, by double-tapping either AirPod, and then asking, "What's my battery level?" when you hear the

Siri chime. Siri will tell you if any of your devices – iPhone, Apple Watch, and AirPods – is running low on battery.

If both AirPods are in the charging case, you can flip open its lid and you'll see a pop-up on your paired iPhone that displays the battery life of each AirPod, plus the case.

You can also check on your iPhone itself, with the battery widget in Notification Centre's Today view. (You get to Notification Centre by swiping down from any page, or swiping right from your home screen. If the Batteries widget isn't active, scroll to the bottom of Notification Centre's Today view and tap Edit to add it.)

Or, swipe up from any page to bring up the Control Centre, and swipe to the pane that shows your Music app. If your AirPods are connected, you'll see "Now Playing on [Name's] AirPods" at the bottom of this pane. Tap the downward-facing arrow next to that, as if you were going to change the playback device to your iPhone's speakers, and you'll see how much battery each AirPod has left.

How to invoke Siri

The default way to invoke Siri is to double-tap on either AirPod with your finger. If you hate Siri, though, you can change the double-tap behaviour in Settings.

Start in Settings > Bluetooth, and then tap the lower-case i icon next to your AirPods in the list of Bluetooth devices. On the next page, in the section

labelled Double-tap on AirPods, you can choose Siri, Play/Pause, or Off.

How to control playback and volume

You can take one AirPod out of your ear to pause the music, and then stick it back in your ear to start it playing again. Assuming you keep the default behaviour to double-tap an AirPod to talk to Siri, you'll need to use Siri for the rest of your playback tasks. Here are a few commands you can use, and these work whether you're listening to the Music app, or another app like Spotify.

- Turn it up
- Turn it down
- Skip this song

If you are listening to the Music app, you can ask for specific songs, albums, artists, and playlists (in your library if you aren't an Apple Music subscriber, or across the whole Apple Music service if you are), and you get more commands.

- Start this song over
- Rewind
- Play more like this
- Add this to my collection
- Shuffle on

Obviously, using Siri to control playback has some lag. First you have to double-tap the AirPod and wait for the chime that lets you know Siri is listening. Then you have to speak your query and wait for the iPhone to parse it.

It's a lot less convenient than other wireless headphones that put more controls right on the headphones themselves. But the AirPods are a lot smaller, so it makes sense that they wouldn't have buttons. Apple could perhaps add support for a second gesture, but what is here is a good start.

How to charge the AirPods and their case

The AirPods will last about five hours per charge, according to Apple. Their case holds a battery too, and you stick the AirPods back in the case to charge them. The little light inside the case glows orange when the AirPods are charging, and magnets keep them snug in the charging case, even if you turn it all the way upside down. Each AirPod fits exactly in one of the two openings, so as long as they're in there and you can close the lid, they should be properly seated for charging. To charge the case itself, connect a Lightning cable to the port on the bottom. Then connect the other end to an AC power adaptor or a USB port on a Mac.

What does the light inside the case mean?

If your AirPods are in the case, you'll see an orange light if they're charging, or a green light when they're nearly fully charged. If no AirPods are in the case, the light still goes on when you open the lid, but it indicates how much battery life is left in the case itself: orange for needs charging and green for good life left. I'd like it if there were multiple lights, say five of them that lit up in increments of 20 percent. Right now, the case is showing a green light, but my iPhone says it has 62 percent of its charge left.

Credit: iFixit

Feature: AirPods teardown

Ian Paul looks at the magic and glue that make Apple's wireless earphones work

Sometimes it's just not worth it to peek behind the curtain and find out how the magic happens. That's the feeling you get from iFixit after the teardown champs took on their latest challenge: Apple's AirPods.

These tiny wearables pack a lot of power into a small space. They've got Bluetooth, beamforming microphones, optical sensors, a motion accelerometer, a 93mW battery (we'll get to that), and speakers. It's no surprise there's little room among all those components for grace and an easy entry point.

In fact, the AirPods appear to be equal parts technology and glue. Or as iFixit puts it: "If jamming

complex components into a small form factor and sealing it with a copious amount of glue were a game, Apple would be winning."

The impact on you at home: The reality is that if you break either of these little dangly headphones, you won't be repairing them. iFixit gave the headphones a repairability score of 0 out of 10. That's not really a huge surprise though, is it? How many types of wired earbuds are repairable save for perhaps snapping them back together if they come undone? Not many. The AirPods are expensive earbuds, but they're still earbuds.

That means if you break an AirPod you'll be shelling out at least £65 to replace it. To sum up: AirPods may not fall out of your ears in most situations, but you'll still want to be careful not to lose or damage them.

Despite waging war with adhesive, iFixit did find some interesting technical points inside the AirPods. For starters, the battery is tiny. It's not Apple Pencil tiny, but it's still a pretty small power pack. That's not such a big deal, however, as those 93mW still give you five hours or more of music playback.

The iFixit teardown also found a technical reason as to why the AirPods look more or less like regular Apple earbuds with the wires cut off. That boom-like extension is there not only to provide balance, but as a home for an antenna in order to deliver better reception.

Opinion: Why Apple's Macs need some innovation

Making a desktop Mac thinner or hiding the cables aren't enough to satisfy power users, argues Dan Moren

The old saw says that no news is good news, but that doesn't always hold up. In the case of Mac desktops, it seems that no news is sometimes just that. No news. On the other hand, if you judged it only by the criterion of

media attention, this past week may have been the biggest for Mac desktops in several months.

There are plenty of questions about where the future of Apple's desktop line lies after the past year, which for the first time in recent memory featured no updates to the company's longest running product line.

As we approach the Mac's third-of-a-century mark, the world looks a lot different from the way it did when Steve Jobs introduced the computer. But that doesn't mean that the death of the Mac – or, at least, the imminent death of the Mac – is a foregone conclusion. Even in a world of iPhones, iPads, MacBooks and Apple Watches, there are still plenty of reasons that desktops continue to appeal. But in order to put desktops back in the spotlight, it might require Apple to push back against some of its instincts.

Power plays

The most obvious advantage of desktop Macs remains performance. Even with the improved horsepower of the MacBook Pro – and, heck, even the iPad Pro – it's still hard to match the sheer performance that you can get, at least theoretically, out of a desktop Mac. All of the limitations and constraints that hamper Apple's laptop lines, like battery life, space, weight, and heat, are of less concern in a computer that stays on your desk and remains plugged into the wall.

In theory, that opens up the possibility of truly high performance machines. If anything, that's one reason for the frustration of the power user crowd over Apple's recent computers. On its

laptop line, the company continues to solve for weight, thinness, and battery life, and for good reason: those are what most consumers want in a laptop. But some of those design decisions have rubbed off on the desktop line, such as the impetus to make the iMac super thin, or to redesign the Mac Pro as an objet d'art.

As the Mac shifts more and more to a power machine, the truck to the iPad's car, it may be time for Apple to take a step back and reconsider those design decisions. Does the iMac really have to be that thin to look good? Could some width be traded for performance? And while hiding away all the cables on the most recent Mac Pro made good aesthetic sense, accessing them by rotating the machine – when it's already plugged in to a bunch of cables – isn't necessarily a usability coup.

Go modular

At this late stage in the game, it seems likely this cry will fall on deaf ears. But when it comes to Mac desktops, there's really no reason that Apple shouldn't be designing its desktops with upgradeability and modularity in mind. Obviously, the trend line has definitely been moving towards Apple building machines that are essentially hermetically sealed, with little in the way of possible upgrades – most modern Macs won't even let you add more RAM after you buy them.

On a laptop, there's sense to it. Again, removing the niceties that let you upgrade or easily repair your MacBook cut down on overall weight and free up internal space. And laptops have come, to a degree, commoditised: most users probably didn't upgrade components even when such a thing was possible, instead just buying a new computer when the old one kicks the bucket.

But we're talking about the desktop here. We'd bet that people who are more likely to buy desktops are pro or power users who know their way around the inside of a computer – or at least might be interested in adding more RAM, replacing a hard drive, and so on. Apple more or less gave that a shot on the 2013 Mac Pro, whose memory, storage, and processor are all upgradeable, if not easily so, but the iMac and Mac mini have become only more limited as time goes by. (Oh, how we miss the days of the white iMac G5, where you could simply loosen three screws and pull the entire back of the machine off.)

Make desktops exciting again

Marketing and messaging play important roles too. Desktops aren't exactly the height of innovation these days. Many of the most impressive new technologies appear first on mobile platforms and while it's great when those – Retina displays, Touch ID, and so on – make their move to the Mac, it would be great to see more innovations start their lives on the Mac, as with the recent Touch Bar. But right now desktops lag all the way at the back – none of Apple's, for example, even feature new

technologies like USB-C or Thunderbolt 3. Overall, what the Mac desktop line currently seems to lack is vision – and recent articles about the internal state of Apple's Mac division – certainly suggest as much. While the product lines may not be as exciting to work on as the bleeding edge of iOS devices or even MacBooks, there are still plenty of people who'd greet the arrival of Mac desktop updates as a cause for celebration. And if the customers are there, Apple should be able to find people within its ranks who are at least as excited. Not unlike desktops themselves, improving the lot of iMacs, Mac minis, and even the Mac Pro is something that starts from within.


IDG