

TECH SCAMS TO LOOK OUT FOR THIS CHRISTMAS

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Macworld

JANUARY 2017 ● IDG

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NEW

MacBook Pro

Why this is Apple's best laptop yet

**FULL
REVIEW**

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**BEST MAC
GAMES FOR
CHRISTMAS**



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Welcome...

Welcome to the latest edition of *Macworld*. Last month, we were lucky enough to get an early look at the MacBook Pro. Since then we've been putting Apple's latest laptop through its paces. Yes it's thin, light and looks fantastic, but how does it perform? And what about the Touch Bar? Is it a gimmick or a genuinely useful feature? You can read our full review on page 18.

If you are tempted by the new Touch Bar, but aren't keen on shelling out over £1,700 for the privilege, we reveal how you can add one to your Mac's display without paying a penny on page 106.

Sometimes to get your computer working the way you want, you'll need to use System Preferences. Those new to Apple hardware may not know what it is, while others may be unaware of what it makes possible and how easy it is to make tweaks and changes to the way your Mac is set up. On page 31 we've the first of a three-part series that covers the app in depth.

With Christmas just around the corner our security tips will help keep your money, gadgets and personal details safe (page 59). And if you fancy some downtime over the holiday season, we round up the best new Mac games on page 89.

Plus, we've our usual features and tutorials, so you can get the most out of your Apple hardware.

News: Apple to replace faulty iPhone 6s batteries

Apple says the problem has been discovered in a few iPhone 6s smartphones. [Jon Ribeiro](#) reports

Apple has revealed that a few iPhone 6s smartphones are unexpectedly shutting down, confirming a problem reported last week by a Chinese consumer protection group.

The company said the problem is restricted to a small number of phones within a limited serial number range that were manufactured between September and October last year.

Apple said that it was not a safety issue, and appeared to suggest that

the problem would be resolved by a replacement battery which the company offered free. It did not reveal how many iPhone 6s phones were affected and in which markets.

The China Consumers Association asked Apple to investigate problems with iPhone 6 and 6s phones that were automatically shutting off. The unexpected shutdowns were said



to happen when the phone's battery charge dropped to between 60- and 50 percent.

Apple's wireless carrier partners are not participating in the battery replacement program for the iPhone 6s, so eligible users have to contact Apple retail stores, authorized service providers or technical support. Users have been advised to back up their data to iTunes or iCloud, turn off their 'Find My iPhone' facility, and erase all content and settings in preparation for the battery change.

"If your iPhone 6s has any damage such as a cracked screen which impairs the replacement of the battery, that issue will need to be resolved prior to the battery replacement. In some cases, there may be a cost associated with the repair," Apple revealed while announcing the program.

Users who believe their iPhone 6s phones was affected by the issue, and have already paid to replace the battery, can contact Apple about a refund at tinyurl.com/j46Lms3, the company said.





News: Apple's latest product is a £249 book

No, we're not joking. [Caitlin McGarry](#) takes a look

Apple has released a product that isn't a phone or a watch or a computer. It's a 450-page book documenting the past 20 years of Apple design, or, in other words, a book of photos of Apple devices. At £249, it costs more than some of those devices.

Designed by Apple in California, comes in a large (413x330mm) and a cheaper, smaller (324x260mm) size. The smaller version is a mere £169. Both versions are available to buy online at tinyurl.com/zf5wb4z or in select Apple Stores.

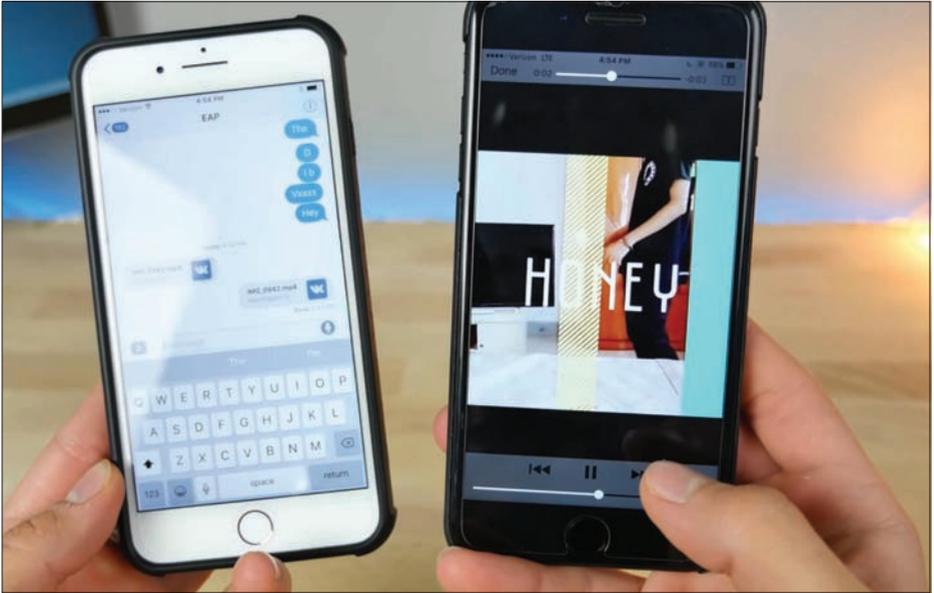
The book documents the creation of the 1998 iMac through the 2015 Apple Pencil and took eight years to develop, Apple said. It is dedicated to the memory of Steve Jobs.

“While this is a design book, it is not about the design team, the creative process or product development,” Apple design chief Jony Ive writes in the book’s foreword. “It is an objective representation of our work that, ironically, describes who we are. It describes how we work, our values, our preoccupations, and our goals. We have always hoped to be defined by what we do rather than by what we say. We strive, with varying degrees of success, to define objects that appear effortless.”

Yes, Apple products are beautiful. They are simple. They are easy to use. Some could even be considered works of art. But the announcement of this book reads more like a parody of Apple, with even the paper described in reverential terms (“specially milled, custom-dyed paper with gilded matte silver edges, using eight colour separations and low-ghost ink”). If a potential love interest spots this book on your coffee table, they will know immediately that you take yourself far too seriously.

That said, buying this book could be justified, if you really wanted to as photographer Andrew Zuckerman’s images are lovely. The book does include the materials and techniques used for each product. Coffee table books from lesser-known designers than Apple often retail for just as much.

At least now you know what to buy the Apple fan in your life who already owns every single product the company makes.



Credit: EverythingApplePro

News: Corrupt video link causes iPhones to crash

You will have to perform a hard reset if you play this corrupt video on your iOS device, warns [Oscar Raymundo](#)

Beware the five-second video that will bring your iPhone to a complete halt. Recently, a corrupt video link with the potential to crash any iOS device started making the rounds. Clicking on the MP4 link in question will play a video that will cause your iPhone, iPad or iPod touch to overload and eventually freeze to the point of making the Home button, the power button, and the touchscreen totally unresponsive.



The corrupt video playing on an iPhone

The only way to get your iOS device working properly is to perform a hard reset.

Clicking the link generates a loop that will force your iPhone to crash about 10 seconds after the short video ends. The Verge tested the link on several devices running iOS 10.1, as well as the iOS 10.2 beta. They all became unresponsive.

If you've fallen victim and have already played the video, don't fret. Thankfully, there's a pretty simple solution to recovering your iPhone after watching the corrupt video. You will need to reset your iOS device by long-pressing the Home button and the power button simultaneously until you see the Apple logo. If you're trying to reboot a new iPhone 7, you can do so by long-pressing the power button and the volume-down button at the same time.

According to 9to5Mac, there doesn't seem to be any long-term effects from playing the video. Regardless, it's likely that Apple will address this in a forthcoming iOS update.

News: Trump tells Apple to build iPhones in US

President-elect says tax breaks will encourage Apple to manufacture its phone on US shores, reports [Susie Ochs](#)

On the back of every iPhone, tiny print reminds you it was “Designed by Apple in California. Assembled in China.” One of president-elect Donald Trump’s campaign promises was getting Apple to move production here – and he says he told Tim Cook that very thing directly.

In his meeting with the *New York Times*, Trump said he’d spoken to Cook on the phone.

I got a call from Tim Cook at Apple and I said, ‘Tim, you know one of the things that will be a real achievement for me is when I get Apple to build a big plant in the United States or many big plants in the United States, where instead of going to China and going to Vietnam and going to the places that you go to, you’re making your product right here.’

Cook replied, according to Trump: “I understand that.” So Trump dangled the carrot of tax breaks.



[Cook] said, 'I understand that.' I said: 'I think we'll create the incentives for you, and I think you're going to do it. We're going for a very large tax cut for corporations, which you'll be happy about.'

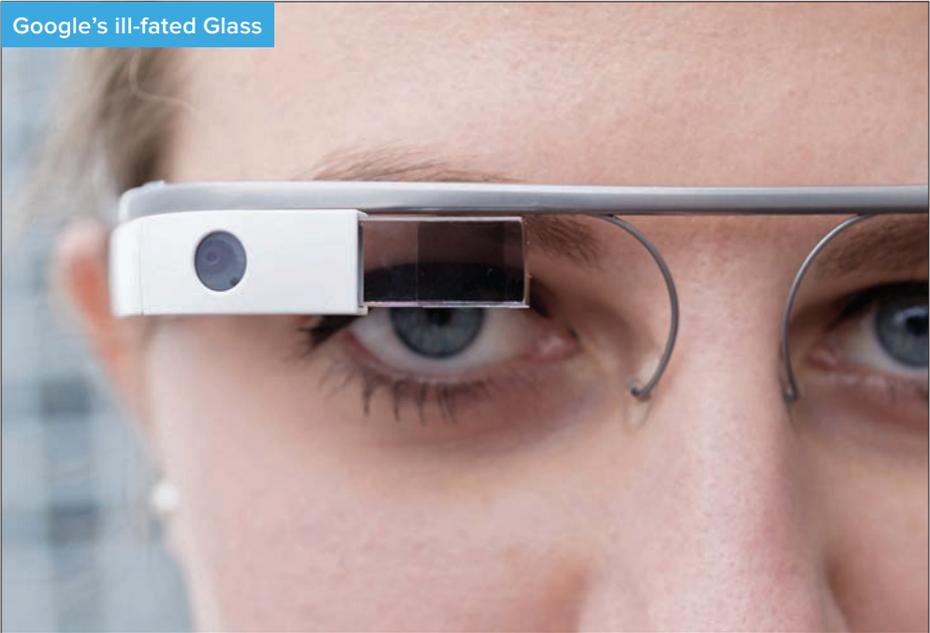
It's worth noting that the current Mac Pro, redesigned in 2013, is assembled in the USA, in a factory outside Austin, Texas. But the Mac Pro might just be Apple's least-selling product. The iPhone is another story. Cook has claimed in the past that the reason iPhones are assembled in China is mostly one of scale – Apple can't find enough skilled workers here to fill the needs of a company that sells as many as 400 iPhones per minute.

Cook told Charlie Rose in December 2015, "The US, over time, began to stop having as many vocational kind of skills. I mean, you can take every tool and die maker in the United States and probably put them in a room that we're currently sitting in. In China, you would have to have multiple football fields."

We'll have to wait and see if tax breaks are enough to bring manufacturing of any Apple product back to the US or if more structural changes in education will be needed. Apple is already reportedly looking into what such a move would cost, with a report in *Nikkei Asian Review* that the firm had asked Foxconn to prepare a report on the feasibility of building iPhone assembly plants in the US.

Another factor could be Trump's plan to introduce a 45 percent tax on products imported from China. Any of these changes, should they come to pass, could affect the price of iPhones.

Google's ill-fated Glass



News: Apple may produce wearable AR glasses

iPhone maker could enter crowded VR and AR market where Microsoft, Facebook and Google play, reveals [Jon Ribeiro](#)

Apple is working on wearable digital glasses that would connect wirelessly to the iPhone and show content in the wearer's field of vision, according to a news report.

The iPhone maker has indicated previously its interest in augmented reality. Unlike the simulated world of virtual reality, AR supplements with images and information the user's normal view of the world.

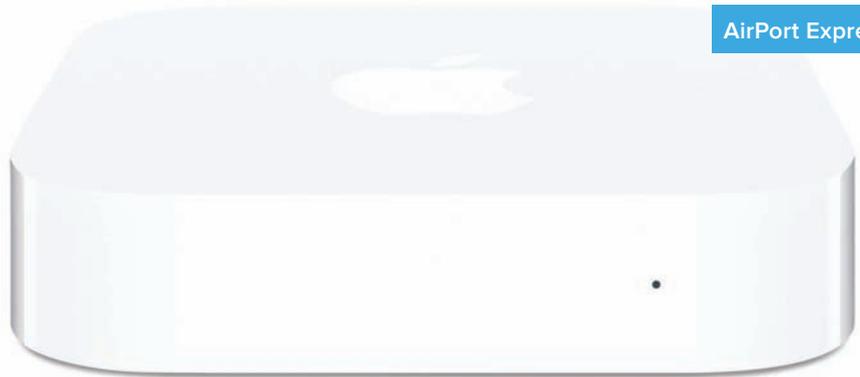
“We are high on AR for the long run. We think there are great things for customers and a great commercial opportunity,” Apple CEO Tim Cook revealed in an earnings call in July, talking about the need for Apple’s devices to work with other developers’ products, such as the successful Pokémon Go game.

The company has also hired VR and AR experts and made some acquisitions that could help it meet its AR goals. Apple has discussed the glasses project with potential suppliers, reported Bloomberg recently, citing people familiar with those discussions.

The company may be close to a prototype stage as it is said to have ordered small quantities of near-eye displays from one supplier for testing. The company hasn’t, however, ordered components in numbers that would suggest that mass production plans are imminent, a spokesperson told Bloomberg.

Apple could not be immediately reached for comment. The company will be entering a crowded markets where Microsoft is pushing its AR glasses, called HoloLens, while Facebook-owned Oculus VR is targeting the VR market. Google launched its VR headset called Daydream View that will work with compatible phones including the company’s Pixel smartphones.

Apple’s glasses will be introduced in 2018 at the earliest, if the company goes ahead with the project, according to a Bloomberg source. New product categories, including the AR glasses, could help the company make up for falling iPhone sales.



AirPort Express

News: RIP AirPort?

The age of the AirPort line of routers is reportedly over as Apple focuses on other projects, writes [Ian Paul](#)

Apple is reportedly done with routers. While the company hasn't said anything publicly, Bloomberg's Mark Gurman (who has an excellent track record with Apple rumours) reports that Apple's wireless router division has been disbanded. The engineers who were working on products like the AirPort Express, AirPort Extreme, and AirPort Time Capsule have been moved to work on other projects over the past year, according to Gurman.

Apple's work on routers has been relatively quiet in recent times. We last looked at the AirPort Express in 2012, and the AirPort Extreme and Time Capsule last received updates in 2013. These routers are strong enough, but as we noted in the AirPort Extreme review, you can get better performance and features elsewhere.

AirPort Extreme



Time Capsule

That's not to say Apple's offerings don't have their appeal to Mac users. The Time Capsule, which doubles as a 2TB hard drive storage for the Mac's Time Machine back-up program, is particularly useful. Nevertheless, it appears the AirPort's time may be done.

Gurman's report on Apple ending AirPort development follows Apple's decision to discontinue its Thunderbolt Display earlier in 2016. Apple appears to be refocusing its engineers on the products that will have a greater impact on Apple's future. Instead of routers and displays, Apple is better off improving products like Apple TV, and working on Siri and Siri-based devices. That latter category is particularly important in an age when every tech company under the sun is focused on bringing intelligent personal assistants to devices for the home.



News: Apple to support automation in Sierra

Apple's Craig Federighi responds to concerns about the future of AppleScript and Automator. [Roman Loyola](#) reports

Apple recently let go of Sal Soghoian, who was the company's Product Manager of Automation Technologies – meaning he was responsible for AppleScript and Automator. The news about Soghoian, who worked at Apple for nearly 20 years, raised concern in the Mac community that Apple no longer was interested in automation features in macOS.

Maybe the latest news from Apple will help ease the concerned. According to 9to5Mac, one of its readers sent an email to Apple Senior

VP Craig Federighi about the future of macOS automation. The reader received the following response and forwarded it to 9to5Mac, which has verified the email:

Hi [redacted],

*We have every intent to continue our support for the great automation technologies in macOS!
Thanks for being an Apple customer!*

— craig

As you can see, the email lacks details. We don't know a roadmap for AppleScript and Automator, nor do we have any insight as to how automation is being handled on the macOS team. As 9to5Mac notes, it's possible that automation is in maintenance mode, a status of a feature that's still supported but isn't set to have any new features.

Automation features like AppleScript and Automator let users create scripts that can perform tasks. It's especially handy for performing repetitive tasks. You can create a script and have macOS do all the work for you. iOS doesn't have any automation features, so third-party solutions such as Workflow are used. It could be possible that if AppleScript and Automator aren't upgraded in future macOS releases, third-party scripting tools will have to be considered.





Review:

MacBook Pro (2016)

From £1,449 inc VAT • apple.com/uk ★★★★★

Apple gave its new MacBook Pro a thinner, sleeker case, which demanded a new, lower-travel keyboard, a new venting system, and even a smaller battery. But while we appreciate a Mac that's smaller and lighter, we'd rather have a Mac that's easier or just more fun to use. These 13- and 15in MacBook Pros with Apple's new Touch Bar are both.

The Touch Bar brings our favourite things about the iPad Pro's software keyboard to the Mac. The amount of useful shortcuts it adds is ridiculous, and this is before most third-party developers have even had a chance to add Touch Bar support.

Even for a premium price – and these Macs aren't cheap – we think the Touch Bar makes this a much more compelling buy than the MacBook Pro with function keys.

Meet the Touch Bar

The Touch Bar is an OLED strip that's tempting to call a display, but Apple wants developers and users to think of it as an input device, not a display. You can't adjust its brightness, for example, because if it was too bright it would start looking more like a display than a set of keys. It's also optimised for viewing at a 45-degree angle, looking down from above, which is odd for any screen. Nonetheless, it stays visible and legible even if you are sitting at an off-angle to your Mac.

The Touch Bar is handy not only because its controls change to match the app you're using but also because it's so customisable. Visit System Preferences > Keyboard, and you can choose what happens when you press the Fn key. The default shows the function keys: F1, F2, and so on. But if you never use those keys, you could also have the Fn key expand the Control Strip to full size.

The Control Strip is a set of four of your favourite keys, and it stays on the right side of the Touch Bar all the time. You can choose which four buttons you want in System Preferences > Keyboard by clicking Control Strip. That will display a grid of buttons on your screen, and then you use the MacBook Pro's giant trackpad to drag them from the screen directly onto the Touch Bar. The default set of Control Strip keys is brightness, volume, mute, and Siri, but you can select from loads of useful

shortcuts, such as buttons to take a screenshot, start dictation or put your Mac to sleep.

Yes, you could use keyboard shortcuts and hot corners to do these things instead, but having them on the Touch Bar is better. The Control Strip has room for four buttons, and you can tap an arrow to expand it to the full set of controls that once lived on the row of function keys (screen brightness, Mission Control, Launchpad, keyboard backlighting, iTunes controls, volume controls).

The Escape key, which is no longer a real physical key, hangs out on the left side of the Touch Bar almost all the time. The only time it goes away is when you expand the Control Strip to its full length, but when that happens, an X button shows up where you'd expect Escape to be, and tapping X shrinks the Control Strip again to reveal the Escape key. Keyboard shortcuts that use Escape still work (like Cmd-Alt-Escape, to force-quit an app), but if you're concerned that the Touch Bar itself could freeze up and prevent that, you could always remap Escape to a different physical key.

Using the Touch Bar in apps

Along with the Escape key and the Control Strip, the Touch Bar presents app-specific controls in the centre, and that's where the real magic happens. This is a short list of the ways the Touch Bar delighted in me in each app.

- In **Mail**, the Touch Bar makes sorting the inbox fast and easy, with buttons for flag, archive, and



delete, as well as a button that guesses where you might want to file each message.

- In **Safari**, when a video starts playing, a pause button and scrub bar appear on the Touch Bar. Tapping that pause button is a much quicker way to shut the video up than having to find the cursor onscreen, then find the video and hover over it to get the player's pause button to appear.
- Also in **Safari**, when you select the Location bar to type in a new URL or search, the Touch Bar fills with favicons for your favourite sites.
- When filling out forms in **Safari**, QuickType suggestions on the Touch Bar will pop up with your name, address, phone and email.
- In **Messages** and **Mail**, the emoji picker gets a button on the Touch Bar. Tap it and you can scroll through all the emoji or jump to a certain category. It's faster than pressing Cmd-Ctrl-Space and then using the Character picker to find and click emoji with the trackpad.
- In **Calendar**, if you select an appointment that someone else invited you to, there's a button on the Touch Bar to send that person a message.

- If we're trying to navigate with mostly the keyboard, dialog boxes can sometimes pull me out. Now, the options in a dialog box also show up on the Touch Bar.
- We also love how the Control Strip's volume and brightness controls are a single button, and not two buttons (one to increase, one to decrease) like on a function key Mac. You just tap the button to see a slider, and you can even tap and keep your finger down to slide up or down, even if your finger isn't directly on top of the slider. A smooth slider makes more sense than having to tap-tap-tap a single key to crank the music or brighten your screen.

Mostly, the Touch Bar just adds a new level of surprise and dare we say delight to using a Mac. It's a bigger deal to me than Sierra's addition of Siri, because while talking to our computer in the middle of our office isn't something we're comfortable doing, using the Touch Bar isn't a stretch at all. Our hands are already on the keyboard and our eyes are already on the screen, so the Touch Bar is in a great spot for our eyes to flick down while our fingers reach up. Tapping a button on the Touch Bar takes less movement than reaching down to the trackpad to click that same button onscreen. Sure, keyboard shortcuts are even faster, but we don't remember keyboard shortcuts for even a fraction of the buttons we see on the Touch Bar.

Third-party developers are adding Touch Bar support too. Apple says that Microsoft Office, Photoshop, Pixelmator, the Omni Group's apps, djay, and many more apps will be updated to

support the Touch Bar. Some apps have limited support without an update – we’re typing this in Byword 2.7, which doesn’t have official support at the time of writing, but the Touch Bar is showing the same QuickType options and emoji picker that we enjoy in apps such as Messages and TextEdit. If we select some text, we get the same formatting controls in the Touch Bar as we would in Mail or Pages. We’ll take it.

Speaking of QuickType suggestions, this is one area where the Touch Bar falls flat. We type about 80 words per minute, and suggestions just can’t keep up with that, lagging as far as two words behind our fingers. While we’re in the midst of typing a sentence, the words tend to freeze up and only change when we stop typing. But the suggestions can be useful if you’re a hunt-and-peck



typist, or you're, say, holding a sandwich in one hand while one-finger typing with the other.

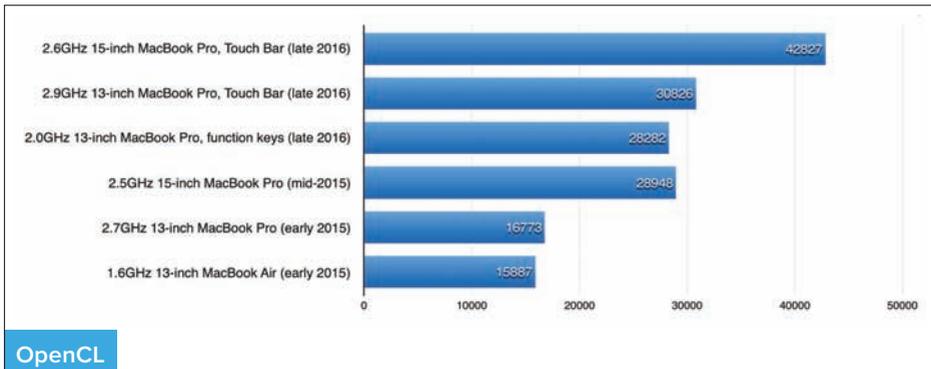
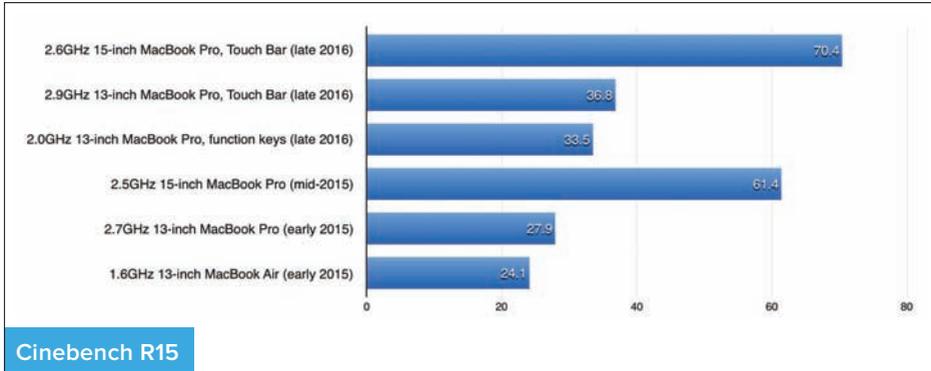
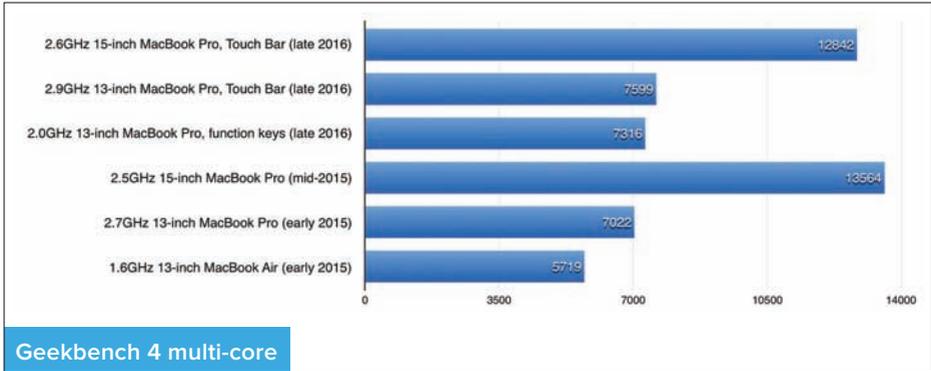
We love being able to customize the Touch Bar. Check the View menu of the Finder and all your Apple apps (except, frustratingly, iTunes) for an option to Customize Touch Bar, and then you can rearrange the buttons on the Touch Bar itself, or use the trackpad to drag new buttons from an onscreen menu right off the bottom of your display, where they drop down onto the Touch Bar. It's a cool effect and fairly intuitive even the first time.

The Touch Bar also has Touch ID, which lets you log into your Mac, authenticate Apple Pay transactions in Safari, and authorize purchases in the iTunes and App Stores without having to type your password. We also love being able to use Touch ID in System Preferences, instead of typing our Mac's password. Developers can use Touch ID too – 1Password already added support, letting you unlock your password vault with Touch ID, just like you can on iPhones and iPads with Touch ID.

Overall, it's just cool to have contextual controls on top of the keyboard – we praised the 12.9in iPad Pro's software keyboard on the first day we got it because it had enough real estate to include extra buttons and controls. Ditching the function keys on the MacBook Pro gave Apple that extra real estate to bring the best parts of iOS – the freedom to put buttons where they're most useful, when they're most useful – to the Mac.

Performance

Let's not forget that there are computers attached to these Touch Bars. In our earlier look at the 13in



MacBook Pro with function keys, benchmarks showed only a slight improvement in CPU speed over the previous generation, but much better graphics performance. These MacBook Pros did a little better.

Apple supplied us with stock, entry-level models of the 13- and 15in MacBook Pro with Touch Bar. The 13in has a 2.9GHz dual-core Intel Core i5, 8GB of 2133MHz RAM, Intel Iris Graphics 550, and 256GB of storage. The 15in model has a 2.6GHz quad-core Intel Core i7, 16GB of 2133MHz RAM, Radeon Pro 450 graphics with 2GB of memory, and 256GB of storage. We also had a stock model of the 13in MacBook with function keys, which makes comparing them across the line pretty easy.

In Geekbench 4.0.1, the 13in MacBook Pro with Touch Bar scored 3927 in the single-core 64-bit CPU test, which is 5.3 percent faster than the previous generation's score, and 4.2 percent faster than the just-released 13in 2GHz MacBook Pro with function keys. The 15in MacBook Pro scored 4216, which is just 1.5 percent better than 2015's 15in MacBook Pro with 2.5GHz quad-core Core i7 with 16GB of RAM and a discrete AMD Radeon R9 M370X.

In the multicore CPU test, the 13in MacBook Pro with Touch Bar bested last year's 13in Pro by 7.9 percent, and this year's function key model by 3.8 percent. The 15in MacBook Pro with Touch Bar was edged out by 2015's version in this test.

In Geekbench's OpenCL test, the 13in MacBook Pro with Touch Bar scored 30826, using the Intel Iris Graphics 550 – that's 59 percent better than the last generation. The 13in MacBook Pro with



function keys has Intel Graphics 540, and so this Touch Bar model scored 8.6 percent better.

The 15in MacBook Pro with Touch Bar scored 42827 in Geekbench's OpenCL test when using the AMD Radeon Pro 450 graphics, which is 38.7 percent better than the last gen. This model has 2GB of dedicated graphics memory, but you can upgrade to a Radeon Pro 460 with 4GB of memory for £180. The 15in MacBook Pro also contains an Intel HD Graphics 530 chip that can be used to extend battery life during less-intensive tasks.

Using Cinebench's OpenGL benchmark to further test the graphics, the 13in MacBook Pro achieved 36.8 frames per second, which is 27.5 percent faster than 2015's entry-level 13in MacBook Pro, and 9.4 percent faster than this year's 13in MacBook Pro with function keys. The 15in MacBook Pro scored a whopping 70.4fps, which is 13.7 percent faster than the last generation.

So does this mean the 15in Mac is powerful enough for professional video editors, even with a maximum of 16GB of RAM? Probably. There's a chance Apple will increase the RAM to 32GB next year if it updates the MacBook Pro line to Intel's



next-generation Kaby Lake processors, but even now, one professional video editor who uses Final Cut Pro finds the MacBook Pro ‘buttery smooth’. It’s worth noting that the 15in MacBook Pro can drive two 5K external displays, plus the 2880x1800 built-in display, and still have ports for two external Thunderbolt RAID arrays.

Redesign pros and cons

The redesigned bodies of both models are thinner and lighter than the MacBook Pros they replace, but there are trade-offs to achieve these svelter profiles. The low-travel keyboards use Apple’s new butterfly mechanism. This keeps the nicely sized keys from wobbling if you strike them off-centre, but we much prefer having more travel, like on the last generation of MacBook Pro and the MacBook Air line. In fact, we’d be willing to carry a thicker laptop to keep that style of keyboard.

The fan vents on the bottom, one on either side, are another quirk. They feel almost sharp if you happen to run your finger across them, and since they’re on the bottom of the machine, we’d worry about getting water in them if we happened to spill on the desk. Plus, the Apple logo doesn’t light up anymore, which is a shame

What isn’t a shame are the new speakers, our favourite non-Touch Bar feature of the new machines. Apple explained that since they are connected right to the battery with no transformer between them, the speakers can get twice the peak power – and you can really hear the difference. Music sounds great when you turn the volume all the way up, and the speakers are

powerful enough to provide satisfying sound while watching movies, TV, and sports. The 15in model's speakers seem to have more power than the 13in MacBook's, but both can ably fill a hotel room with music, if you should want to leave your portable Bluetooth speaker at home.

Battery life is also solid, with both models lasting a full day of heavy use, with multiple apps open, dozens of Safari tabs, streaming music to Spotify, and occasionally indulging in some video viewing with Sierra's picture-in-picture feature.

Macworld's buying advice

These new MacBook Pros have a lot going for them. Their biggest weakness, across the whole Touch Bar line, is price. The 13in model we tested is £1,749 without any upgrades, and the 15in is £2,349. Going to 512GB of storage is £180 extra, and 1TB is £540 extra, which also seems like a lot. These prices could come down a little bit next generation, but if you need a MacBook Pro right now, the late 2016 models are solid performers. If we were buying one for ourself, we'd go with the 13in MacBook Pro with Touch Bar and max out the storage, although the 15in model is even better. **Susie Ochs**





Feature: Guide to System Preferences in Sierra

The first of a three-part series in which [Craig Grannell](#) reveals how to get your Mac looking and working the way you want

Where to find System Preferences

The System Preferences application is found in your Applications folder and is also available at any time from the Apple menu at the top-left of the screen (click the Apple logo). It may also be in your Dock at the bottom of the screen.

When launched, it provides access to a number of panes that deal with various aspects of how your Mac works, appears and behaves, such as screen resolutions, wallpaper images, parental control settings and internet accounts.

How to use System Preferences

When System Preferences is first launched, you'll see rows of icons, each corresponding to a specific group of related options. Click on any icon to access the relevant pane.

Alternatively, you can access a pane if you click-hold, Ctrl-click or right-click the System Preferences Dock icon's contextual menu, as below. At the top of the menu, you'll see the name of the currently active pane.

If you're not sure exactly what you're looking for, use the built-in search in the top right corner. Click in the search field (or press Cmd+F) and start typing. As you type, the number of subjects in the results list will be filtered to match your search term, and spotlights will appear, highlighting potentially relevant panes that might offer what you require. Use the cursor keys to navigate the results list and the spotlight will become more vivid over the option you're about to choose. Pressing Return or clicking a results list item will confirm.

Customise System Preferences

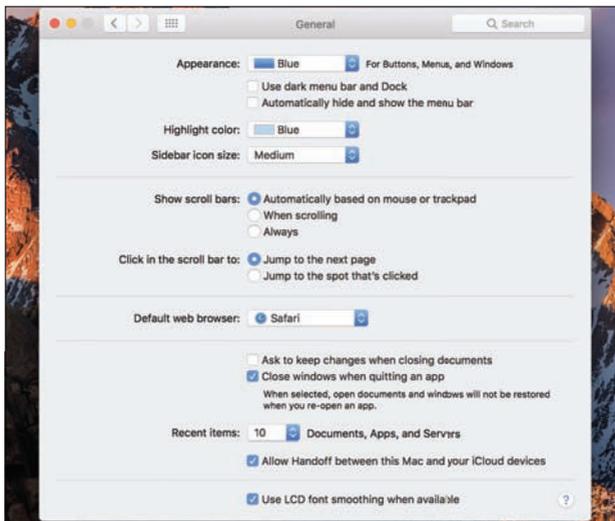
There are two different kinds of customisation worth noting with system preferences: the panes that are installed and the panes that are visible. By default, macOS Sierra, OS X El Capitan and earlier versions of OS X will provide you with just under 30 panes (the exact number is determined by the hardware you're using – for example, if you've no optical drive, 'CDs and DVDs' will not be shown), but third-party products may also install into System Preferences. Such panes are initially placed at the very bottom of the window.

A third-party System Preferences pane can be removed either by the pane's own uninstaller or by Ctrl/right-clicking it and selecting 'Remove...'

You can reorder the panes by using the View menu, which provides options for organising panes by category or listing everything alphabetically. View > Customize enables further changes to be made. When you select this option, checkboxes appear next to each pane. Deselect any pane's checkbox and click Done and the pane will be hidden, but it will remain accessible from the View menu and when performing searches. Revert a pane's visibility by using View > Customize, selecting its checkbox and clicking Done.

The General pane

This is a grab bag of options related to appearance, scroll bars, document behaviour and the number of recent items shown in the Apple menu.

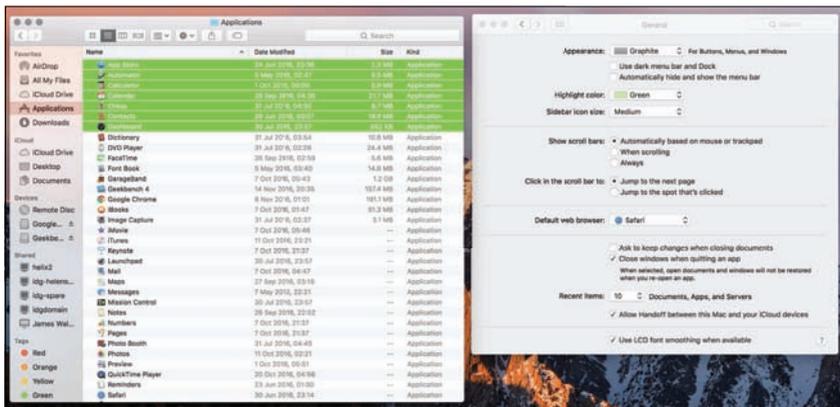


The **Appearance** menu determines the button, menu and window theme for your Mac, enabling you to switch between Blue and Graphite. This affects default buttons in dialogs, selected menu items, and also the close/minimise/full-screen buttons at the top-left of most app windows. With the Graphite theme, all of these are grey. In the Blue theme, you get the familiar 'traffic light' buttons at the top-left of windows and blue buttons/selected menu items elsewhere.

The **Use dark menu bar and Dock** checkbox turns the menu bar and Dock black, rather than white, to better fit in with some professional applications that have dark interfaces. This option also adjusts Spotlight's appearance.

El Capitan saw the addition of the **Automatically hide and show the menu bar** setting. When active, this option hides the menu bar unless the cursor is at the top of the screen, in a similar manner to how you can show and hide the Dock.

Highlight colour enables you to change the colour of highlighted content such as selected



text in documents, as below. Apple provides a list of colours you can choose from, but you can define your own by selecting Other and using the standard Mac colour picker.

Sidebar icon size gives you alternate options for the size of icons in Finder's sidebar. Medium is the default, Large is good if you find it hard to accurately click the existing icons, and Small is the best choice if you've a small display or like squinting a lot. Note that the setting you define here also affects the sidebar in Mail.

Show Scroll Bars adjusts how scroll bars behave. By default, they are not visible, but show automatically when you move your mouse or trackpad over them, their visual appearance in part defined by the input device. You can adjust this so that they only show when scrolling regardless of the input device (akin to how scrolling works on iOS), or always show when content is too big for the viewport. The last of those options provides much thicker scroll bars than what you usually see when scrolling; instead, their appearance is like when you hover over a scroll bar and it widens for drag-based interaction.

The **Click in the scroll bar** to setting changes how the OS jumps to content when you click inside a scroll bar. With **Jump to the next page** selected, content jumps in screen-heights or pages, in the direction of your click; with **Jump to the spot that's clicked**, it instead jumps to the point in the document relative to the location clicked on the scroll bar. The first option is less abrupt but slower. If, for example, you were looking at the top part of a very large list in Finder and then clicked the bottom



of the scroll bar, Jump to the next page would take several clicks to reach the bottom of the list, but with Jump to the spot... it would take only one.

The **Default web browser** menu is a setting that usually exists in a browser's preferences, but you can now define in System Preferences whether Safari or another browser should launch when you, for example, click a link in an email.

The next group of options deals with document behaviours. **Ask to keep changes when closing documents** and **Close windows when quitting an application** do much as you'd expect. In the former case, it's worth noting that changes are automatically saved when documents are closed: by turning on this option, you instead get the choice regarding whether to save the changes or revert the document to how it was when last opened. If you leave Close windows... unchecked, open documents should reappear as they were when you last closed an application. Check this option and applications will launch without any open documents, unless they have their own built-in settings to override the operating system's default behaviour.

The **Recent items** option defines how many items appear in the Recent Items menu in the Apple menu. By default, up to 10 of each type (applications, documents, servers) are shown, but other options are provided. Note that any setting chosen also affects recent-item Dock stacks. You can create one of those by typing the following in Terminal and then hitting Return:

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

Allow Handoff between this Mac and your iCloud devices determines whether the Mac has the capability to send/receive in-progress documents to/from iCloud devices running compatible versions of macOS, OS X or iOS. Unless you've a compelling reason to turn it off, don't.

Finally, the **LCD font smoothing** option makes text appear in a slightly more pleasing manner. Again, there's no compelling reason to turn this off, so we suggest you leave it on.

Desktop & Screen Saver

The Desktop & Screen Saver pane in System Preferences is where you adjust your desktop background image and/or the screen saver that kicks in after a user-defined period of time.

Switching the desktop image doesn't in fact require a trip to System Preferences. In Finder, you can Ctrl-click any compatible image and

choose Set Desktop Picture (in the Services sub-menu); similarly, Ctrl-click an image in Safari and you may be able to select Use Image as Desktop Picture, depending on how the site is set up. However, the System Preferences pane provides a much greater degree of control, along with a central area to access collections of images. (You can also access this pane by right clicking on your desktop and choosing Change Desktop Background.)

In System Preferences > Desktop & Screen Saver click the Desktop tab to access desktop settings. This will display a thumbnail of the current background image, alongside which will be its title. From the pane on the left, you can select collections of images. By default, you'll see two under the collapsible 'Apple' list (Desktop Pictures and Solid Colours), and your iPhoto and/or Photos albums appear under relevant headings. The next item is a collapsible list called Folders, to which you can add custom folders by using the '+' button.

(Sneaky tip: Apple includes a bunch of folders in /Library/Screen Savers/Default Collections, which are otherwise only used for screen savers. They're worth adding if you like wildlife, space and landscape shots.)

To change the desktop background, select a collection and then click any of the images within. Alternatively, you can drag an image to the well from Finder. (Dragging from Photos doesn't work, but you can use the Share button in that app to set a selected item as your desktop image.) If the image is of a suitable size and aspect ratio for your display, it will be resized automatically. If not, a



menu will appear enabling you to define whether the image should fill the screen, fit to the screen as best it can, stretch, be centred, or tile.

It's also possible to have your desktop background change at regular intervals. To do this, select a collection and then tick 'Change picture'. In the pop-up menu, define how often you'd like the background to change; options provided range from five seconds to daily, along with login/wake-up. If necessary, define how the images will fill the screen using the aforementioned pop-up menu. Your desktop background will at the appropriate times subtly cross-fade to the next image in the collection; if you instead want each change to be randomised, tick 'Random order'.

In OS X Mavericks, there was a lumped-in option to disable the translucent menu bar, turning

it a solid light grey. This disappeared from OS X Yosemite, which moved transparency settings to Accessibility > Display, where they remain in El Capitan and macOS. This is a useful option for increasing legibility.

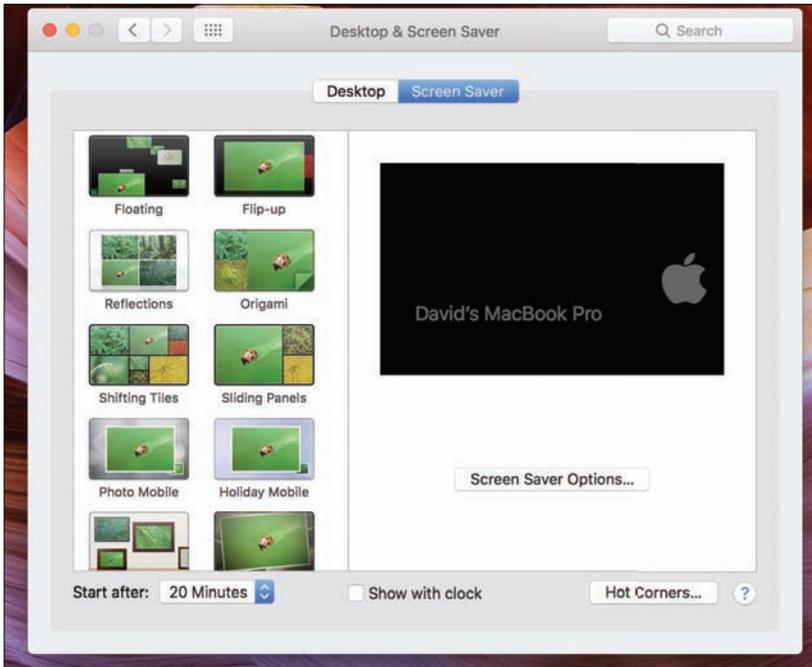
Change and manage your screen savers

Click Screen Saver to access the screen savers pane. To the left is a selection of built-in screen savers; select one to choose it as the currently active screen saver (or choose Random to have one be selected at random whenever the screen saver is activated), and use the **Start after** menu to determine how long your Mac remains idle before the screen saver starts. Optionally, a clock can be overlaid on the screen saver, by checking **Show with clock**.

Depending on the screen saver chosen, you may get options. For the various photography-based screen savers, you'll see a Source menu, enabling you to define a source folder of photos to use. On choosing a new source, the screen saver preview will update accordingly. Checking **Shuffle slide order** randomises the presentation from the selection of images.

For other screen savers, you'll get a **Screen Saver Options** button that when clicked provides in-context settings for that particular screen saver. For example, Apple's own Flurry enables you to adjust how many streams of colour appear on the screen, how thick they are, and how fast they move.

To the bottom-right of the pane is a **Hot Corners...** button. The options are shared with Mission Control and provide the means to trigger

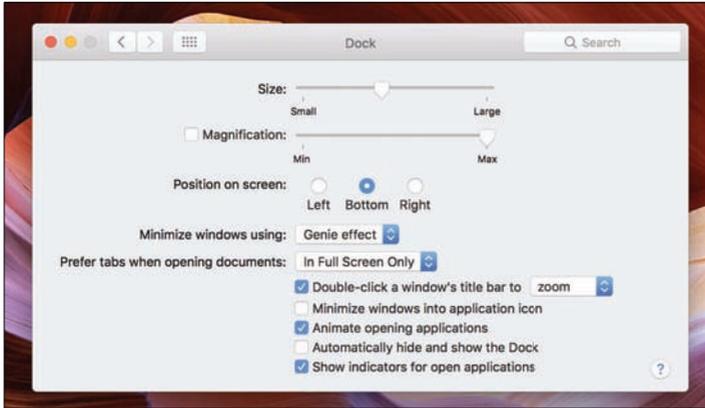


various macOS functions when you move the cursor into a screen corner. The first option is Start Screen Saver, and is a very quick means of activating the screen saver. This can be especially useful if you've also used the Security & Privacy pane to demand a password be entered to exit the screen saver.

It's also possible to install third-party screen savers. Once installed, these appear below the built-in options. If you later decide you want to delete a screen saver, Ctrl-click it and select Delete.

Change the Dock

Many of the Dock's preferences can be adjusted by Ctrl-clicking the thin line that divides apps and



folders and choosing from the various options. However, the Dock pane in System Preferences is worth exploring, because it provides a very clear visual overview of all your Dock's settings.

Size and Magnification determine the size of the Dock icons and how much they expand when the cursor is over them. Magnification is best used when you've so many Dock icons that they're not easy to pick out unless zoomed; if you don't like the effect, you can disable magnification entirely.

Position on screen determines the screen edge the Dock sits on. Under OS X Mavericks, the Dock displayed as a flat rectangle at the left or right edge, and as a metal shelf at the bottom of the screen. Under OS X Yosemite, the Dock became a semi-transparent rectangle.

The **Minimize windows using** menu provides two effects for when windows are minimised to the Dock: Genie and Scale. The former appears to 'suck' the window into position, whereas the latter is a much simpler zoom that's less taxing on older Macs and also a lot faster.

New to macOS Sierra is the ‘Prefer tabs when opening documents’ menu. This enables you to state whether new documents should always open in tabs, open in tabs only when an app is in Full Screen mode, or only open in tabs manually (the default). Note that not all apps are compatible with tabs. Those that aren’t ignore this setting.

The remaining options adjust various behaviours of the Dock: **Double-click a window’s title bar to...** enables you to select between zoom and minimise when making that action; **Minimize windows into application icon** sends minimised windows to the relevant app icon in the Dock rather than to the Dock’s right-hand side; **Animate opening applications** makes apps bounce while launching; **Automatically hide and show the Dock** makes the Dock disappear from view when not in use, and demands you move the cursor to the relevant screen edge to show it; and **Show indicator lights for open applications** places a little black dot beneath the icons of apps that are currently running.

Using Mission Control

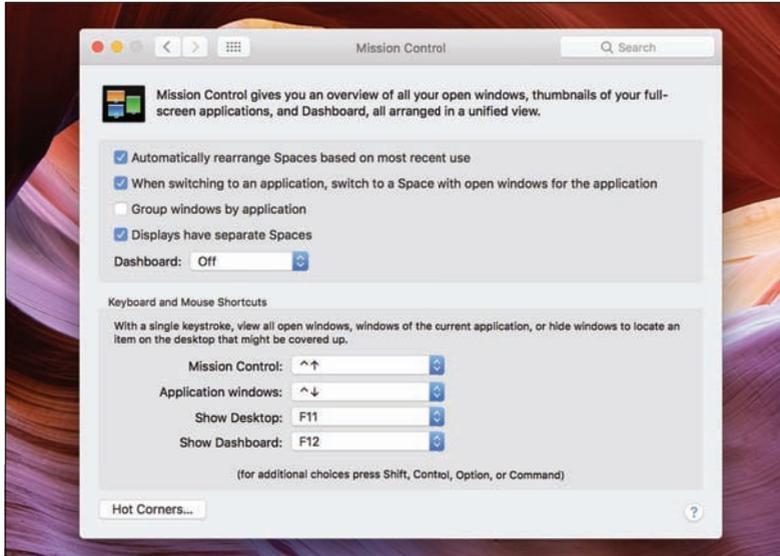
The Mission Control pane is the place for adjusting how Apple’s window overview works. On newer Macs, F3 is a Mission Control key: press it and you see all your open windows (in OS X Yosemite these were grouped by app and badged with the relevant icon; as of OS X El Capitan, the older Exposé behaviour returned and you can see all your open files at once). In this screen, you can also create multiple desktops (which Apple refers to as ‘Spaces’) that you can switch between.

In the System Preferences > Mission Control pane, the first five options determine aspects of how Spaces appear. The first option rearranges spaces based on recent usage, rather like the Cmd+Tab app-switcher. The second option when active automatically switches you to a space with an open window for an app when the app itself is switched to.

The next two options set whether windows are grouped by application (turn that on and Mission Control groups app windows alongside the app's icon), and whether displays have separate spaces. With the latter option active, distinct workspaces can be created for each of your displays. (Apple also notes that should you at any point need to have a single app window span multiple displays, you should turn off **Displays have multiple Spaces.**)

Finally, the Dashboard menu enables you to set Apple's 'widgets' screen as a space, as an overlay, or turn it off entirely. As an overlay, you'll need to click the Dashboard app icon or use a keyboard shortcut – F12 by default – to activate it. Note that much of Dashboard's functionality now exists within Notification Centre's Today view, so see if that works for you before turning Dashboard back on.

The second section, titled Keyboard and Mouse shortcuts, provides a centralised area to define shortcuts for activating Mission Control and the 'Application Windows' feature, which shows only the windows of the currently active app, and showing the Desktop or Dashboard. For any keyboard shortcut, you can define a function key or a modifier (a specific Shift, Ctrl, Alt or Cmd



key), although the latter option isn't usually a good idea, because it makes the chosen modifier unavailable elsewhere. You can, however, combine a modifier and a function key: for example, to set Shift+F1 to activate Mission Control, hold Shift, open the Mission Control menu and click F1.

It's worth noting that if your Mac keyboard includes a Mission Control icon on its F3 key, modifiers can be used in conjunction with that key in order to access Mission Control functionality: Cmd+F3 shows the Desktop, and Ctrl+F3 activates the 'Application Windows' feature.

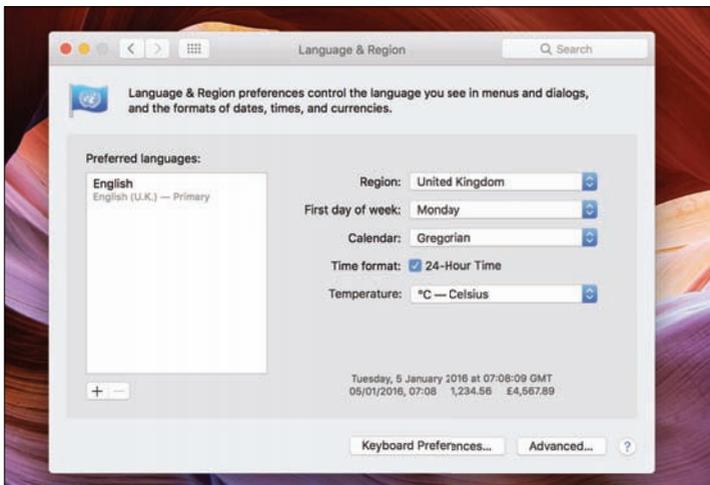
Finally, the **Hot Corners** button has been mentioned previously in our overview of System Preferences, and it works identically here – any one of the four screen corners can be used as a trigger for Mission Control, 'Application Windows', showing the Desktop or opening Dashboard (among other

commands, such as showing Notification Centre or Launchpad). Reverting any of the menus to the ‘-’ option deactivates the hot corner entirely.

Set the language and region

This pane controls the language shown in menus and dialog boxes, and the formatting of dates, times and currencies. It will by default use the language you stated you wanted to use when you set up your Mac, along with the most appropriate formatting for your location.

You can add or remove languages from the Preferred Languages list by using the ‘+’ and ‘-’ buttons. On adding a new language, macOS will ask whether you want to use it as your primary language. If you confirm this is the case, it will be moved to the top of the list, and dialog boxes will change to the selected new language. The addition of a new language will also add a ‘List sort order’ menu, which you can use to adjust how names are



sorted in Finder, if a language offers an order other than the Universal default. Some other aspects of macOS may require you to logout and login for changes to fully take effect.

To the right of the Preferred Languages list, you can update your region setting using the Region menu. If you change it (for example, switching between United Kingdom and United States), you'll see how other settings are automatically updated to match the region's conventions. Should you want to, specific elements can be overridden, using the menus: the first day of the week, the calendar used, and whether the time format is 24-hour; and whether the temperature is displayed in Celsius or Fahrenheit. With Time format unchecked, the macOS clock will use the 12-hour format typically preferred in the USA.

Any elements adjusted here may impact on apps elsewhere in macOS although some apps also have their own internal settings for certain things, and so you cannot rely on your System Preferences changes to always filter through.

The two buttons at the bottom of the window are Keyboard Preferences and Advanced. Keyboard Preferences takes you to the Input Sources tab within the Keyboard System Preferences pane, where you can define keyboard types for your machine (for example, adding one that's more suited to a particular language you often work in). Advanced opens a sheet that provides the means for editing a number of more detailed display options for your chosen region.

For the most part, these settings should be left alone, but if you have very specific setup needs,

they're worth investigating. Under General, you can change the format language for dates, times and numbers, and the number separators used for grouping and decimals. English uses, respectively, a comma and full stop for grouping and decimals (for example, 1,000.00), but if you're working in a language that uses something different, you can adjust the relevant settings here; similarly, currency and its relevant grouping/decimal options, can be defined, along with default measurement units for the system (Metric or US).

The Dates and Times tabs both offer a set of fields where you can drag individual date or time elements to design custom formatting. In Dates, for example, the 'short' date on a British English system would read 05/01/2014 for the fifth of January, but you can adjust this to suit your own preferences, add elements (such as the era or specific characters) or remove them entirely, clicking OK when done.

Be aware that changes made here can impact on apps throughout the system, and making major adjustments can have unintended consequences. If you decide you'd like to return to OS X's system defaults, go back into the relevant tab and click Restore Defaults. At any point, when you return to the System Preferences pane, you'll see a brief overview of your settings under the Temperature or List sort order menu, depending on whether you have the latter visible.

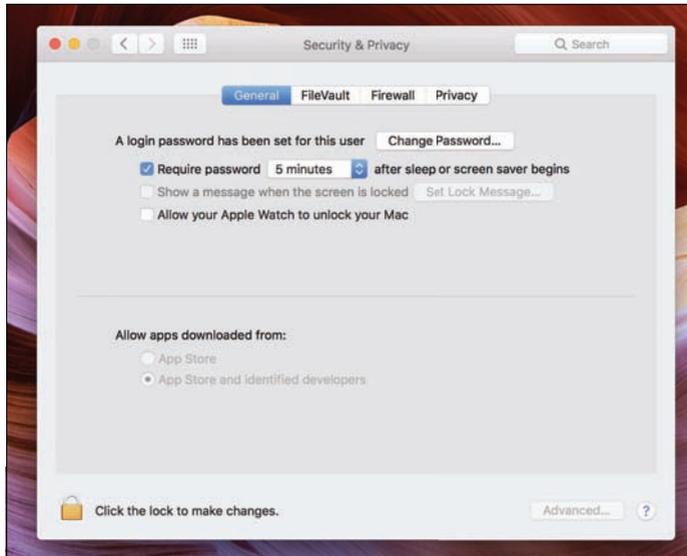
Security and Privacy

When it comes to System Preferences panes, Security & Privacy is perhaps the most

intimidating; it's therefore no surprise many Mac users avoid it entirely. However, it's crucial to understand the settings within, especially when you work with apps that require control over your computer, or if your Mac happens to be in an open or public environment. In order to make changes to the settings within this pane, you'll likely have to click the padlock and input an admin username/password.

The first tab is **General**. The settings here are broadly split into two sections, the first dealing with logins and the second with the ability to install downloaded apps.

You can use the **Change Password** button to alter the password for the currently logged-in user. Click the button and you access a sheet, into which you type the old password, then the new one and a recovery hint; clicking 'Change Password' confirms.



Note that should you be using an iCloud password to login on versions of OS X that allow this (macOS Sierra does not), you'll get a dialog that gives you options to use a separate password, cancel, or change your iCloud password.

The three checkboxes are designed to secure your computer during your absence. The first when ticked makes it so your login password is required to exit sleep or the screen saver; the time limit can be set to one of seven preset values, including 'immediately' and the likes of '5 seconds', to ensure you aren't forced to input your password if you accidentally trigger the screen saver yourself. Note that if you later disable this option, your Mac will warn you and ask whether you want to carry on using iCloud Keychain.

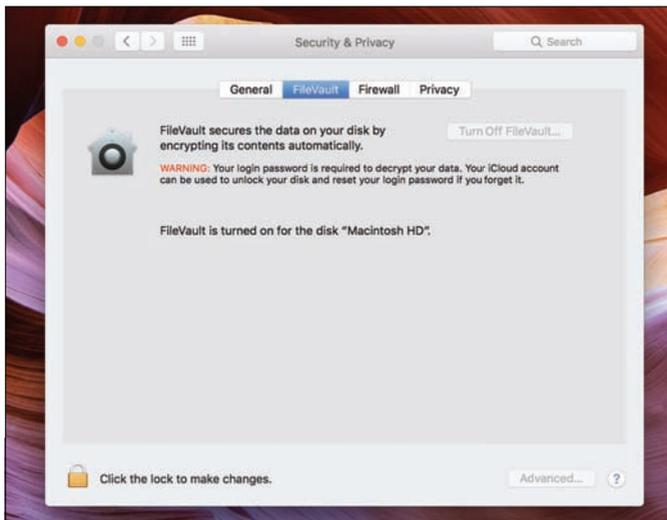
The next checkbox enables you to add a message to the lock screen for anyone who tries to login while the screen saver's running. The third checkbox enables you to disable automatic login, and requires you to define a default account for the Mac, along with inputting the relevant password.

The second section determines what types of app the user can download and install. This defaults to **App Store and identified developers**; leave the setting alone unless you've compelling reasons to change it – for example, installing a very trustworthy app that just happens to not have been released by an identified developer. Under such circumstances in El Capitan, change the setting to 'Anywhere' and then back again post-install, for best security. In Sierra, the Anywhere option is absent. However, you can launch unsigned apps in Finder by Ctrl-clicking them and choosing Open.

The next tab is FileVault. This automatically encrypts your data – in fact, it encrypts the entire volume. With FileVault active, a password is required when booting the Mac to unlock the drive. Without the account password (or a recovery key provided during set-up), you'll permanently lose access to your data, so take care if you decide to use FileVault.

Turning FileVault on is simply a case of clicking the sole button on the pane. Note down the recovery key, and you can also optionally enable the key to be stored with Apple, guarded by security questions. The drive encryption process can take minutes or hours, depending on the size of the drive and the data on it.

Note that FileVault is only protection for your data when the Mac's turned off. When you're logged in, it does nothing, and so is best used in tandem with the previously mentioned password



for exiting sleep or the screen saver. If using FileVault, you should also encrypt backups in the disk-selection sheet of Time Machine.

To later disable FileVault, click the 'Turn Off FileVault' button in the FileVault tab.

The Firewall tab is for activating and tweaking your Mac's firewall, designed to prevent unauthorised apps, programs and services from accepting incoming connections. Click 'Turn On Firewall' to turn it on, and then 'Firewall Options' to configure it. In the pane, you can allow or deny incoming connections for listed items or add your own using the '+' button. By default, signed (trusted) software can receive incoming connections. You can also enable stealth mode, which means your Mac won't respond to any attempts to access it from uninvited traffic.

It's worth noting that if you're on a private home network, chances are your router already has a hardware firewall that's on and in use; firewalls are generally more important when on public networks. However, it's also unlikely to cause any major performance issues if you do activate the firewall. Should you have connection issues from other devices or to/from online services, it's worth investigating whether the firewall is the cause.

The Privacy tab is for defining which apps have access to certain services. Such requests are made for various reasons: for example, a calendar app might require access to your calendars in order to work; additionally, apps that control the computer (such as window managers and launchers) will need the means to do so, and permission is provided in the Accessibility section within this tab. There's also



a Location Services section, for apps that want to determine your location.

In all cases, select from the list on the left and use checkboxes on the right to determine the apps that have access to the relevant service. Only deny access for an app you no longer use or that you're certain you no longer want to communicate with the item it requested access to. You can of course change your mind later if you find functionality on your Mac impaired by any decision you make in this tab.

Finally, at the foot of the page is the Advanced button. Click it to open a sheet with yet more options for securing your Mac: the means to log out after a defined period of inactivity; a requirement for an administrator password in order to access system-wide preferences that have been locked;

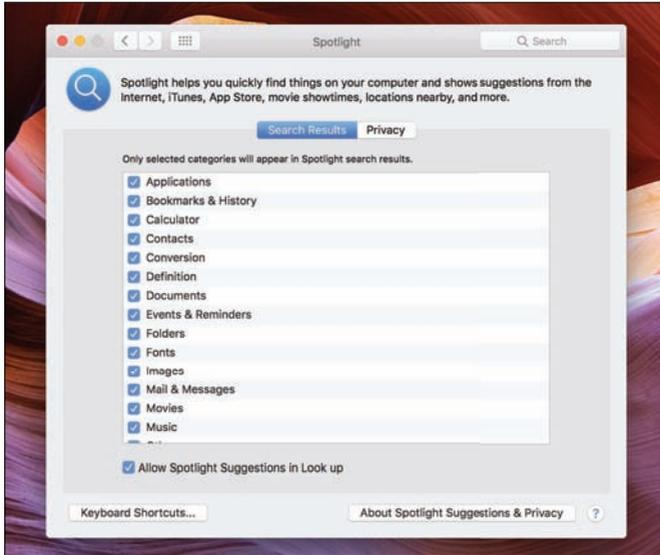
and a setting for disabling commands from an infrared receiver. The Pair button can be used to pair the computer with an available remote.

Change Spotlight settings

The Spotlight System Preferences pane enables you to define the kind of results that appear in Spotlight, along with the content Apple's search system happens to index. You can also amend the shortcuts used for Spotlight, by clicking 'Keyboard Shortcuts...', which takes you to the Shortcuts tab in the Keyboard pane within System Preferences. (Note that when changing shortcuts for Spotlight, ensure your choices do not clash with commonly used shortcuts elsewhere. You're most likely to need to amend the Spotlight shortcuts if you often work with multiple languages. Cmd+Space is also used by default to switch input sources.)

It's no longer possible to reorder search results categories. Spotlight alone now determines relevance. However, you can still omit entire categories by unchecking their checkboxes. Note that some options require an internet connection. For example, if you're not online, you won't be getting Bing Web Searches, results from the iTunes Store, or live currency conversions.

Underneath the scrolling categories pane is the option **Allow Spotlight Suggestions in Spotlight and Look up**. This is a switch for Spotlight's capability for accessing smart results, such as sports scores, and those based on location, including nearby restaurants, cinema times and weather reports. Disable the option and these kinds of results will not be available. (Apple notes



privacy implications for Spotlight Suggestions on its website), if you're concerned about your search data being sent to various online services.

Click the **Privacy** tab and you can prevent Spotlight from searching specific locations. To add a folder, click '+' and then choose the location from the sheet that appears. Note that you can block entire volumes/drives from being searched by selecting the location drop-down menu and going up to its top level, which includes any attached drives. In particular, we strongly recommend adding any drives that include backup clones taken with the likes of Carbon Copy Cloner or SuperDuper! This is because otherwise Spotlight may return multiple results for essentially identical objects, and you might end up opening the wrong document in error (as in, the one from a backup drive), editing and saving it, only for it to be overwritten during the

next backup. You can also drag items from Finder to this list; to later remove any item, select it and click the '-' button.

Change Notification settings

The Notifications System Preferences pane provides the means to manage and tame macOS Sierra's notifications system, which can be very helpful but also a huge distraction if you've loads of notifications coming in all the time.

The first option is **Do Not Disturb**. Select that and you can define a time period when notifications won't bother you. Optionally, you can also turn on Do Not Disturb when mirroring your Mac's display to a TV or projector, which is likely to occur when watching a film or during a presentation. Note that when Do Not Disturb is



active, the Notification Centre icon at the far-right of the menu bar will turn grey. Your System Preferences settings can be manually overridden at any point by opening Notification Centre and flicking its Do Not Disturb switch.

Below Do Not Disturb in the sidebar, you'll find a list of apps. Select an application and you'll get a set of options, and the default settings are designed to best suit the specific application they belong to; however, they're worth investigating, especially if you're getting deluged with notifications.

The first section defines the alert style, from which you can pick None, Banners (which appear in the upper-right corner and vanish after a few seconds) and Alerts (like banners, but require a user action to dismiss them). Simply click an option to select it, and its title will take on a blue lozenge as its background.

Below, you'll see up to four options. **Show notifications on lock screen** defines whether notifications will appear when the Mac is locked, and is worth disabling on public Macs. Show in Notification Centre allows you to adjust how many items for the app are displayed: one, five, 10 or 20. For the likes of Calendar, showing upcoming events, you might want a longer list, but the item number for many apps can be reduced without impacting your workflow.

The Badge app icon option determines whether a red badge appears on an app's icon when notifications occur (for example, unread emails for Mail). **Play sound for notification** will make a noise when a notification appears.

Mail and Messages have an additional option: show message preview, and this can be set to **when unlocked** (the default) or **always**; the second of those is not recommended for Macs in public places, unless you don't mind anyone potentially seeing a preview of your incoming messages. Twitter also has an additional option, a Notifications button that enables you to fine-tune what type of Twitter communications macOS Sierra notifications are displayed for; by default, Direct Messages are included, but you can also be notified about mentions and replies from people you follow or anyone who happens to contact you.

At the bottom of the window, there's a sort menu. You can set this to sort your notifications by recent notifications (**Recents**), recent notifications by app (**Recents by App**), or **Manually by App**. Bafflingly, there's no alphabetical sort option.

Although macOS Sierra has yet to get quite as notification-happy as iOS, we recommend taking some time to manage this section of System Preferences. Turn off banners and get apps out of Notification Centre if you don't need notifications from them; and for those things you do need notifications from, minimise them whenever possible. If you're easily distracted but get a lot of email, for example, it's a smart move to stop Mail notifying you with a banner every time a new message comes in, but you could always leave the app icon's badge setting active, to provide an at-a-glance indication of how many unread emails you have.

Next month, we'll be looking at the Startup Disk, Sound, Energy Saver settings, and more.



Feature: Security tips

Steve Ragan explains how to keep your money, gadgets and personal details safe this Christmas

As far as theft and fraud are concerned, you face (and willingly accept) a moderate amount of risk when you shop online or out in their local neighbourhoods. This holiday season is no different, but the risk is elevated some, because criminals are looking for easy marks and low-hanging fruit.

With that said, here are a few tips to help you keep your money, gadgets, and information safe this holiday season, as well as the year ahead.

Card skimming

While shopping, or stopping for fuel, be mindful of credit card skimmers that can copy or read your card data as you swipe. Criminals use the captured information to create fake cards or go shopping online. The skimmers can be attached to a cash point, or even installed inside of a petrol pump.

So how do you spot a skimmer? “Look for glue around the edges of the card reader or an extra thick border. If in doubt, give the card machine a tug, a skimmer will pop right off,” said Dan Tentler, the founder of Phobos Group.

Support scams

Support scams happen year-round, but they’ll peak around the holiday season.

Often the goal is to get consumers to pay for support or software they don’t need, but sometimes the goals are more sinister. CSO has covered support scams before, including one where the caller pretended to be a Microsoft representative.

It isn’t a stretch to imagine scammers placing calls to fix the new computer that’s just come into the house – eventually they’ll get someone on the phone who did honestly purchase a new system.

Scammers will also call and pretend to be your bank this time of year and call or email to resolve security concerns. But neither Microsoft, nor your bank, will ever call or email you to address security concerns or support issues. In the rare occasion that your bank does call about a security matter, they will not ask for credit card details, passwords, or other personal information – they don’t need to, because they already have it.

“Never give any sensitive information over to the phone callers,” advised Tentler, adding that when scammers contact you by phone, they’ll usually hang-up if you call their bluff and ask for their number, in order to call them back.

Phishing

Phishing attacks are another threat that spikes during the holiday, but exists all throughout the year. Criminals will pretend to be big-name retail outlets or financial institutions and request information via email or offer special savings, as long as you open an attachment or follow a link. You should never click links inside of a random email, and unless you were expecting an attachment, you shouldn’t open those either. If



you'd like to see what a URL does without visiting it, Tentler says, copy the URL and submit it to urlquery.net. Another nasty type of email-based attack to be on the lookout for, which has affected millions of people this year already, is called Ransomware. Ransomware essentially holds your computer hostage, rendering it useless unless a fee is paid. In the fourth quarter of 2016, millions of emails were sent by criminals with Ransomware as attachments.

Public Wi-Fi

Wi-Fi access is a convenient way to save yourself from paying massive overage fees to your mobile provider, but there's a risk involved when it comes to public Wi-Fi. Criminals can create malicious access points, or hijack access points that were poorly configured. In fact, creating a fake access point and tricking people into connecting to it is



literally child's play, as a 10 year-old proved this summer during DEF CON.

If you don't need Wi-Fi while out running errands, then you should avoid connecting to any of the access points listed. If you do need Wi-Fi, then using a VPN (virtual private network), and sticking to websites that use SSL is a way to lower some of the risk, but it won't eliminate it completely.

"[A VPN] will securely transport your traffic through the network you're currently on, into another one. This makes it extremely difficult for coffee shop networks, or attackers targeting your mobile phone to perform what are called man-in-the-middle (MITM) attacks. VPNs are handy to have while travelling abroad, or sitting in coffee shops," Tentler explained. If you're looking for VPN options, F-Secure has Freedom VPN, and there are services from Buffered VPN and IP Vanish.

Unless you've configured it yourself, each VPN offering will require payment. Remember the golden rule, if you're not paying for the product – you are the product, so avoid free VPN offers if possible. If you are using public Wi-Fi without a VPN, you should avoid conducting any banking or online shopping, as it's usually safer to do such things from home.

Gifts from the Internet of Things

"Be careful what brands of equipment you buy for people [this holiday]," said Tentler. "In the last month, cheap Chinese routers, DVRs and IP cameras have been compromised and used in massive worldwide DDoS attacks. Make sure your gift for a family member doesn't turn into a weapon for an attacker."

You can do this by ensuring that the default password on the device is changed. Not only is this a good security precaution to take all year long, but doing so will keep criminals from taking control of the device with little to no effort.

System and software patching

“Let your operating system patch itself,” Tentler said. “On OS X and Windows 7, Windows 8, and Windows 10 this is mostly automated. Just let Windows do its thing. If it has been a while, go and manually install updates, just to make sure you’ve got the latest and greatest.”

Not only are operating system updates important, but browsers such as Firefox and Chrome will need to be regularly updated as well.

Firefox will install updates automatically, but you’ll need to restart the browser to apply them. You can check for updates in Firefox by clicking Help, then selecting About Firefox.

Chrome will also update automatically, and you’ll know updates are ready by the green icon on the upper right of the browser window.

Ad Blocking

These days, you need an ad blocker. Not only that, you’ll need to limit the number of websites added to the blocker’s exemption list.

Criminals are able to leverage ad networks in order to display malicious ads, often leading consumers to exploit kits that deliver Ransomware or other malware to the system.

Imagine browsing the web on Christmas morning, only to have that new computer bricked



because an ad on a website redirected you to website serving the Locky family of ransomware. If your system isn't updated, and you're not using ad blockers, this is a real possibility.

uBlock Origin is the ad blocker preferred by most, as AdBlock Plus will still show 'approved ads' – something that defeats the purpose of ad blocking entirely.

Two-Factor Authentication (2FA)

2FA, or Two-Factor Authentication, is where you need your password in addition to a code that's usually delivered to a token or via text message to your phone. It's better to use a token, but service providers often stick to text message.

With 2FA enabled, simply knowing your password won't be enough if a criminal wants to

access an account. However, if the criminal can intercept your text messages, or if they control your phone, the protection offered by 2FA is rendered useless.

“Setup 2FA everywhere you can, don’t make it easy for bad guys to get into your stuff,” Tentler explained. “Consider setting up a Google voice number, and using that Google voice number for SMS-based 2FA. Do not share this Google voice number with anybody. Use it only for your own, private two-factor authentication.”

Not every website you have an account on offers 2FA, but some do. At Turn On 2FA (turnon2fa.com), you can get step-by-step instructions for enabling this layer of security on most of the larger, more popular websites.

Check your statements

Check your credit card and bank statements. You should be doing this all year long, not just during the holidays Tentler said, so you can “watch for shady things appearing on that list.”

Look for charges you don’t know, or smaller charges at places you normally shop. When testing a card, criminals sometimes make a small purchase, usually less than £10, as such things aren’t flagged, and people usually don’t notice them.

Common purchases for testing include fuel, fast food, grocery items, and gift cards.

RFID protection

RFID cards, sometimes branded with the name PayPass, Blink, ExpressPay or PayWave, allow you to charge things with a quick tap of the card on the



pay terminal. Unfortunately, these cards have RFID (radio frequency identification) chips that criminals with a reader can scan, allowing them to capture your card's data. You can protect them though, but using a RFID blocking sleeve, or a RFID wallet.

"RFID wallets are available on Amazon, ThinkGeek, and several other sites that sell geek-style toys. They're pretty readily available, and they shouldn't hurt anything other than attackers with the intention of stealing credit card data directly out of your wallet wirelessly," Tentler said.

The good news is you would notice a criminal scanning you for RFID. Homemade RFID scanners don't have a good range, and you'd notice someone standing in a room with a giant antenna.



Feature: Your consumer rights this Christmas

Jim Martin outlines your rights according to law, including the Consumer Rights Act, Small Claims Court and warranties

If Father Christmas is about to bring you a shiny new gadget for Christmas, or you're buying one for someone else, you're probably not thinking about what to do if there's a problem. The new Consumer Rights Act covers things like faulty products and late deliveries, and we explain the law so you know how to return a product for replacement or refund.

Computers and gadgets do fail from time to time, so it's important that you know your rights. Almost

all products come with at least a year's warranty but, depending on exactly when the problem arises, you might need to deal with the retailer rather than the manufacturer itself. In October 2015, the new Consumer Rights Act became law and it replaced the 1979 Sale of Goods Act, Unfair Terms in Consumer Contracts Regulations and the Supply of Goods and Services Act. Here's what you need to know about it.

Consumer Rights Act: Defects and faults

As a private buyer and customer, you have legal rights which apply whether you buy a product face to face, online, by phone or mail order, and whether it's purchased from a business or an individual trader for profit. However, they don't apply if you've bought something from a private individual who sells things only occasionally, such as through eBay or Gumtree. The seller must not do or say anything that misleads you into buying, and they must describe the goods accurately. If they don't, you may have some recourse. The watchwords, however are Buyer Beware.

Like the Sale of Goods Act, the Consumer Rights Act lays out what you should expect from products:

- The product must match the description. What you buy must exactly match the content, specification and quality suggested by advertisements, the sales description and product packaging. If it isn't, you can return the product for replacement or reimbursement of the amount paid. If this is the case, however, it's

important you do not use or interfere with the product, since this may be interpreted as you having accepted it as supplied. As an example, you wouldn't drink two-thirds of a pint of milk before returning it because 'it tastes funny'.

- The product has to be fit for purpose. In other words, it has to do what the seller says it will do and, if you have specified to the seller a particular use, it must do that also.
- The product must be of satisfactory quality. Would a reasonable person, who has taken into account the description of the product and its price, find the item acceptable? The product should also work for a reasonable amount of time (taking into account price and usage), and be safe to use.

What is reasonable, though? Tech electrical goods are usually reliable, and any defect or fault that was present from the outset may not become apparent until after some use. Even the best products will eventually begin to fail due to wear and tear.

How long a particular product should last cannot be laid down by law because there are too many variables to consider, including the build quality, and how often and under what conditions it's used. You could ask the seller for an estimate of its useful life at the time of purchase. Alternatively, you can obtain an expert's view of the cause of any failure before you make your complaint.

You should always return a defective product to the retailer, or wherever you bought it. Ideally, the fault will appear in the first six months because the seller will need to prove that any faults that

develop within the first six months are not due to a manufacturing problem. If they can't, they are obliged to give you a refund or a replacement. After six months, it'll be down to you to prove a manufacturing fault is to blame.

Most tech kit will last longer than six months, and we'd expect a tablet to last considerably longer. In our experience, frequently used laptops in the *Macworld* office last around three years before some kind of failure. This doesn't mean a retailer will repair or replace your laptop if it goes wrong after two years, though. A laptop that's used only on a desk at home and never gets moved is likely to last a lot longer than one that's taken on a daily commute and roughly handled.

Consumer Rights Act: 30-day return period

You might be unfortunate enough to receive a faulty or non-working product, or simply decide you don't want it. Your rights are not the same in both cases. The good news is that you are now entitled to an automatic refund if you return unused products to a retailer within 30 days. The only exceptions are custom-made items, digital content which has been downloaded or the seal has been broken on a DVD, music or software. It doesn't apply to perishable items, either, but we're talking about gadgets and tech kit here.

Return products to a bricks and mortar store

If you're not satisfied with a purchase due to a defect or fault, you can ask the person or business

that sold it to you to put things right. The seller can choose whether to repair or replace the item, but you must act within 30 days of the date of purchase. You are not obliged to demonstrate that the seller was responsible for the fault.

If the fault occurs after 30 days but before six months, the seller has the option to replace or repair (so long as a repair does not take too long). If the repair or replacement fails, then you can ask for a refund or a partial refund if you want to keep the product.

However, you are entitled to a refund (either full or partial) if:

- The retailer cannot repair or replace the product
- The cost of repair or replacement is disproportionate to the value of the product
- A repair or replacement would be very inconvenient to you
- The repair would take an unreasonably long time

Note that this right to reject products doesn't apply to digital products such as games, music, apps, and so on, which you buy and download – unless they are defective or unfit for purpose. It's down to the retailer to decide if you can cancel and have a refund. Amazon, for example, allows you to cancel ebook purchases if you act quickly.

Some retailers offer a return period longer than 30 days, but remember that the Consumer Rights Act applies only if the product does not match the description, is unfit for purpose or is not of satisfactory quality. You have no legal right to return an item if you've simply changed

your mind or your circumstances have changed. Don't assume you can return clothing if it's the wrong size, although the vast majority of stores will allow this.

In fact, most High Street retailers have a returns policy which allows you to take back an unwanted item for a refund or a credit note. Obviously, it must be unused and in perfect condition so can be resold. Certain products can only be returned for a refund if they're unopened, although this doesn't apply if they're defective.

No retailer can be made to comply with this type of agreement unless their terms and conditions of sale, which you have accepted, include the right to return unwanted products. You can either look on your receipt, on the retailer's website, on a notice in-store, or you can call its customer service line to check the details of the policy.

How to return items bought online

Since 2014, the old Distance Selling Regulations have been replaced by the Consumer Contracts Regulations. These state that you have 14 days – not 30 – to decide whether or not to return a product. That's two weeks from the date you received it, but you can cancel an order right from the moment you make it.

You then have a further 14 days to actually return the item to the retailer. You can expect to get a refund within 14 days of the retailer receiving the goods back, or within 14 days of your providing evidence of sending them back. The retailer doesn't have to refund the cost of express shipping costs – only the basic postage cost.

The items don't have to be faulty: it's your right to cancel the sale for any reason. However, the retailer may not give you a full refund if the product's value has been affected by you using it, scratching it or otherwise damaging it.

In essence, you can 'handle' products just as you would in a shop, but no more than that.

As with buying from a physical shop, many online retailers will give you longer than the minimum 14 days to change your mind, so check the terms and conditions to see if you have more time.

The regulations also cover undelivered products. They state that the seller must deliver the product to you within 30 days (unless otherwise agreed). If delivery is not made within a reasonable amount of time you can cancel and request a full refund.

What about gifts?

With Christmas coming up, chances are you'll give and receive gifts. That's the good news. The bad news is that – as a recipient – it's unlikely that you have any direct rights. These are held only by the buyer: the person who agrees the sale with the seller.

If there's a problem with the gift, ask the person who bought it for the original receipt, or request that they return the product. If you ever buy something as a gift, you should ask the shop to provide a gift receipt. This means the rights will be transferred and the recipient can return it. If the person who bought your gift didn't do this, they will probably have to return it themselves.

Some retailers offer an extended returns period to cover Christmas, so check this when you buy.

If you're buying early and the returns period will be up before your recipient has a chance to open and test the product, it's a good idea to do that yourself. Better to have an open box and a working product than a pristine, sealed present with a defective product inside.

Of course, if the item is faulty, you can still return it after the standard returns period, but it's still a good idea to do it quickly as you're not automatically entitled to a refund after 30 days.

Buying on credit and lenders' obligations

Buying on credit provides additional protection if a product is unsatisfactory. Note that this applies only if it was purchased using a credit card (Mastercard or Visa, for example), and not with a debit card (Electron, Switch/Maestro, Visa Debit, for example).

When you pay for an item costing between £100 and £30,000 on a credit card, your credit supplier is brought into the purchase contract: the bank pays the vendor, and you pay the bank. You have exactly the same rights against the credit provider as you do the product vendor, which means you can claim back your money through the bank if the supplier suddenly goes bust.

Buying on finance, whereby you get the product now and pay later, can provide similar protection. Your rights here are governed by the terms of the financial agreement you sign. Read the small print!

Manufacturers' warranties

Most products come with a manufacturer's warranty that provides a separate agreement between the manufacturer and the buyer. In the event of a

manufacturing fault, the warranty will usually offer repair or replacement during a specified period from the date of purchase, although as we said above, if the fault becomes apparent within the first six months you can return it to the retailer for a full refund or replacement.

Your rights under the warranty are dependent on the terms provided by the manufacturer, which can be as wide or restrictive as it likes. Some require the product to be returned to the seller; others may send prepaid packaging or provide a telephone contact number to discuss your options. All will require proof of purchase, so it's important to keep your receipts – even if they're sent via email.

A small number of companies require the item to be returned in its original packaging, so be sure to keep this for expensive purchases such as PCs and laptops if you have the space available.

It's worth noting that although some manufacturers provide a two-year warranty, the contract is often made with the original buyer only. If you've bought a product second-hand, it's possible that you won't be covered should anything go wrong.

Read the warranty statement included with the product, and note that you may need to follow some conditions if you ever want to invoke it. Most request that the buyer registers the warranty with the manufacturer by returning a supplied form by post, or by providing their details online or over the phone. In return, some manufacturers extend the warranty period by six- or 12 months.

There may be other benefits, too. Some warranties will extend to any person in legal

possession of the product, while others let you transfer the warranty to a new owner.

If the warranty doesn't address this point, it's advisable to check with the manufacturer whether it's possible to transfer the warranty to someone else. If you're buying a used product within the warranty period, you should also check for the right to transfer.

Where a product is still under warranty, it may be easier to claim under this than deal with the original seller. This will be your only option if the seller has gone bust and you didn't purchase the product using a credit card, but it can also be useful if you live some distance from the shop or the seller is purposely being difficult.

Always check whether a warranty requires certain actions to remain valid. For example, you might need to service the product at stipulated intervals, or report a problem within a certain amount of time. Failure to follow all the conditions may invalidate the warranty.

Products that fail outside warranty

A question we're often asked concerns what you should do if a fault develops just outside the warranty period. The manufacturer has no obligation to assist, but some will take pity on you so it's worth making contact. Stay calm, and be polite and prepared to compromise.

There may be an unadvertised discretion available to customer-service employees to assist in certain circumstances. Some companies operate policies such as this to keep customers happy – if they refuse to help when your warranty

expired only a few weeks ago, it's unlikely you'll buy a replacement product from the same manufacturer.

Even if your warranty has expired, you may still have a claim if you can prove that the fault occurred while the product was still under warranty or was due to a manufacturing flaw.

Types of warranty

Most warranties provide for replacement or the full cost of repair. That is, the cost of parts and the labour involved in fitting those parts. Most are likely to be on a 'return-to-base' (RTB) basis, which means you're responsible for returning the product to the manufacturer (or, in some cases, to the seller). The postage cost may not be included.

You may be offered, particularly when registering the warranty online, an option to improve your level of cover. For example, you might be asked if you want to exchange a 12-month RTB policy for 90-day collect-and-return (C&R) cover, during which a faulty product will be collected, repaired and returned to you. Be warned that you may be forsaking long-term protection for a convenience you are unlikely to need or use. 'Onsite' warranties can also be offered. This means a technician will visit your home or business to carry out product assessments and repairs. Alternatively, it can also mean a product will be collected and it's replacement delivered simultaneously. In some cases, the replacement product is a temporary loan while your product is being repaired.

Some warranties cover the replacement of parts only. You might be sent these parts and will have to

fit them or arrange for professional fitting. ‘Labour-only’ warranties, meanwhile, cover the cost of a technician fixing the product, but you must pay for the parts. They’re often seen supplied with desktop PCs. Such a guarantee has value only if you’re unable to personally fit the replacement parts yourself, or you don’t have the technical knowledge to determine which parts are defective.

Extended warranties

Extended warranties are a form of insurance and can be bought for one or more years’ cover. By paying the premium, you can rest assured in the knowledge that if something goes wrong you will get help in sorting it out.

Like all insurance products, the policy wordings and the cover provided will vary from company to company – you’ll need to carefully read all the policies before deciding which to take. All will have conditions with which you must comply, and exclusions that detail what is not covered. Batteries, for example, are consumables, so will typically not be covered.

Some extended warranties include accidental damage and breakdown, neither of which are likely to be found in a manufacturer’s warranty. Although you may have some cover from a home-insurance policy, bear in mind that a claim will increase your premium up when it’s time to renew.

Small Claims Court

The Sale of Goods Act is all well and good, but what can you do if a retailer refuses to repair or replace a faulty product?



The Small Claims Court is a viable option for claims up to £5,000, for which you shouldn't need a lawyer. If you're successful the court will award you damages – in other words, the retailer will be ordered to make a payment to you.

To claim the cost of replacement or repair you'll need an invoice or estimate. If the fault is due to a manufacturing flaw that occurred before a reasonable time had elapsed, you'll probably also need a report from an expert who supports that view. There are risks involved with taking court action, though. If you lose the case, you'll also lose your court fees, and it's likely that you will have to pay the travel expenses of the seller and the seller's witnesses.

The court will expect you to have already tried to reach an agreement with the seller. For this reason, you should write to the seller giving details of the problem. Include evidence that the fault is a manufacturing fault if the goods are more than six months old, and explain how you would like the matter to be resolved. Also say that if you do not receive a detailed response within a reasonable

amount of time (usually 30 days) you will begin legal proceedings.

If the seller recommends that you consider an independent assessment of your claim, sometimes called arbitration or alternative dispute resolution, it's advisable that you do so. Failure to do comply may affect your compensation – even if a court upholds your complaint.

You can start a claim by obtaining and completing a claim form. This is obtainable from a County Court or online at hmcourts-service.gov.uk. The form has space in which you can describe your problem, and is provided with a set of guidelines for advice. The completed form, along with all supporting documents and evidence, should be taken or sent to the court together with the court fee. The amount of the fee should be included in your claim. The court will send the claim form and documents to the seller (the defendant), who will be required to respond within a fixed period of time.

The seller may respond by making an offer to settle. If so, take time to consider whether the offer is reasonable. If you reject the offer and the court later awards you a smaller amount, you may incur some costs, such as travel expenses for witnesses.

If no offer is made by the seller or you reject its offer, you may both have to attend a hearing and explain your case. In this event there may be a hearing fee, but the court will explain to you what is happening and what you have to do.

If you are successful, the court will award you damages and make an order for payment. You should also ask the court to award you your costs so they can be included in the order to pay.



Feature: Help Desk

Kirk McElhearn answers your Mac questions

Troubleshoot a swollen Photos cache

Q: I have a massive Photos library and use iCloud Photo Library stored on an external HD to maintain a local backup of all pictures. However, my wife and I use a large number of shared albums to share our pictures with each other, and these keep eating up space on my MacBook Pro in `com.apple.cloudphotosd`. My MacBook Pro keeps filling up, rendering Photos completely unusable.

Michael McKissak

A: You're not alone in experiencing this. And it's definitely a loose thread in how Apple manages

photo storage. The `~/Library/Containers/com.apple.cloudphotosd` folder is a cache, not part of your Photos library. It's used both for temporary storage, as images are synced and transferred to your library, and as local storage for shared iCloud images.

For most people, shared iCloud albums don't add up to much. But because you and your wife are sharing a lot of images – and we'd guess you might even be shooting and syncing in a raw photo format, which makes files even bigger – your cache is enormous.

Even if you have Photos set to optimize images and videos (in Photos > Preferences > iCloud) instead of storing full-resolution media, shared iCloud album remain cached at full resolution. For a less-frequent iCloud Photo Sharing user, this folder only consumes about 1.5GB of my startup volume.

The bad news is that this is a design flaw, rather than a bug. Apple intentionally stores data there. As long as you're sharing lots of images, this will remain a problem.

You can reduce the number of shared albums to reduce the storage consumed. Select any shared album and click the strangely named People button at upper right (it's a silhouette of a person with a circle around it). You can then click Delete Shared Album, which empties the local cache without deleting the photos you shared, and disables sharing to other people.

Some users have reported on forums a related problem: that files already synced to their Photos library or which no longer shared are still lodged in the `com.apple.cloudphotosd` folder. You need to

delete that folder to refresh the cache, apparently; that worked for many of those who tried it.

Warning: This requires temporarily disabling iCloud Photo Library. If you have a large library synced with iCloud, disabling and later re-enabling it will cause a complete resync, even if no new images need to be uploaded. Consider your bandwidth use and the amount of time it will take.

To delete the folder:

- In Photos > Preferences > iCloud, disable all options
- Quit Photos
- Select Go > Go To Folder in the Finder and paste in `~/Library/Containers` and click Go
- Delete the `com.apple.cloudphotosd` folder
- Empty the Trash
- Launch Photos and re-enable your options

Any shared albums will be redownloaded and cached as before.

Fix two-factor authentication problems with apps that don't use iCloud

We've heard some confusion and frustration from people who use calendar, contact and email software that isn't set up through iCloud, and they turned on Apple's two-factor authentication (2FA). There's an easy solution, but it requires a little planning and fuss to put it in place.

The more modern 2FA system Apple explicitly labels "two-factor authentication" replaces its previous "two-step verification," which was a stopgap put in place two years ago. The new 2FA



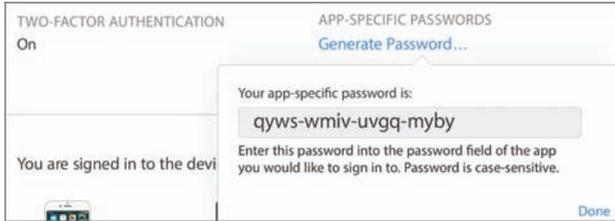
Name your app-specific password so you can recall which service is using it if you need to revoke it later

is deeply integrated into iOS and macOS, and was introduced on a slow rollout to users about one year ago with iOS 9 and El Capitan.

Many people have reportedly turned 2FA on for the first time with macOS Sierra or iOS 10 possibly because it's required to use the watchOS 3 feature that lets you unlock your Mac with your Watch. The point of friction, however, is with software that Apple hasn't tied into iCloud. So that includes BusyCal and Fantastical, third-party email clients, and contacts apps other than Apple's Contacts. Those can't yet (or maybe will never be able to) use Apple's 2FA to let you validate a login. With Apple's system, whenever you log in using an Apple ID protected by 2FA, all of your associated iOS and macOS devices pop up a tiny map of the rough location and a pair of buttons to allow or reject the login. Tap or click Allow, and the device on which you've done so displays a six-digit code you have to enter to complete the login.

For services and software that isn't tied in that way, you need to generate an app-specific password, which was also the case with the older two-step method. If you turned off two-step and turned on two-factor, all your previous app-specific passwords were wiped out. This is a shame, but you're starting with a clean slate, so apps and sites

I can show you this password as it's been revoked. That's one of the advantages of this kind of password.



you approved long ago and no longer use are no longer a potential threat, too.

To create an app-specific password:

- Log in to your account at appleid.apple.com
- In the Security section under App-Specific Passwords, click Generate Password
- Label the password so you can remember it later if you need to disable it, and click Create
- In the next screen, copy and paste or refer to the password and enter it in the app or service with which you need to use it. The password can never be viewed again, but it's stored
- Click Done

You can manage the passwords you've created in order to revoke them, too. Click the Edit button next to the Security section, and then click View History under App-Specific Passwords. The list shows the creation date of each password, and you can click the 'x' box to the far right to revoke any of them. You can also click Revoke All and wipe out all your app-specific passwords if you're concerned about any of your software or web-based services being hacked. This doesn't affect your 2FA login at all. We'll note that Apple only shows the creation date of these passwords, while Google more

helpfully in its 2FA web support shows the last time each was used. Much more useful, and we wish Apple would move to that approach.

Merge iPhoto and Photo libraries on a Mac

Q: How can I know whether the pictures in the iPhoto library are also in the Photos library? How can I move a portion of the older images away while keeping the last few years on the laptop?

Christoph Stork

A: Christoph Stork's photo libraries are overflowing. He owns a MacBook Pro with a 750GB drive, but has an iPhoto library that weighs in at 190GB and a Photos library that takes up 250GB. His drive is almost full and he's not sure how to proceed.

If you followed the steps to import your iPhoto library into Photos whenever you started using Photos, all of the library's full-resolution images weren't duplicated. Instead, Apple chose to use 'hard linking', which Jason Snell explained back in April 2015 (see tinyurl.com/h5vrxn). Instead of creating a copy of the iPhoto media, hard links just allow the same file to be linked in two or more places. Unlike an alias, which has a special icon and just points to another file, the hard link reference looks and acts exactly like it is a file.

This means that, in this case, the 190GB and 250GB iPhoto and Photos library likely contain a whole lot of overlap. Thumbnails, modified images, and other internal data structures aren't duplicated from iPhoto, and take up separate space in each library. New images imported into Photos would explain its larger size.

Our suggestion for proceeding in this and similar cases is to get an external 1TB (or larger) USB 3.0 drive, which are relatively cheap. Copy the iPhoto library there before deleting it.

For as long as older versions of iPhoto continue to work, you can open any library on a mounted volume by holding down Option at launch, and then navigating to the library and selecting it. The same is true for Photos, although Photos continues to be updated, and should work across many, many future macOS releases.

If you want to archive part of your Photos library, get PowerPhotos (tinyurl.com/hvqgyLn), an app that has a lot of features missing in Photos. It will let you create a new library and copy images over, rather than using an awkward export method.

To find just older images, we suggest creating a Smart Album with the criteria for the date range you want, and then selecting all the images in the Smart Album and creating a regular album from it. You can then use PowerPhotos to create a new Photos library, copy that regular album and all its contents to the new library, and delete the album and associated media from your main Photos library. PowerPhotos includes a license for iPhoto Library Manager, which has similar features. Both apps can identify duplicates within a library to reduce a library's size if you have many images that were imported multiple times or duplicated internally.

We highly recommend making more than one backup of the photos and libraries you migrate off your main drive. It can be cheap to store data you don't plan to modify at Amazon S3, or you can use Google Drive, iCloud Drive, or other options.



Round-up: Latest Mac games

[Andrew Hayward](#) looks at the best new releases

The Christmas shopping season is in full swing, but while you're considering gifts for friends and family, you should also treat yourself – to new Mac games. We've picked out the 10 biggest and brightest games worth checking out. If you don't mind something dark for the holidays, isometric role-player *Tyranny* could be worth a deep dive, while quirky adventure *Headlander*, the slick *Motorsport Manager*, and programming puzzler *Shenzhen I/O* lead the rest of the pack.



1. Tyranny

Price: £34.99 from the Mac App Store

If you enjoyed 2015's *Pillars of Eternity*, a strong throwback to isometric role-playing classics like *Baldur's Gate*, then you'll definitely want to check out *Tyranny*. Not only does it hail from the same developer (Obsidian Entertainment), but it also uses the same engine and has many similarities – although the actual game built upon it has a very different tone.

As the title suggests, *Tyranny* isn't the most uplifting game around: you play as a Fatebinder, a servant to a powerful lord and keeper of the fantasy kingdom's grim laws. You're a bad guy doing very bad things which, according to our colleagues at PCWorld makes the early hours pretty exhilarating, even if that initial glow fades a bit as *Tyranny* turns a bit too linear.



2. Headlander

Price: £14.99 from Steam (tinyurl.com/zLp359z)

Headlander is the expectably zany result of the pairing between Adult Swim Games and developer Double Fine (Broken Age, Psychonauts). It's a sprawling, Metroid/Castlevania-like side-scrolling adventure, albeit with a weird twist: guiding only the head of the last human being alive, you must land atop robot bodies and control them to battle through the world.

It's an odd premise, sure, but it's one that not only provides humour but also allows for intriguing new gameplay opportunities. You'll control the head alone at times to zip through tight places, for example, or seek other bodies to inhabit. Pair all of that with a trippy 1970s sci-fi aesthetic and Headlander oozes plenty of retro cool, and should please fans of old-school 2D console.

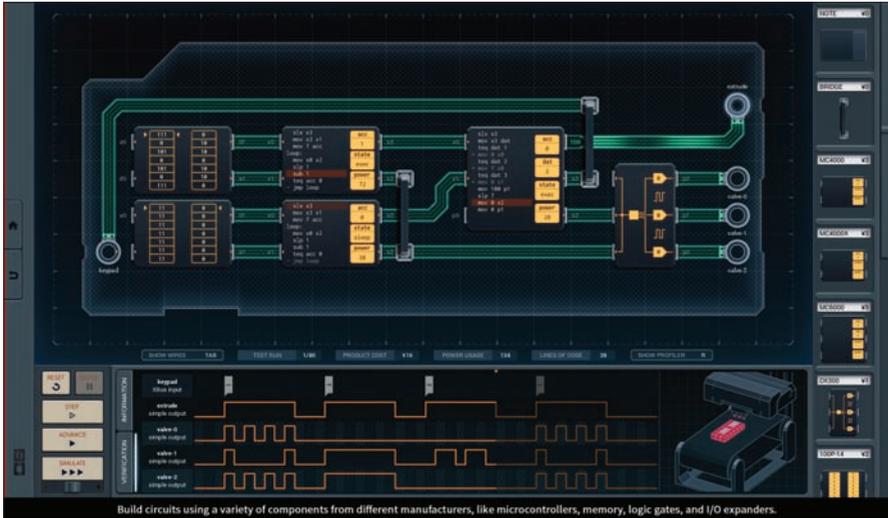


3. Motorsport Manager

Price: £24.99 from Steam (tinyurl.com/jq3u7hy)

Eager to race formula cars? F1 13 is the latest and greatest option on Mac. More interested in the behind-the-scenes action of high-performance auto racing? Well, Sega's new Motorsport Manager is probably more your speed. Rather than take the wheel on race day, you'll handle all of the little decisions that lead up to the big event, and help direct the driver during the race.

You'll pick your team's strategy before any rubber is burned, as well as make tactical tweaks along the way, but there's a lot more to handle: hiring talent throughout your organization, utilizing the latest technology to improve your cars, and ensuring that pit stops are well timed and properly executed. Critics and player reviews alike are pretty strongly positive so far.



4. Shenzhen I/O

Price: £10.99 from Steam (tinyurl.com/zw7nmxy)

Shenzhen I/O looks like the kind of puzzle game that is sure to break a few brains along the way, but also the type that'll reward devoted play. It's a game built around programming skills: you'll create circuits using items like microcontrollers and memory gates, and write assembly language code that must be slim and efficient to get the job done.

You don't need to be a coder to start playing, but you will need to read the in-game manual and/or be willing to tinker and fail for a long time. Once you've started mastering the basics, you can code your own games and programs, but the puzzles seem to be the biggest draw. Zachtronics' earlier game, TIS-100, looks like a better starting point – and both games have the very rare 'Overwhelmingly Positive' rating on Steam as of this writing.



5. **Even The Ocean**

Price: £10.99 from Steam (tinyurl.com/gLatxha)

Many platform-action games have a life meter or hearts to manage, but *Even the Ocean* takes a different approach: your hero, Aliph, must balance the light and dark energy that she absorbs during her quest. It's a system that resonates with the world and her abilities, as well, and it shapes this side-scrolling quest about a "lowly power plant technician" whose life quickly changes.

Even the Ocean hails from the creators of *Anodyne*, the much-loved Legend of Zelda-esque indie role-player from 2013, and the most common term being bandied about is that this game is especially "thoughtful." It touches on social, environmental, and political issues and feels inclusive, yet simultaneously provides an intriguing twist on this classic genre.



6. Transport Fever

Price: £26.99 from Steam (tinyurl.com/h6gqddc)

Do you like trains? Would you say you have a mean case of Transport Fever? If so, now there's a game to help you act on those impulses. Transport Fever is a follow-up to Train Fever, and both are essentially modern takes on the classic Transport Tycoon formula, with the latest entry challenging you to build up a transport company from scratch starting in 1850.

Over the years, you'll build train stations and lay track, as well as construct airports and harbours, connecting cities and their inhabitants while also handsomely profiting from the work. It has endless and campaign modes included, along with 120+ vehicles and both American and European-inspired environments to do your business within.



7. RYB

Price: £3.99 from Steam (tinyurl.com/jszrz6j)

Making the move over from the App Store after launching on iOS earlier this year, RYB is a bright little brain-teaser that challenges you to correctly colour each shape on the screen. With subtle clues, you'll need to figure out which colour belongs in each chunk of the 60+ logic puzzles to keep moving ahead through the stack.

RYB isn't a big explainer: it introduces new mechanics along the way, but aside from a brief introduction for each, you'll need to figure out how they work and how to master them. This ultra-minimal puzzler got some glowing praise on iPhone and iPad, though, and the blend of Sudoku and Minesweeper-like elements could prove plenty addictive to puzzle junkies on Mac, too.



8. **Silence**

Price: £23.99 from Steam (tinyurl.com/hdmqyLn)

Silence is the sequel to 2010's point-and-click adventure, *The Whispered World*, but it seems positioned as a standalone experience. Not only does it drop the name of its predecessor, but it also has a brand new 3D aesthetic, whereas the original had a quainter hand-drawn look. In any case, this looks like an intriguing quest, whether or not you played the first game.

Set in a fantasy world between life and death, *Silence* finds 16-year-old Noah trying to find his little sister Renie in a setting filled with monsters and magic – as they escape a real world filled with war and destruction. It's an absolutely gorgeous-looking game and seems like a very emotional adventure; reviews have been pretty strong, as well.



9. Doom & Destiny Advanced

Price: £6.99 from Steam (tinyurl.com/h7mqtfj)

Fans of old-school classics like Final Fantasy and Dragon Quest might get a big kick out of Doom & Destiny Advanced, a parody of retro role-players that keeps the pixel graphics while pumping in a load of humour and pop culture references. It's a sequel to last year's original Doom & Destiny, but it's designed as a standalone entry and doesn't require previous knowledge.

Doom & Destiny Advanced looks very silly and dips into low-brow comedy, but also seems to have a lot of meat on its bones: there are hundreds of locations and enemies, along with 13 player classes to experiment with. It also has online battles available outside of the solo campaign, so you can form a killer team and try to top the leaderboards.



10. Eternal

Price: Free from Steam (tinyurl.com/gsnonps)

At a glance, Eternal looks a lot like Blizzard's wildly popular Hearthstone: Heroes of Warcraft, but Steam reviewers say it's a lot more like Magic: The Gathering with having to play land cards and build a home. And if that all means nothing to you, know this: it's a free-to-play online card-battling game, it has a cool Wild West-meets-fantasy aesthetic, and most players seem to love it so far.

Granted, Eternal is in Early Access right now on Steam, which means it's unfinished and may lack polish, but the reviews are largely glowing: die-hard collectible card game fans say it's deeper and more tactical than Hearthstone, yet is also a better digital representation of Magic's core mechanics than any official rendition to date. And it's free, so give it a shot if that approach sounds remotely intriguing.

Feature: 2017 could see just one OLED iPhone

Display supply might not meet demand, writes [Caitlin McGarry](#)

Long-time has released a product that isn't a phone or a watch or a computer (see page 6). It's a 450-page book documenting the past 20 years of Apple design, or, in other words, a book of photos of Apple devices. At £249, it costs more than some of those devices.

Long-time Apple watchers have speculated that next year's iPhones will move from LCD to OLED displays, but recently a strange rumour emerged from a reliable Apple analyst: next year, Apple will release three iPhones, and only one of them will have an OLED display.

Now we know why that could be. Apple would love to bring OLED to its entire iPhone lineup, but the supply isn't there, Bloomberg reported. OLED display makers Samsung, Sharp, LG, and Japan Display are working to produce panels, but Sharp and Japan Display won't kick production into high gear until 2018. LG is also lagging after spending years making OLED displays for television.

According to Bloomberg, that leaves Samsung, which has an exclusive agreement to produce OLED displays for iPhones next year. But Apple sells a



ton of phones: the company has reportedly put in an order for 100 million units to prep for next year's holiday quarter, and Samsung might not be able to make enough. It might not even be able to produce half that amount. In 2015, Apple sold 75 million iPhones over the Christmas period, and if Samsung can't pull through, then the company won't be able to put OLED displays in every phone.

The 10th anniversary OLED iPhone

KGI Securities is predicting that Apple will release an all-glass iPhone 8 with an edge-to-edge 5.2in OLED display. The company reportedly plans to ditch the bezel and embed the Home button directly in the screen.

But there will be two more models, 4.7- and 5.5in LCD iPhones similar to the ones available to buy right now. KGI expects the prices to drop on those models, which won't see design overhauls but will have upgraded internals (and optical image stabilization is reportedly in the works for the 5.5in model's telephoto lens).

If Apple introduced OLED in just one model of the next-generation iPhone, it would be a surprising departure, though not without precedent – with the iPhone 7 Plus, the company put a dual-lens camera system in just one phone. But displays are a different story. An edge-to-edge OLED screen would change the iPhone experience.

Of course, display suppliers could come through and enable Apple to overhaul its entire line-up. But with the recent spate of rumours, it seems like the company is establishing expectations for a lone OLED iPhone.



Feature: Ask the iTunes Guy

Kirk McElhearn answers your iTunes questions

Sometimes too much information makes things confusing; iTunes' display of iCloud Status for movies and TV shows is one example. We explain what this means. We also discuss how to delete songs from a playlist, how to combine playlists in iTunes, plus what happens when iTunes Match is turned off.

Cloudy iCloud Status

Q: A friend showed me his iTunes library recently. In his Movies library, he has a column called iCloud Status, which says something about each of his movies. In my iTunes library, if I display that column, everything is blank. Why is this?

A: This is an interesting question, but the answer is rather prosaic. The iCloud Status column is meant to show the status of music tracks in iTunes Match or iCloud Music Library. Apple has a support document explaining what these various statuses mean. We hadn't noticed that this column can display for movies (and for TV shows); it isn't available for apps and audiobooks, for example. But for videos, this column only displays one of two possible statuses: Purchased or Ineligible.

Obviously, Purchased means you've bought the video from the iTunes Store, and Ineligible is for

videos you've ripped and added to your iTunes library. But there's no iTunes Movie Library, at least not yet, so the existence of these statuses is a bit odd. Unless Apple is planning to let us match movies to the iTunes Store at some time soon...

Given the way the movie and TV industries work, we'd not hold my breath about that being possible, though We'd love to see it. Imagine if you could insert a DVD in the optical drive and have the iTunes Store match a movie? That would be great.

Matchless music

Q: I've had an iTunes Match subscription for a number of years but I'm going to let it expire when it runs out this month. When I turned off auto-renew, I saw a message saying that my matched and uploaded tracks would no longer be available on iCloud. I understand that, but will all the matched songs, downloaded from the cloud, stay on my computer? And if I sign up for iTunes Match in the future, what then happens?

A: All the songs on your computer stay on your computer. Which means if there are any that are in the cloud and not on your computer, you need to download them before you unsubscribe, or you'll lose them. If you re-subscribe at a later date, then iTunes re-matches all your music; it won't retain your library in the cloud.

Delete a song from a Apple Music playlist

Q: How do you remove a song from an Apple Music playlist? I'm using the most recent version of iOS 10.

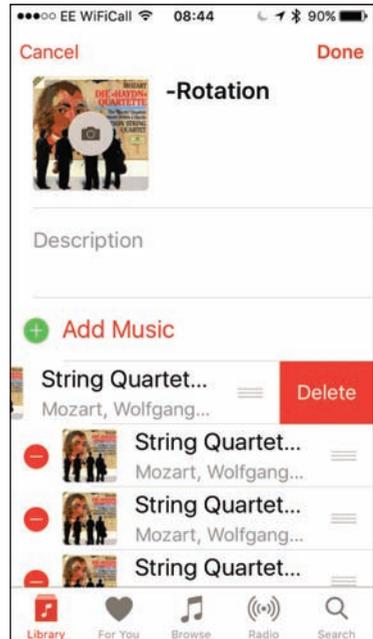
Deleting tracks from a playlist on iOS 10 takes a few more steps than before

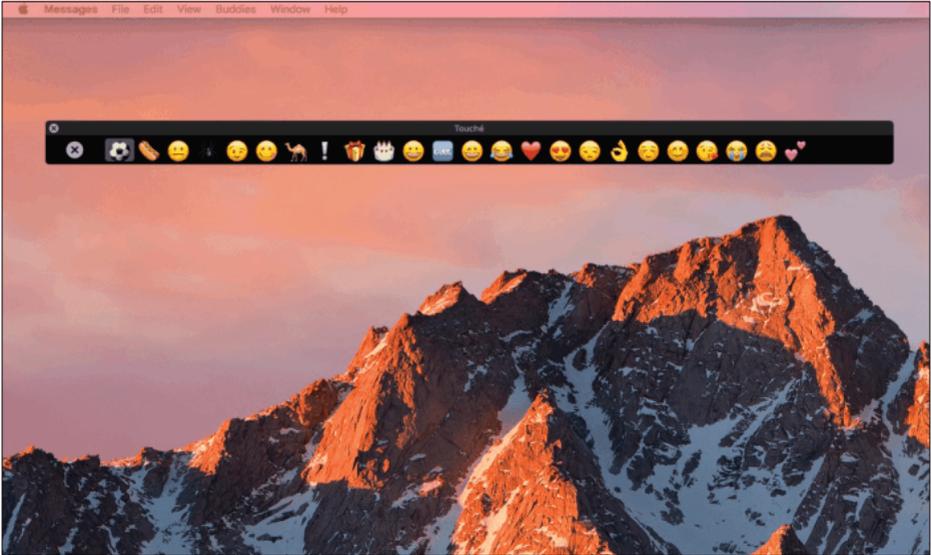
A: Yes, Apple has changed things again. Before, you could just swipe a track to the left to delete it from a playlist (but not from your device). Now, there's a new way to do this. View a standard playlist. Tap the Edit button at the top right of the screen. Tap the red '-' button, then tap Delete.

How to combine playlists

Q: I want to combine all my different playlists into one so I can then separate the list into two different playlists for different types of music. How can I do this?

A: Combining playlists is simple. To start with a simple example, let's say you have three playlists, A, B, and C. If you want to combine them, create a new playlist; let's call it Z. Next, drag each of the playlists (A, B, and C) onto the Z playlist in the iTunes sidebar. This will add all the songs of each playlist to the Z playlist, but will also ensure that no songs are duplicated. If any of the songs you drag are already in the playlist (Say A has a few songs that are also in B), iTunes will alert you and ask you if you want those songs to be duplicated, or if you want to skip them.





How To: Get a Touch Bar without buying a MacBook

Roman Loyola reveals the free app that can be used to simulate the new Touch Bar on your Mac's screen

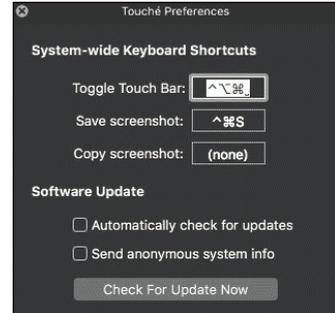
The new MacBook Pro's Touch Bar is fantastic. But you don't have to shell out any money to get a Touch Bar on your Mac. Red Sweater's Touché (tinyurl.com/hgycf46) is a free application (donations accepted) that simulates the Touch Bar on your Mac's screen.

Before you install Touché, you need to have your Mac updated to macOS Sierra 10.12.1. Now, it has to be a specific build of macOS 10.12.1, the build with Touch Bar support, which is build 16B2657.

We tried to install Touché on a 2014 15in MacBook Pro running 10.12.1, but it wasn't that specific build and it didn't run. Fortunately, you can download the update and install it.

Touché runs like any app, and you can use a keyboard shortcut to toggle it on or off the screen. Touché will show the controls for any app written with Touch Bar controls, which means that right now, only a few Apple apps work. For example, if you use Touché with Photos, you can access the Touch Bar controls. If you press the Fn key on your Mac keyboard, Touché, like the Touch Bar, displays the functions keys (as shown below).

You probably won't use Touch Bar as a regular user-interface utility. When it's on-screen, it duplicates controls that are already found on the apps you are using. Mostly, Touché is a tool for software developers, but it can also be used by anyone considering a new MacBook Pro – it gives an idea of how you might use the Touch Bar. It's also a great way to show the Touch Bar graphically, since you can take screenshots instead of taking pictures with a camera.





How To: Migrate an old Mac's system to a new Mac

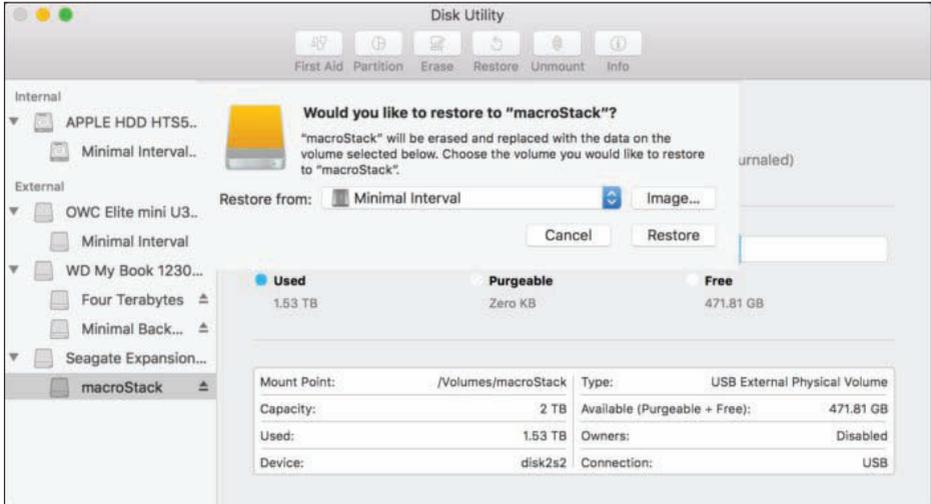
Glenn Fleishman looks at your different options

Macworld reader Les Rosenbaum asks:
After five years, I am considering the purchase of a new iMac. In migrating from the old to the new is the best choice Migration Assistant, Time Machine, or SuperDuper?

It depends on the vintage of machines you're migrating from and to. If the new Mac can run the same operating system as the old one, we'd lean towards using SuperDuper (tinyurl.com/6krpz) or Carbon Copy Cloner (bombich.com). However, if you can't run the same version of macOS/OS X on both computers, a clone won't work: it can't boot on the new machine, and you need to pick Time Machine or Migration Assistant. If you want to use a cloning tool, follow these steps:

- In SuperDuper or CCC, make a full clone of your current computer, either as a disk image or as a mountable volume. Either way, you'll need to be able to access this clone on the new machine
- Start the new computer using macOS Recovery (tinyurl.com/mnedvcp): hold down Cmd+R during startup until you see a macOS Utilities screen
- Select Disk Utility
- Select the internal drive or boot partition in the list at left
- Click the Restore button
- From the Restore From popup menu, select your clone. If it's a disk image, click the Image button to find it on a mounted drive
- Click Restore and be prepared to wait a long while
- When the restoration is complete, exit Disk Utility and select Cmd > Startup Disk
- Select the drive to which you restored your clone, and then click Restart

If you miss and can't complete the final step, restart and hold down the Alt key at startup, and



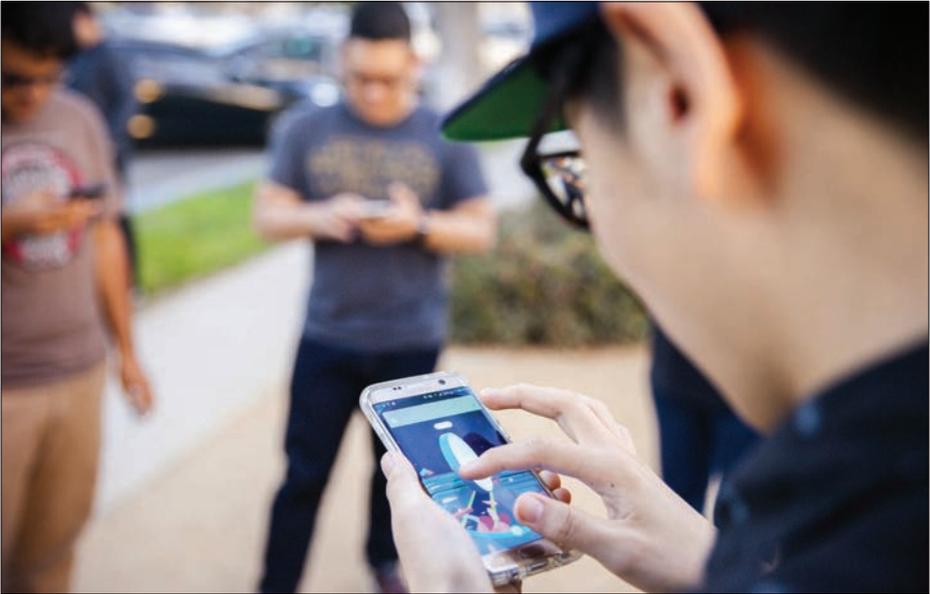
Disk Utility can restore a volume from another volume, including a disk image containing a clone

select the startup volume you just restored. Disk Utility can restore a volume from another volume, including a disk image containing a clone.

If this doesn't work, it's possible your old Mac doesn't have all the system files necessary to work with your new Mac.

You can also pursue Migration Assistant during initial setup of a new computer or after setting up an account. Migration Assistant can guide you through connecting another Mac, or you can select a Time Machine backup.

We're inclined here to recommend a Time Machine backup on an external drive that can be connected directly to the new machine. The process should be faster and have less complexity than connecting two computers.



Opinion: Why Apple is smart to pursue AR

There are plenty of reasons why Apple should pursue augmented reality, writes [Dan Moren](#)

Over the past few years, development of and interest in the virtual reality arena has truly begun heating up, but the same can't yet be said for its close cousin, augmented reality. The most prominent product in the category to date was the much-maligned Google Glass, which never really cracked the consumer market.

But that doesn't mean that the interest isn't still there. Microsoft has been investigating the mixed



Microsoft HoloLens

reality concept with its HoloLens visor, a device that seems to actually make a compelling argument for the technology, and Snapchat has garnered some attention with its new Spectacles glasses, which feature built-in cameras and integrate with the popular messaging app.

And now there are rumours that Apple is throwing its hat glasses into the ring. But is this merely the usual wild speculation or is there fire behind the smoke?

This is Tim

Perhaps the most compelling argument that Apple is working seriously on an augmented reality device is none other than Tim Cook himself. The Apple CEO has mentioned several times in the last year or two that augmented reality is positioned to be a big thing, saying during the company's quarterly financial results call in July that Apple is "high on AR for the long run, we think there's great things for customers and a great commercial opportunity."

In October, Cook has said that AR will become a daily part of people's lives and compared it to

the technological sea change brought about by the smartphone: “It will happen in a big way, and we will wonder when it does, how we ever lived without it. Like we wonder how we lived without our phone today.”

Other hints include Apple reportedly hiring the chief engineer of a firm that’s actively building AR glasses, as well as the company’s acquisition of a number of smaller AR-related enterprises.

And, if you needed any more concrete evidence that Apple’s bullish on AR, well, look no further than Tim Cook’s rimless frames. Stylish fashion choice or the perfect look for concealing prototype AR glasses? You decide.

The car hole

Looking at Apple’s rumoured pipeline, it’s also not hard to see why the company would suddenly be more bullish on developing augmented reality gear. Signs had pointed to Apple’s heavy investment in the automobile space this year, up until a month or two ago when reports began to suggest that project was in the midst of a sharp change in direction that might refocus on building software for cars, including an autonomous driving system, rather than manufacturing an entire vehicle.

Unlike the car space, which is full of long-entrenched firms, heavy regulation, and a number of fields in which Apple would have to build expertise from scratch, AR is a logical offshoot of the work the company’s already doing. The upside might be lower, for sure – AR glasses are far less broadly applicable than cars – but Apple hasn’t shied away from smaller markets where it thinks it



Image credit: BMW

The car is a natural place for AR

can make a difference, and it's certainly less risky than building a car from the ground up.

There's little that's new about AR devices: displays, sensors, batteries, wireless connections – these are all technologies that Apple has spent plenty of time developing and refining. Moreover, with the Apple Watch and forthcoming AirPods, Cupertino's already made forays into the wearable space and shown a willingness to explore the possibilities and even to revisit and refine its ideas as the company learns more about how people use those devices.

The secret sauce

Of course, the £64 million question when it comes to Apple's augmented reality ambitions is

what exactly the company wants to do with the technology. It's been suggested that AR features will find their way into iOS's Camera app before any piece of hardware appears, but it's unclear exactly what such a feature would entail. Plenty of companies have been building AR features into iOS apps for years now, the most recent prominent hit being Pokémon Go.

Despite the success of that game, I'd argue it's more fluke than compelling proof-of-concept for augmented reality on a smartphone. Most of the time, people don't want to run around holding their phones in front of their faces. For example, I remember an early iOS app that offered a feature whereby you could pan your camera around and see local businesses like restaurants – it was interesting, to be sure, but it hardly made a compelling case over simply browsing a list on the phone's screen.

That doesn't mean AR isn't full of potential: being able to merge the physical and digital worlds would seem to be a logical jumping off point for the next generation of technology. But it may very well take Apple's classic combination of hardware and software to show us all why exactly we should care.



