Control Anything With Your Voice

Amazing tips and skills you'll use every day

GOOGLE HOME

AMAZON ECHO

SIRI & CORTANA

"Alexa, turn to page 40"

only £2.20

9 771473 709165   51>

PLUS

STOP WEBSITES TRACKING…
EVERYTHING YOU TYPE p48
+ Other threats you've never been warned about

NEW YEAR → CLEANER PC
Free up space without losing vital files p50

434 GB used out of 476 GB

Ultra-fast, powerful and immersive photo editing wherever you go

Take your voice control to the max

"You need hands," crooned Max Bygraves in 1958, "to show that you're sincere". But 60 years on – to quote Max again – fings ain't wot they used t'be, and the rise of voice assistants such as Alexa, Cortana and Siri means your hands are no longer so essential for all manner of tasks.

If you were lucky enough to get a Google Home or Amazon Echo for Christmas, or you bought one *before* they were trendy, you'll know how useful voice assistants can be, and are no doubt keen to try some new tricks. In this issue's cover feature, we round up our favourite commands for speech-controlled personal assistants, from playing music to predicting the outcome of football matches. We also recommend the best smart speakers to buy, and address the issue of these devices 'spying' on you.

Before you can utter "Gilly Gilly Ossenfeffer", you'll be cheerfully conversing with the web. So all that's left for me to say is: "Happy New Year to all our readers!".

Robert Irvine, Editor
robert_irvine@dennis.co.uk
#webuser
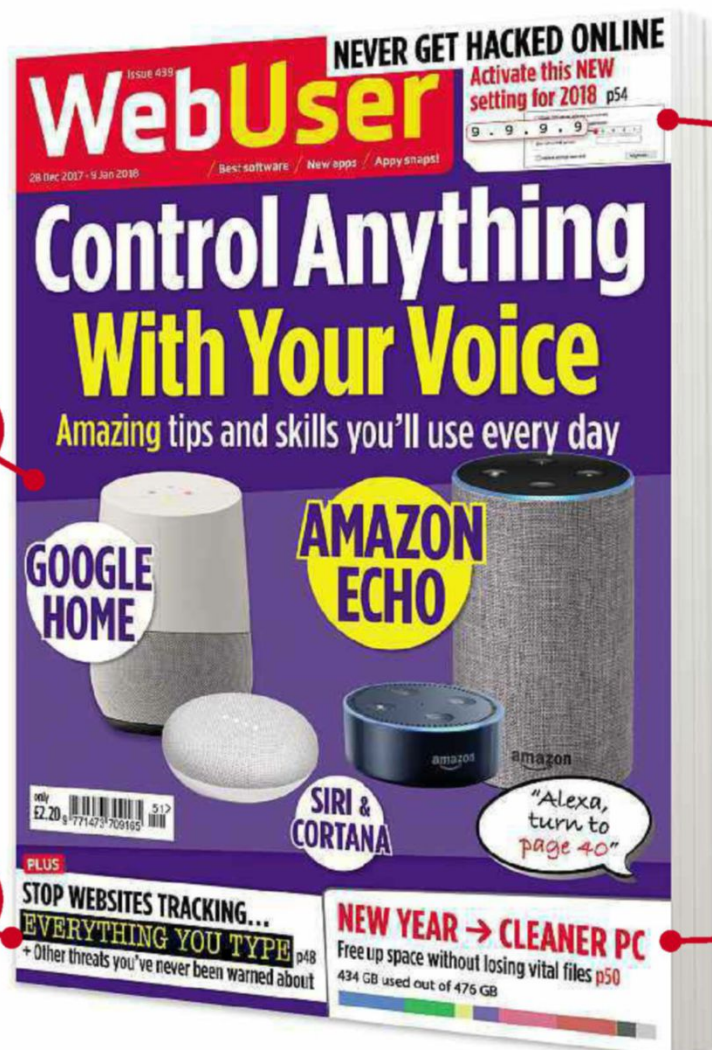
5 Things you'll learn this issue

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3 How to reduce the amount of data you use on your Android phone
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4 How to make your browsing history easier to search in Chrome
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Average sales, Jan-Dec 2016, 28,298 copies per issue

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Find out how to perform everyday tasks quickly and easily by talking to your tech

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Make room on your hard drive without losing any files **p50**

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Finish building the PC you started last issue   **p58**

What's New Online

See Google's top searches for 2017

Given the political unrest the world has suffered in the past year, it's heartening to see other issues obsessing the minds of people around the globe: namely, the ingredients needed to make slime. This query was the top trending "how to" of 2017 according to Google's annual Year In Search round-up, ahead of "How to buy Bitcoin?".

In the UK, top "what is" queries included searches for definitions of a hung parliament and exit poll, and "What is the Antikythera mechanism" (an Ancient Greek 'computer').

The top trending person in the UK for the second year running was the soon-to-be-royal Meghan Markle, ahead of the late
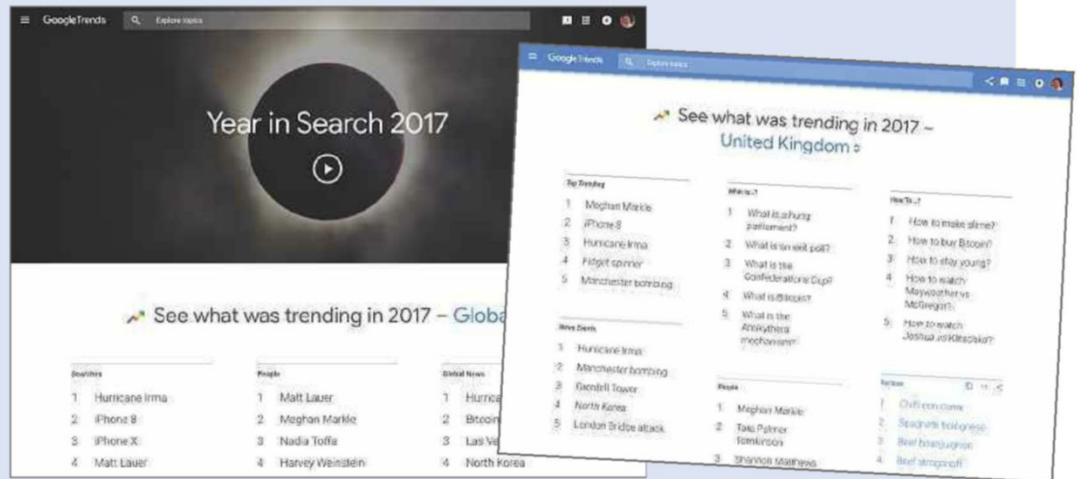
Tara Palmer-Tomkinson. People were also keen to learn more about Hurricane Irma, the Manchester Arena bombing, Grenfell Tower, North Korea and the London Bridge attack.

Hungry people searched

most for recipes for chilli con carne and spaghetti bolognese – a need for comfort food, perhaps. And, surprisingly, there were more searches for iPhone 8 than iPhone X.

Other global trends

included the French elections, Wimbledon, *Stranger Things* and the Cash Me Outside meme. One big surprise was "Why is my poop green?" edging into sixth spot in Australia!
www.google.com/2017

Play Nintendo's classic Flash games

origami64.net/flash.php

Over the years, Nintendo has produced some wonderful console games, from the Mario series through to Zelda. To accompany the launch of these gems, the company produced small, playable Flash titles – many of which have sadly been lost to time. This online collection collates these browser-based renditions of classics such as Tetris DS and Donkey Kong 64. There are more than 30 Flash games to choose from: simply select the game you'd like to play and make sure Flash is running in your browser (you can disable it afterwards if you're worried about the security risk). We'd advise you try The Legend of Zelda: The Minish Cap, Mario Party and Metroid Prime, but be warned that some games are missing a few files. Collection curator Skelux is offering cash rewards for anyone who can help track them down.

See 1,000 years of London history

alpha.layersoflondon .org

The origins of our capital go back to Roman times, with the creation of Londinium, so it's little wonder that the city provides such a wealth of historic detail. This layered map lets you revisit the past by combining historic maps with photos of buildings, information and films. Select a date range, then choose between the 1682 Morgan map, the 1746 Roque map, a satellite view and RAF images.

In addition to those four overlays, there are 21 curated and public collections. These look at, for example, literary London and musicians in the capital. Clicking the blue pins displays information, and you can search for places, events and landmarks, too. The curators are also looking for visitors to supply their own information to add more places of interest to the map.
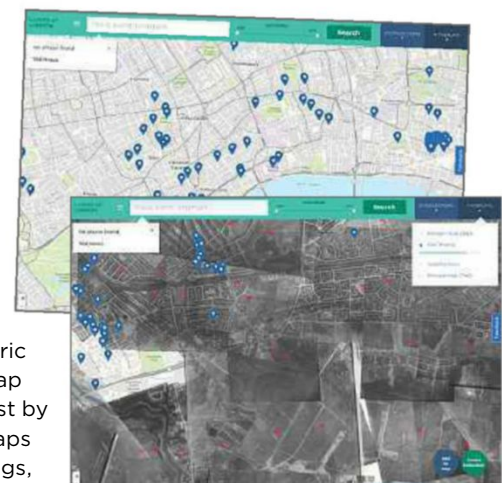
We pick the 10 best things you must do on the web this fortnight

Doodle on photos sent to you in Instagram

www.instagram.com

Fancy scribbling on an Instagram image sent to you via direct message? Well, now you can. Just tap the camera icon at the bottom of a message and snap a picture to send back. The image you've been sent will be included in the reply and you'll be able to draw on it and add stickers or text.

Ask Waze for the best route

www.waze.com

The crowd-sourced traffic app Waze has had a major update, which includes a new hands-free mode. Triggered by saying "OK Waze", this provides you with a preview of the road ahead, and lets you initiate a journey and add a stop to your trip. To activate it in the app, tap the microphone button or, in Android, go to Settings, 'Sound & voice', 'Talk to Waze' and 'Listen for OK Waze'. You can now chat away.

The new mode is safer and adheres to the laws of using devices while driving. As a bonus, Waze now lets you select motorcycles under vehicle type, too.
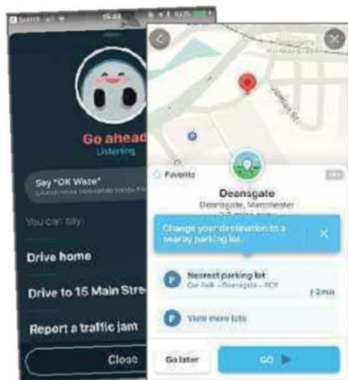
Decode ancient Mayan secrets

bit.ly/maya439

The Maya achieved great feats of architecture, astronomy, art, maths and language, as you'll discover from this new Google tour. Created in collaboration with The British Museum, it tells the story of the Maya, exploring their writing, art and tradition while letting you look close-up at artefacts in glorious 3D. You can also explore Google Street View imagery of the Mayan world and there's a 360-degree imagery feature, which is perfect for using with Google Cardboard.

See a 3D map of UK population

bit.ly/population439

This interactive map lets you flick its data-mode switch to 3D-population density to view a stunning representation of the number of people living in various parts of the UK. The height of the blocks indicates density while the colours represent a sliding scale of up to 94,000 people per km^2. You can switch to Age Profile to view the actual figures.

5 TO FOLLOW ON TWITTER

@sundancefestnow
Follow events at the Sundance Film Festival between 19 and 29 January

@FIFAWorldCup
Updates for Russia 2018 are in full swing ahead of the tournament

@meghanmarkle
The future princess isn't tweeting much now but she may start again

@Retro_Game_Blog
Swedish gamer Heidi plays the games she missed out on as a child

@TommyWiseau
The man behind so-bad-it's-brilliant film *The Room* has joined Twitter

+ See what you listened to in 2017

2017wrapped.com

Spotify's annual round-up of your music habits tells you how many tunes you listened to in 2017 and for how long, before asking a series of fun questions to reveal your favourite artists, songs and genres.

Play Tetris via Twitter

twitter.com/TwtPlayTetris

Tweet LEFT, RIGHT, ROTATE or DROP to @TwtPlayTetris and a clever algorithm will work out the most popular move every three minutes before acting it out in a Twitter-based game of Tetris. The record for cleared lines at the time of writing stood at one!

Post facts about yourself on Facebook

www.facebook.com

Facebook has added a 'Did you know?' feature that lets you answer questions about yourself for friends to see. Click the three-dot button below the status box and choose 'Answer a question' for options such as 'The superpower I most want is'.

+ Tell us your favourite new things at forum.webuser.co.uk

7 MOST IMPORTANT QUESTIONS FOR 2018

It's going to be another fascinating year for the internet. Here are the questions we're asking about the next 12 months in tech

1 Will Bitcoin crash?

Long answer: At the beginning of 2017, one Bitcoin was worth less than $1,000 (£745). As the year comes to a close, the digital currency has topped $17,000 (£12,760) and is expected to keep climbing. Congratulations to anyone who mined Bitcoin or bought in when it was worth much less; and commiserations to everyone else who missed this trend (including us!).

But will Bitcoin continue its march into the mainstream? Right now, it looks unlikely. While plenty of fortunes are being made – and lost – on Bitcoin, it's still nowhere nearer to replacing cash. Indeed, the fluctuating value has made it nigh on impossible to use for actually purchasing anything; online games platform Steam has stopped accepting Bitcoin because it's simply too much trouble. So while Bitcoin may be filling bank accounts, it's not actually helping to build the decentralised currency system its designers and early supporters had hoped.

Short answer: It's impossible to predict what this volatile currency will do next, but expect plenty of drama!

2 Will net neutrality end?

Long answer: The US Federal Communications Commission has repealed laws protecting net neutrality – the idea that all types of data sent via the internet should be treated equally, with no artificial blocks, slower speeds or charges. Despite the FCC's repeal, change will be gradual and any moves by major US ISPs deemed to be detrimental to net neutrality will face protests and legal challenges. In other words, the fight continues.

Here in the UK, net neutrality is protected in our laws and in EU rules, which are likely to become law here, even after Brexit.
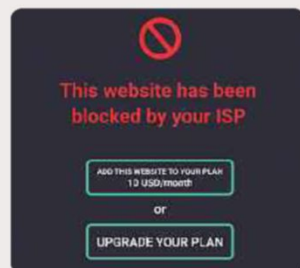
However, there are a few cracks where mobile operators and ISPs offer free or unmetered access to certain streaming services or apps to encourage their use. That's problematic when large corporations offer both broadband and content – which is true of Virgin, Sky and BT.

Short answer: The FCC repeal is bad news for net neutrality, but the war for the web isn't over yet.

3 Will the robot backlash begin?

Long answer: Robots and artificial intelligence may eat up as much as a third of British jobs, researchers predict, so it's no wonder the warnings are rife about protecting our livelihood against the looming impact of the robot revolution. That said, robots and AI offer benefits in convenience, cost-cutting and productivity boost. But will that be enough to prevent a backlash? Over the next year, expect to hear more alarm bells about the potential damage wreaked by the rise of automation.

For 2018, robots will probably continue to be tolerated as they make inroads into our work and lives, but the main retaliation is likely to focus on the worst cases. There are already reports that security-guard robots are being used to move along homeless people, while San Francisco has banned delivery robots from public pavements. This outrage should help keep tech giants and startups in check, and hopefully make them more thoughtful about how and when they choose to 'roboticise' human activity.

Short answer: The backlash has already begun, thanks to job fears and the worst excesses of Silicon Valley. Expect more of the same in 2018.
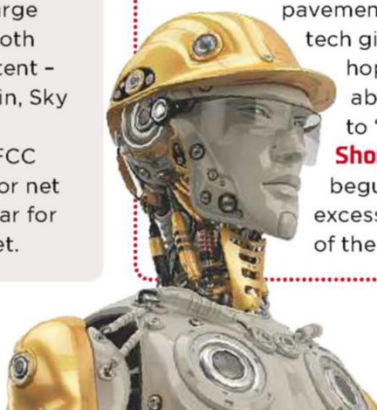
What we think of this fortnight's top tech news stories and rumours, and how they affect you

4 Will social media be cleaned up or closed down?

Long answer: It's not been a good year for social media's public image, with Facebook, Google and Twitter blamed for skewing elections, spreading fake news and propaganda, and leaving children unsafe – all while negatively impacting users' mental health. Representatives from these companies have been hauled in front of government investigators on both sides of the Atlantic, with headlines screaming that social-media sites should face legal crackdowns if they don't do more to clean up whatever issue the tabloids have latched onto that week.

This year saw the peak of anti-social media sentiment, and it could well continue to increase. The government has long threatened to take formal action against such sites if they don't clean up their behaviour, but usually stops short of new laws or fines after the sites promise to do better. Such reassurances won't be enough to avoid looming regulation forever, though, and 2018 may be the year social sites are finally forced to clean up their act.

There's another possibility: we could stop using social sites so much. Plenty of surveys and research suggest we're spending less time on social apps and sites, with younger people in particular opting out.

Short answer: Facebook and the rest will have to do more to keep politicians off their backs, but we think they'll survive.

5 Can Kodi survive another year?

Long answer: It's become a lot harder to use Kodi in the past 12 months, following a host of crackdowns against illegal streams – and don't expect the rights holders pushing such campaigns to let up any time soon. This year, the Intellectual Property Office published guidance saying Kodi boxes and related hardware are illegal if used to stream copyrighted material, with one trader handed a two-year suspended sentence for selling set-top boxes preloaded with Kodi and dodgy streams. Alongside that, a study sponsored by the Federation Against Copyright Theft (FACT) has suggested several models of Kodi boxes are a fire risk because of their power-supply units.

In short, rights holders and their attack dogs have tried plenty of different tactics to discourage the use of Kodi for piracy, and they're not about to give up now. That makes it tough for Kodi, which can of course be used to watch entirely legal content, but has a reputation for being used by pirates. If Kodi becomes less useful for people or difficult to use, many could well switch to more standard TV-streaming hardware.
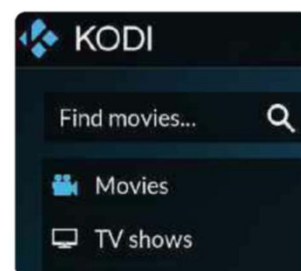
Short answer: Powerful rights holders are putting a lot of money into discouraging the use of Kodi for piracy, but the software itself is safe.

6 Will smart speakers fall out of fashion?

Long answer: Smart-home assistants such as Google Home and Amazon Echo have flooded our homes this year, getting us to 'ask Alexa' to set timers, tell us the weather, play our Spotify playlists and various other tasks. Will we find them useful enough to keep around, and tolerate their odd missteps and mistakes, or will the novelty wear off? Additionally, as we explain in our cover feature on page 40, the current range of smart speakers faces competition in 2018 from Apple's HomePod. Amazon, Google and the rest have done a great job of getting customers to buy into the concept, by offering the technology at cut-rate prices, but they may have to up their game or risk becoming another also-ran along with 3D TVs and smartwatches. However, considering how their capabilities are already improving and making life easier, we think this is one tech trend that will thrive.

Short answer: Not even Alexa knows the answer to this one, but we think they'll become increasingly popular.

7 Will tech giants be broken up by governments?

Long answer: Big tech may have grown too big for its boots. Is it time for regulators to step in and cut Google, Facebook, Amazon and the rest down to size, to stop them monopolising the web? Thanks to high-profile missteps, such as fake news and meddling with elections, US regulators have finally turned their attention to Silicon Valley, leading to calls for anti-competition action on companies that infiltrate every inch of our lives. That follows years of investigation by the EU's Margrethe Vestager, who this year slapped down Apple over tax arrangements that filtered profits through Ireland.

That's a long way from breaking up a tech giant, though some suggest Amazon could be the first target of such action, particularly after its acquisition of Whole Foods. Such companies could face *de facto* bans on further acquisitions, to prevent them from expanding their reach.

Short answer: Don't hold your breath on the break-up of Google, but regulators may start to block big acquisitions.

Officials want backdoors in *all* smart devices

What happened?

The UK government isn't the only authority that wants to break encryption. In fact, it's just one in a growing list of governments hell-bent on destabilising online security.

Revelations that surfaced at the beginning of December have shone a light on how, back in July, US intelligence officials told the Senate Intelligence Committee that there's no need for them to approach courts before requesting data from a tech company. If the company refuses, the investigators can obtain a Foreign Intelligence Court order instead.

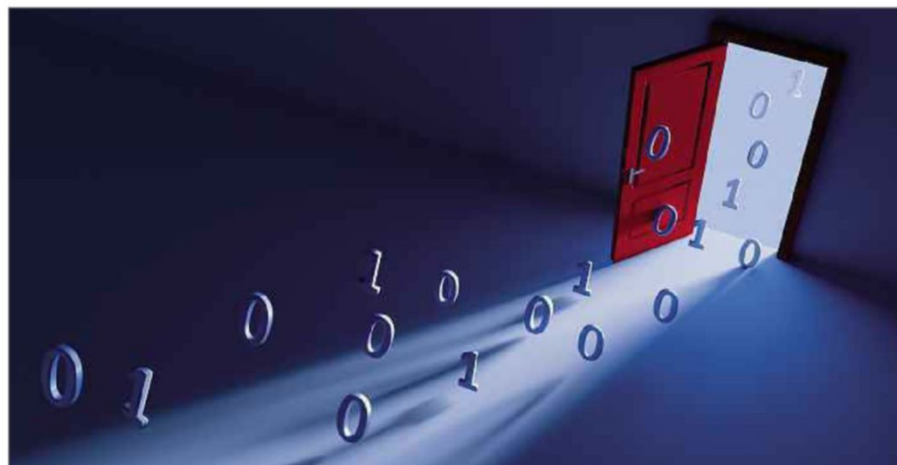Now, Germany's Interior Secretary, Thomas de Maizière, is going a step further in the anti-encryption crusade by pushing for 'backdoors' in devices other than smartphones. The RedaktionsNetzweirk Deutschland (RND) reports that de Maizère has written up a draft proposal titled: 'The legal duty for third parties to allow for secret surveillance', which is as sinister as it sounds.

According to the RND, the proposal will massively extend the powers for the German government to spy on its citizens. In the proposal, de Maizère highlights how modern locking systems on cars are now so clever that they're able to alert the car's owner if it's shaken even slightly. The new law will ensure that, if the police deem it justifiable, the alert will not be sent out at all.

This goes way beyond any proposals forcing tech companies to build backdoors into their apps and encrypted devices. As well as cars, de Maizère wants security services to be able to spy on any device that can connect to the internet.

How will it affect you?

If the proposed measures are adopted by Germany and copied over here, it means your phone, tablet, computer, smart speaker, TV and smart toys will all be affected and open to surveillance. Although the report states the security services will require court authorisation to spy through internet-connected devices, the eventual backdoors built into all such devices will weaken the current security that we take for granted.

What do we think?

Amber Rudd's infamous boast about her inability to understand how encryption works, claiming that real people aren't interested in encryption, reflects the stance that governments around the world are taking on encryption. We understand the need to catch terrorists and other criminals who hide behind encrypted technology, but this shouldn't give governments the right to invade everyone's privacy.

👁 ## FIRST LOOK

Asus NovaGo
bit.ly/novago439

The Asus NovaGo is one of a new breed of ARM-driven Windows 10 laptops that promise superior battery life to Intel-based machines and always-on 4G connectivity.

Asus claims that the NovaGo lasts for an amazing 22 hours per charge. Most equivalent Intel-based laptops last between five and 11 hours per charge, so that's a huge advantage. Along with its 4G connectivity (think of it as a big smartphone with a built-in keyboard), that makes the NovaGo a very tempting proposition – especially compared to the many very expensive Windows 10 laptops we've seen recently.

And yet, in its design and software, this is a Windows 10 laptop through and through. The NovaGo runs Windows 10 S, which can be upgraded to Windows 10 Pro (as long as you do so by 30 September 2018), and certain popular applications, including Office, have been given a performance boost. However, it's worth noting that 64-bit Windows software won't currently run at all on ARM-based Windows laptops, so you'll have to install the 32-bit versions instead.

The Asus NovaGo is a well-made machine and its 360-degree hinge, touchscreen, keyboard and touchpad all work exactly as you'd expect them to. There's also a stylus and full support for Windows Ink, and you get a useful selection of ports and sockets.

However, the real deal-sealer is its price. The Asus NovaGo is available in two configurations: one with 4GB of RAM and 4GB of storage priced at $599 (£447); and one with 8GB of RAM and 256GB of storage costing $799 (£597).

If those prices translate directly to pounds sterling, the Asus NovaGo will definitely give its Intel-based rivals a serious run for their money. A Windows 10 laptop with 22-hour battery life and 30-day standby for under £600. Now *that's* a machine worth considering!

WHAT'S THE RUMOUR

Will the PlayStation 5 be like the Nintendo Switch?

The launch of the PlayStation 5 is still some way off, and most likely won't happen until 2020, but that hasn't stopped people speculating about Sony's next games console. Interestingly, it looks as if the Nintendo Switch could have an influence on how the PS5 turns out.

Speaking to the English version of Japan's *Nikkei* newspaper (bit.ly/nikkei439), Sony's head of corporate planning, Kazuhiko Takeda, revealed that the company "can't ignore the Nintendo Switch" because it has "captured consumers' attention". This doesn't mean Sony is suddenly going to return to manufacturing portables after the failure of the PSP and PS Vita, but it does show that it's paying attention to people's desire for high-quality, flexible gaming.

Takeda also explained that Sony's plan for future growth revolves around the idea of getting "more customers paying continuously for content" using "paid subscription services" such as PlayStation Plus and PlayStation Now.

Given the far-off release date, rumours circulating around the PS5's specifications aren't particularly reliable. We can, however, make some educated guesses. As the successor to the PS4 Pro, we can safely assert that Sony will need to roll out some impressive new technology to shift its new console.

For one thing, the PS5 will definitely need to up its power, so we predict it'll shed its AMD-based processor and start using Nvidia's technology – something the Nintendo Switch carried off with aplomb. The only thing that makes us waver on this front is that it would invalidate compatibility with PS4 and PS4 Pro games.

LIKELIHOOD RATING
✓✓✓ ✓ ✓

The Nintendo Switch has been widely acclaimed, so we wouldn't be surprised if the next PlayStation apes some of its features while introducing innovations of its own. As a bonus, we expect the PS5 to offer more games on launch than the Switch.

GO What's new on Indiegogo
Our favourite new project on the crowdfunding site

Vixari
bit.ly/vixari439 | **From £57**

Camera tripods are heavy to lug around and selfie sticks are annoying, so how best to take photos of yourself while travelling? Invest in a Vixari, that's how. It's "the most portable tripod ever", equipped with a Bluetooth remote shutter and extendable legs that pull out of its compact body. Compatible with DSLR cameras and smartphones, it lets you capture steady self portraits from up to 30m. It works in landscape or portrait mode, and has a tilt head to shoot from angles. The Vixari team has already raised more than £190,000.

WEBOMETER

WE LIKE...

⬆ **Broadband sent over wet string**
Engineers at a small British internet provider created a working broadband connection over a two-metre piece of wet string, which had first been immersed in salty water. The soggy string reached a speed of 3.5Mbps.

⬆ **Lollipop gets Google Assistant**
Millions more Android devices will now be able to use Google Assistant after the voice-activated feature was extended to version 5 of the mobile OS, Lollipop. Previously it could only be used on Marshmallow and higher.

WE DON'T LIKE...

⬇ **Starbucks customers mined for coins**
Starbucks has admitted that customers were used to mine cryptocurrency without their knowledge. Victims' computers were hijacked via an infected Wi-Fi hotspot in one of the coffee chain's Buenos Aires branches.

⬇ **Keylogger found in HP laptops**
More than 450 HP laptop models were found to have a keylogger hidden in a driver, forcing HP to issue patches for the affected devices. The keylogger was disabled by default, but hackers could potentially enable it.

Stay Safe Online

News about the latest threats and advice from security experts

SECURITY ALERT! | What's been bothering us this fortnight

Keyboard app leaks details of 31 million users

The popular keyboard app AI.type (aitype .com) has suffered a mammoth data breach because it didn't store its users' information on a secure server. The app, which has more than 31 million users, kept over 577GB of sensitive data on a server owned by the company's co-founder, including names, email addresses and details of how long the app had been installed. The leaked info also contained details of users' precise locations, including cities and countries

Only Android versions of the app were affected by the breach, and users of the free version had more of their data collected than those who paid for AI.type. Alarmingly, some of the records contained users' phone numbers and the names of their mobile networks. Some also listed IP addresses and details of the Wi-Fi networks accessed while using AI.type.

The data breach was discovered by security researchers at Kromtech Security Centre. AI.type has since addressed the security lapse but hasn't yet issued a statement about the breach beyond acknowledging that it happened. **bit.ly/keyboard439**

Andromeda botnet shut down — but threat remains

A massive botnet responsible for spreading malware using two million infected devices has finally been taken down by a joint taskforce of police agencies and private companies. The Andromeda botnet is one of the largest ever discovered, and has been associated with 80 different malware families. In the past six months alone, it was detected or blocked on around one million devices every month.
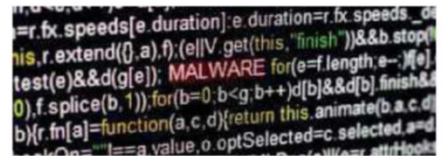
The botnet was stopped by a joint taskforce including agents from the FBI, Europol's European Cybercrime Centre, the Joint Cybercrime Action Taskforce and several private organisations, including Microsoft.

Although the closure of the botnet is a significant victory for law-enforcement agencies and those working to curb the effects of the highly lucrative malware industry, the threat hasn't been removed entirely. It's thought that as many as 55% of devices originally infected are still infected, and the residual effects of the Andromeda botnet are likely to be felt for some years to come. **bit.ly/andromeda439**

Security Helpdesk | Your questions answered by security specialists

THIS ISSUE'S EXPERT: Sean Sullivan, Security Advisor at F-Secure (www.f-secure.com)

Q **Are smart devices as dangerous as recent reports suggest?**
Caitlin O'Connor, Facebook

A The Internet of Things has brought web-connected TVs, toasters and other gadgets into people's homes. Sadly, most of these devices aren't very secure. In fact, Hypponen's Law (bit.ly/hypp439) states that if a device is smart, it can be exploited, so the popularity of these gadgets is bad news for security.

Early adopters will soon start to realise that their devices aren't so smart after all – not as a result of cyber-attacks but because of a lack of service from vendors. Internet-enabled appliances need ongoing support and this service element is new for many of us. I predict that these services will experience growing pains in 2018 that will burden both consumers and manufacturers.

Retailers will want to phase out support for products that are only a couple of years old, so early adopters will experience bugs and service outages. They're also likely to respond to complaints by telling customers to upgrade or live with limited functionality, which will leave people feeling ripped off.

Q **Will we see more security tools like Apple's Face ID?**
Josh Allen, Twitter

A Biometric technology such as Face ID has been available for some time, but it hasn't been marketed in a way that's made it seem user-friendly. However, Apple is good at getting people to use new technologies so the introduction of Face ID on the iPhone X may change that.

It'll start with better Smart Lock features for Android (Smart Lock isn't really designed for security yet), but will spread to other applications. The increase in investment will then prompt active marketing from manufacturers, service providers and other companies.

Email us your security questions at **webuser@dennis.co.uk**
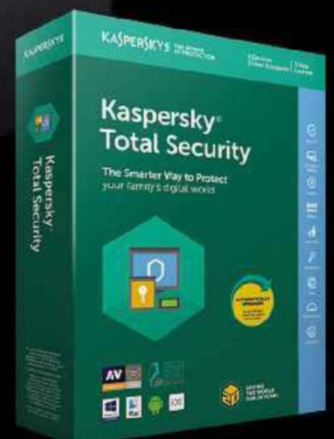
Best New Websites

HOUSEHOLD `RELAUNCH`

Film and Furniture
filmandfurniture.com

If you've ever spotted an interesting item of furniture while watching a film and thought you'd love to have it in your own home, this site will help you out. Search for a film, director or object, and you'll see a list of items and the movies they appear in. You can then read about the furniture's background and, if you decide you want it, click the link to the online store that sells it. The site's articles are in-depth and very well informed and include information on why a certain style of décor or piece of furniture was chosen for that particular film set. The site also suggests movies to watch for inspiration. A Hollywood home beckons.

Our rating	★★★★★

FUN ARTICLES
Enjoy top-five lists, news, competitions, guest articles, merchandise picks and more

STORE
Hover over the pictures of furniture to see where pieces appear in a movie or show

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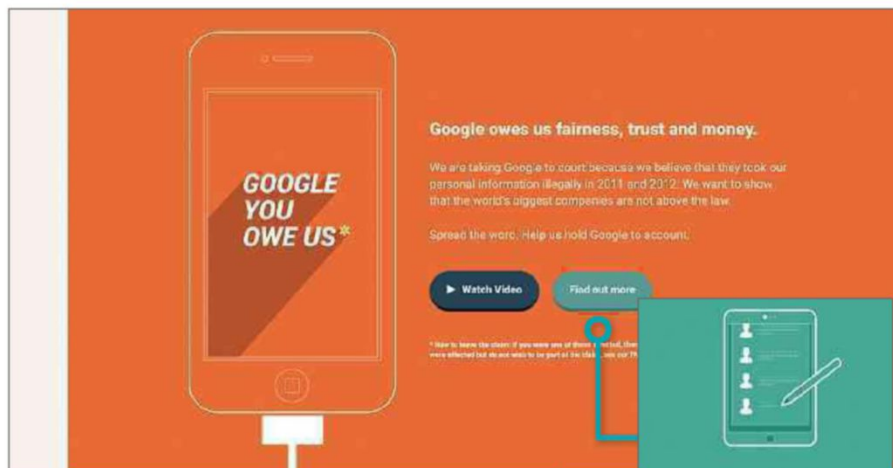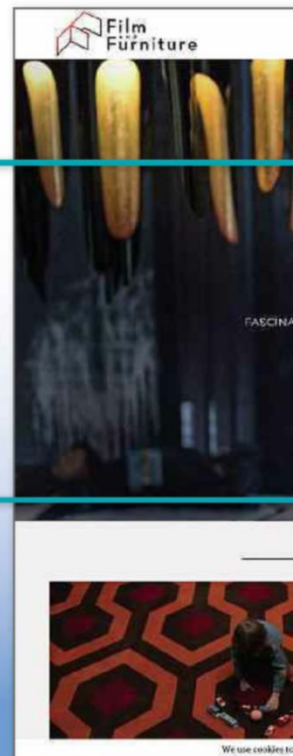
INTERNET

Google You Owe Us
www.youoweus.co.uk

Determined to prove that Google unlawfully collected personal data from as many as 5.4 million iPhone users between June 2011 and February 2012, this new campaign group has turned to the web to spread the word. Its website explains the situation and the group's aims using a combination of video and text, and the content includes a comprehensive FAQ. While you're reading, you can decide whether or not to join the campaign, and discover how to protect your data. There's also information about consumer-rights champion Richard Lloyd, who is representing everyone in the claim. If you used an iPhone between those dates, it's well worth a look.

`NEW`

Our rating	★★★★☆

FINANCE `RELAUNCH`

Bank of England
beta.bankofengland.co.uk

Aware that its website looked as worn as an old £5 note, the Bank of England has been working hard to redesign and edit every page. The result is a fresh-looking site that delivers the latest news, serves information about monetary policy and gives a general overview of the economy. We like the inflation calculator, which lets you discover how prices have changed over time and the details of current and future notes. There's also a lot of information about the Bank of England Museum, events, speeches and the history of the organisation, as well as a speedy search engine.

Our rating	★★★★★

Reviews by David Crookes

We review this fortnight's best new and relaunched websites and rate them for content, design and features
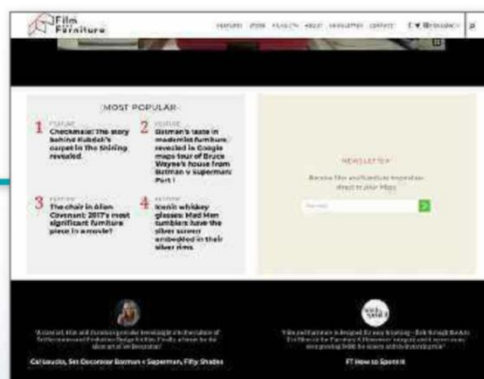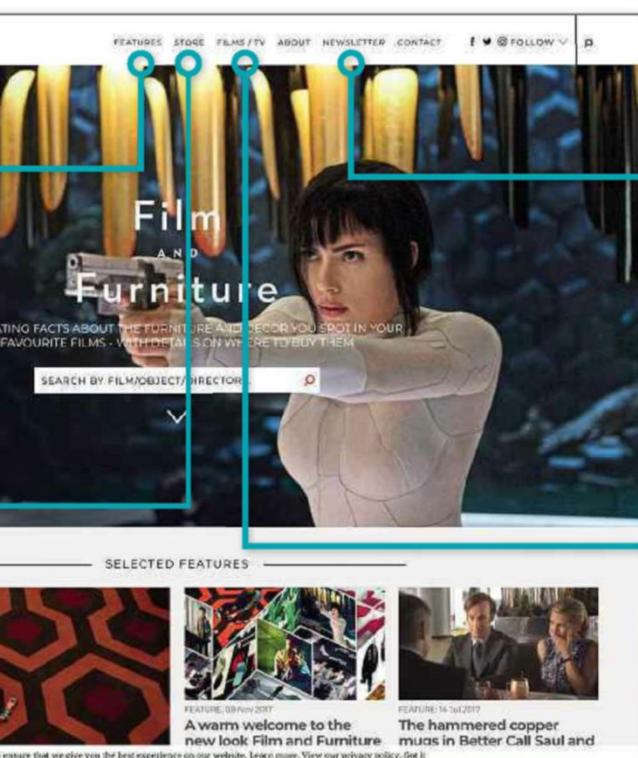
NEWSLETTER
Sign up to keep abreast of the latest furniture appearences in movies

FEATURED MOVIES
The site features many films and TV programmes to inspire your furniture choices

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SECURITY

Cyber Essentials

www.cyberessentials.ncsc.gov.uk

The aim of this government-backed scheme is to help organisations protect themselves against online attacks. It offers useful advice about securing your internet connection, avoiding viruses and keeping devices up to date, providing plenty of information without being overwhelming. Companies can apply for certification to reassure customers that they're taking security seriously. Colourful graphics, a clear layout and simple navigation make the site easy to use, and a search feature helps you find organisations that have been awarded a certificate in the past year.

Our rating ★★★★☆

RELAUNCH

THEATRE

National Theatre of Scotland

www.nationaltheatrescotland.com

The National Theatre of Scotland's revamped site sets the stage for a bright future. The curtain has gone down on the cramped old layout, and the spotlight is now on a bright, uncluttered design that makes browsing for events, productions, news and offers all more appealing. The 'what's on' search tool is more prominent in the streamlined navigation bar, and the site feels more accessible and personable. The theatre hasn't forgotten its past in all this modernisation, either, because you can also pore through an archive of previous productions.

Our rating ★★★★☆

RELAUNCH

TRAVEL

Enjoy Staffordshire

www.enjoystaffordshire.com

There's more to Staffordshire than countryside, theme parks and old halls, so if you fancy finding out what else is on offer, pay a visit to this new site. Packed with details of things to do, eat and drink in the county, it helpfully lists events and accommodation alongside special offers and visitor information. It also provides inspiring ideas and highlights, as well as a blog and contributions from Instagram, Twitter and Facebook. The site does a good job of promoting Staffordshire, with bold images and clear headlines throughout. Foreign visitors can even read it in French, German and Spanish.

Our rating ★★★★☆

NEW

✚ Tell us about your website via webuser@dennis.co.uk

Christmas Wrapped Up

Give your loved ones a magazine gift subscription
to any of our technology titles, from just £19.99

SAVE UP TO 29%

From £19.99

SAVE UP TO 22%

From £23.99

SAVE UP TO 32%

From £24.99

SAVE UP TO 30%

From £19.99

SAVE UP TO 39%

From £22.49

SAVE UP TO 27%

From £21.99

RELAUNCH

TECHNOLOGY
Windows Insider
insider.windows.com

The website for Microsoft's Windows 10 open software-testing programme has received an attractive overhaul, with better content that's updated more frequently. You can read stories about the Insider community, keep up with news of global contests and find articles on forthcoming updates and glimpses behind the scenes. Details of how to join the programme and help shape Windows' future are easy to find, and there are how-tos to help you if you run into problems. Joining is a great way to try features before they're released, but simply keeping an eye on the site helps you keep abreast of new developments.

Our rating ★★★★☆

RELAUNCH

HOUSEHOLD
Just Mirrors
www.justmirrors.co.uk

Just Mirrors has taken a long, hard look at itself and the result is a stylish online store that claims to offer more than just off-the-peg items. Yet although we were able to peruse a wide range of mirrors by room and type – with more options than we ever knew existed – we couldn't find the online customisation tool. This is supposed to let you create bespoke products, but clicking Create Mirror simply took us to a page that invited us to phone the company instead. Still, there are plenty of items on offer, with everything from samples and sale items to accessories and trade supplies. It even shows you how to measure a mirror.

Our rating ★★★☆☆
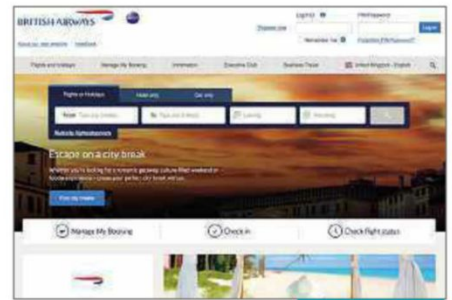
RELAUNCH

TRAVEL
British Airways
www.britishairways.com

Having finally lifted itself out of beta, British Airways' new site is now available to all passengers, and while it's by no means groundbreaking, it's certainly an improvement. The first thing you'll notice is the neat search bar and responsive design, which make finding and booking flights easier both on desktop PCs and mobile devices. Travellers can also see a summary of their forthcoming flights on the homepage by logging into their BA account, rather than having to go to the Executive Club account section. We particularly like the holiday offers and suggestions, as well as the prominent check-in and flight-status options.

Our rating ★★★★☆

RELAUNCH

ENVIRONMENT
Keep Britain Tidy
www.keepbritaintidy.org

Volunteers picked up more than 1,500 tonnes of litter from parks, streets and benches in 2016. That's a pretty rubbish situation, but this relaunched site is renewing the battle to clean up the country. It contains lots of information about getting involved, both as a volunteer and by making donations, with regularly updated news stories. You can also read about the battle to cut litter and reduce waste. Frustratingly, we found the site a little cluttered at times, with rather clumsy drop-down menus that take up too much space. Still, it's for a good cause and there's a lot of content to get stuck into. Sign up for the newsletter to ensure you don't miss a thing.

Our rating ★★★★☆

RELAUNCH

FOOTBALL
Salford City FC
salfordcityfc.co.uk

Salford City FC – the non-league football club co-owned by five former Manchester United players – has had quite a lot of publicity over the past few seasons, not least from two BBC documentaries. Now it has pitched up with a smart new website that beats many of those run by higher-placed clubs. You can watch videos and highlights, see match information, read about the players, have a nose around the stadium, learn about the history of the club and buy tickets. It's all very impressive, if marred only slightly by the (perhaps understandable) lack of a fans' forum or comment facilities.

Our rating ★★★★☆

➕ Tell us about your website via webuser@dennis.co.uk

Build a Better Site

Specialist tips, top tools and practical help

Top Tips of the Fortnight

Try a new typeface

IBM has designed a new typeface that anyone can use for free. It's an update to Helvetica, the famous sans-serif typeface designed in the late 1950s for its clarity. The result is a modern-looking typeface that's clear, easy to read and looks great at all sizes. If you'd like to use it on your own website, download and unzip the EOT files from bit.ly/plex439, then upload the fonts you need to your site and link to them in your CSS file. For help with this, see Webdesigner Depot's tutorial at bit.ly/wdd439.

Save space with SVG

Digital image files are either made up of lots of pixels (often called bitmaps, such as JPEG and PNG files) or instructions on how to construct the image (as in vector images, such as SVG files). The benefit of an SVG is that you can use it at any size without it looking pixelated or losing quality. SVG files can be smaller than bitmaps, too, particularly if the image is made up of simple colours and regular lines, such as in a logo. Try converting your site's logo to an SVG at Vectorizer (www.vectorizer.io). You may need to tweak the settings to reduce its size and get it looking right.

Deal of the Fortnight

PlanetHippo (www.planethippo.co.uk) has relaunched its One account, which offers 1GB of space, a database, an email address and unlimited traffic for £1.20 per month.

Web-building Helpdesk

THIS ISSUE'S EXPERT: Stephan Wagner, Marketing Project Manager, OVH (www.ovh.com)

Q How big should my images be? What's the best way to make them the optimal size?

Karl Fielding, via email

A Keep your files as small as possible for the fastest page-loading times. An image's dimensions should also fit the page layout. If it's set to display at 200 x 200 pixels, your file should be no larger than that. The file format also has an impact. GIFs are good for images with few colours and simple transparency. PNGs offer graduated transparency (such as shadows), while compressed JPEGs are a good choice for colourful photos. Compression reduces both the file size and image quality, so aim for a balance. Free tools such as IrfanView (www.irfanview.com) can help you choose the best format and adjust your images.

MINI WORKSHOP | Draft, preview and schedule changes to your WordPress site design
WordPress: wordpress.org | 🕐 10 mins | Any browser

WordPress 4.9 brought in a new tool that lets you draft, preview and even schedule design changes before you publish them, so now you don't have to experiment with changes on your live site. Here's how to use it
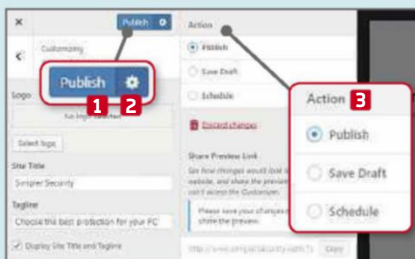
1 To customise your WordPress template, go to Appearance, then click Customize. Once you've made a change, you can click the Publish button **1** to publish it immediately. Alternatively, if you aren't yet ready to publish your changes, you can click the newly added cog button **2** to open the Action menu. **3**
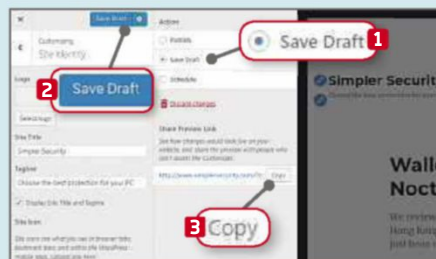
2 To save your changes without publishing them, select the Save Draft option. **1** The Publish button changes to Save Draft. **2** Click it to save your changes as a preview. You can share this with others by clicking the Copy button, **3** which saves a link to the clipboard. Paste this into a browser to preview the changes.
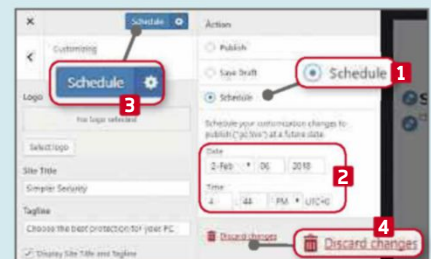
3 When you're happy with the results, you can publish immediately or schedule the changes for later – perhaps to tie in with a site relaunch. Click the Schedule option, **1** change the date and time, **2** then click the Schedule button. **3** If you change your mind, click the 'Discard changes' link. **4**

✚ Email us your website building questions at webuser@dennis.co.uk

Pick of the fortnight

NETFLIX

Watch *Black Mirror* Season 4
From 29 December

Charlie Brooker's twisted *Twilight Zone*-style anthology series began life on Channel 4, but switched to Netflix for Season 3, which is when it really found its groove. The thought-provoking satirical series presents a nightmare vision of modern society and new technologies. If you think the world is going to hell right now, thank your lucky stars you don't live in the realms portrayed in *Black Mirror*.

Season 4 consists of six standalone episodes. One deals with a future in which memories are no longer private; another reinvents the dating app, so it doesn't only pair you up with someone, it also decides when the relationship expires. There's an episode set in a museum of evil artefacts, another (pictured, left) that's clearly inspired by *Star Trek*, one episode that's shot entirely in black and white, and another directed by none other than Jodie Foster.

You can watch whichever episodes appeal to you, or binge-watch the whole lot, which is what we'll definitely be doing. There are short teaser trailers for all the episodes available to view on Netflix's YouTube channel (bit.ly/netflix439) but if you just want a taster, try the two-minute-long official Season 4 trailer at bit.ly/blackmirror439.

Watch *Bill Nye Saves the World* Season 2
From 29 December

Bill Nye is a science guy, and while *Black Mirror* – released on the same day – may fill you with dread about the dystopian future of our society, don't despair because Bill's here to save the world. Again. In the new season, the ever-upbeat scientist tackles all manner of topics from marijuana to time travel, and this time around there are more celebrity guests, as well as other scientists Bill's connected with via Twitter. It's great family viewing, with panel discussions and lab experiments to keep everyone entertained.

A suitably madcap Season 2 trailer is available to watch at bit.ly/billnye439.

Watch *Dirk Gently's Holistic Detective Agency* Season 2
From 5 January

The Hitchhiker's Guide to the Galaxy is Douglas Adams' best known creation, but the late lamented author also penned a couple of much-loved books featuring 'holistic detective' Dirk Gently. These have been turned into a TV show twice, the first featuring Stephen Mangan and Darren Boyd. This new incarnation, from BBC America via Netflix, stars Samuel Barnett and *The Lord of the Rings* actor Elijah Wood. The first season consisted of eight episodes, and the new season has 10 – in that respect alone, the show deviates from the books quite considerably. But if you haven't read them, or you're happy to watch Adams' characters solving supernatural mysteries in a sharp, funny and well-acted show, it's definitely worth checking out.

You can watch the Season 2 trailer at bit.ly/dirk439.

Watch *Star Trek Discovery* Chapter 2
From 8 January

The latest *Star Trek* TV show, *Discovery*, has been a big hit. The programme – which is set roughly a decade before

We reveal what's new on Netflix, BBC iPlayer,
Amazon Prime Video and other streaming services

the original *Star Trek* series – has already been commissioned for a second season, due to air later in 2018. Season 1 consists of 15 episodes – so far, nine have been shown and, following a brief hiatus, the second half is finally here. If you haven't watched it yet, and you're a fan of quality sci-fi, then now's the time to start catching up. Watch the trailer for *Star Trek Discovery* at bit.ly/discovery439.

▶ Watch 360° highlights and instant replays on BT Sport

BT is now making 360° highlights and instant replays from a range of major sporting events available to view on its BT Sport app. The 360° highlights will be offered for a minimum of 20 sporting events running up to June 2018, covering the likes of the UEFA Champions League, Premier League football, the FA Cup, and World Title

boxing.

You can select different camera angles and viewpoints not normally seen in broadcasts – perfect if you want to check out a penalty claim for yourself, or watch that TKO from all around the boxing ring. The 360° video can be enjoyed with or without a VR headset.

▶ *Blue Planet II* arrives in 4K HDR on iPlayer

The BBC's nature programmes are stunning in HD, but mind-blowingly incredible in 4K HDR (High Dynamic Range), as anyone who was able to view the 4K *Planet Earth II* trial last year will testify. Now the Beeb is making its latest documentary series, the marine-themed *Blue Planet II*, available in 4K resolution and HDR colour via iPlayer.
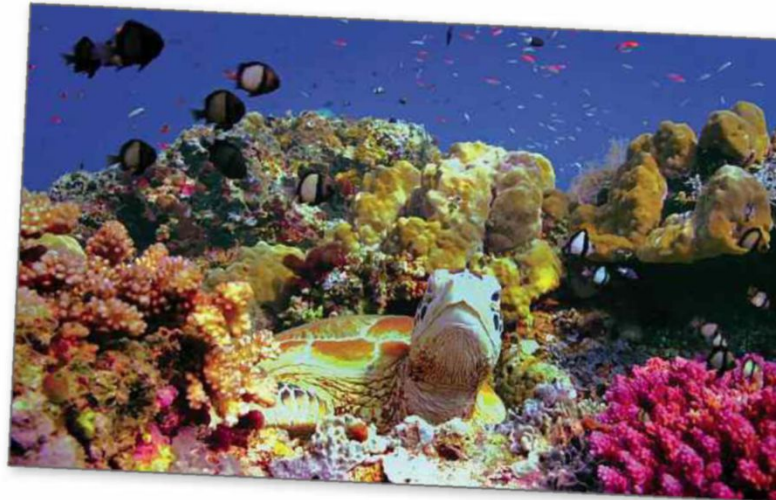
Provided you have a compatible 4K TV, you'll be able to enjoy all seven episodes of the show in the sharper, more vivid format. It's expected other shows will get a similar treatment in the future, but the BBC remains tight-lipped on its plans for now.

amazon Amazon Prime Video arrives on Apple TV

It's been a long wait for Apple TV owners but Amazon's Prime Video service has finally arrived. Timed to coincide with new seasons of *The Grand Tour* (which started on 8 December) and *The Marvelous Mrs Maisel*, Prime Video is available on Apple TV in more than 100 countries, including the UK, and is also integrated into the Apple TV app, enabling viewers to easily find and discover Amazon shows and movies on iPhone, iPad and Apple TV, as well as via the Siri Remote and universal search.

Streaming feuds: Google vs amazon

Amazon has a reputation for instigating fallouts with rival technology companies. There was, for a couple of years, some bad blood between the retail giant and Apple, after the former stopped selling Apple TV on its site (it claimed it didn't want to confuse prospective buyers of its Fire TV products). The latest spat is between Google and Amazon. Google is upset because Amazon doesn't directly sell its Chromecast, Google Home or Nest products, and Prime Video isn't available for Google Cast users. In response to this "lack of reciprocity" (sparked by the recent dropping of Nest hardware), Google has stated it will pull YouTube from Amazon's Echo Show device and the Fire TV. If the situation isn't resolved, the YouTube app is set to vanish from Amazon's set-top box on 1 January. The retail giant is hopeful it can resolve the issue amicably before that happens but if not, you'll still be able to access YouTube – you'll just have to do so via the internet on your devices, rather than through the official YouTube app.

Product Test

We test and compare the latest products

OnePlus 5T

Jonathan Bray reviews a top-of-the-range smartphone that costs less than £500

It's only been a few months since the OnePlus 5 was launched (see Issue 427, bit.ly/webuser427) but OnePlus has already moved on to its successor, the 5T. Thankfully, the Android phone manufacturer has managed to take everything that was good about the OnePlus 5 and make it even better. What's more, it's done so without raising the price.

Screen and design

The most noticeable change is the display, which at 6in is half an inch bigger than its predecessor. Its 18:9 aspect ratio fills the chassis from edge to edge, so there's barely any bezel at the sides and only 5mm at the top and bottom. Despite this 20% increase in screen size, the handset itself is only barely larger than the 5; there's just a millimetre or so extra in width and height.

As with the previous model, the 5T has an AMOLED screen that delivers perfect contrast and punchy colours, with customisation options to suit your preferences. However, it isn't particularly bright and only managed a maximum of 420cd/m² (candles per square metre) at maximum brightness in our tests. This is no match for the best Samsung phones, with the Note 8 and Galaxy S8 peaking at above 900cd/m² in auto-brightness mode.

The design of the 5T's chassis is very similar to the OnePlus 5 and it's difficult to spot the difference unless you compare them side by side. The corners and rear panel are similarly curved, they are of identical thickness and, although the 5T is heavier, 162g is still impressively light for a phone with a 6in screen.

Likewise, the buttons are in the same place, including OnePlus' handy three-position do-not-disturb switch. The big, frame-filling display of the 5T means you lose the capacitive keys from the bezel below the screen, but there is some compensation for that in the form of an auto-hideable soft-key button bar, which you can pin in place if you wish.

Even the camera housing

> **OnePlus has taken everything good about the 5 and made it even better. And it's done so without raising the price**

remains where it was, as do the USB Type-C port on the bottom edge and the 3.5mm headphone jack (yes, the OnePlus 5T still has a headphone jack!).

What the 5T doesn't have is a microSD slot and a dust- and water-resistance rating. Almost all the 5T's rivals now provide these features as standard, so it's about time OnePlus got up to speed.

Performance, battery and camera

The top-spec internal components of the 5T mean that its performance matches that of any phone you can currently buy. There's a 2.45GHz octa-core Qualcomm Snapdragon 835 chip with either 6GB or 8GB of memory and 64GB or 128GB of storage, depending on the model you choose.

In our tests, the 5T delivered very similar performance to other Snapdragon 835 handsets. The only phones that benchmark faster are the Apple iPhone 8, 8 Plus and iPhone X.

The 5T's 3,300mAh battery is the same capacity as before and lasts ages. In our video-rundown test, the phone took

20hrs 52mins to go from 100% to 0% on the battery gauge – around the same time as the OnePlus 5, which lasted 20hrs 40mins in the same test. That means you should be able to get two days of moderate use without needing a charger.

Where the OnePlus 5T lags behind the cutting edge is that it doesn't have the latest, fastest 4G connectivity, although you may not miss this since there are still many areas in the UK that have yet to upgrade their networks to the new speed. It also lacks the latest top-speed Wi-Fi hardware – in this regard, the Sony Xperia XZ Premium is better equipped.

Another big change with the 5T is its dual-camera setup. Where the 5 went for wide-angle and telephoto options, the 5T's cameras have identical focal lengths and fields of view. Instead of zooming, the secondary camera concentrates on delivering superior low-light shots. In our tests, this worked brilliantly, producing photos that were richer in colour, if not sharper, than the Huawei Mate 10, and not far off the standard set by the Pixel 2 XL, which we consider to have the best phone camera to date.

The same holds true of the phone's video capabilities. As with the 5, the 5T produces remarkably stable video, but it can't quite match the detail captured by the Pixel 2 XL or the latest Samsung phones.

Interface

OnePlus has made some welcome improvements to its OxygenOS Android launcher.

> " Despite the 20% bigger screen, the 5T is barely larger than the 5 — just a millimetre or so extra in width and height "

The camera app has had a minor revamp that sees the various modes neatly secreted into a small pop-up drawer just next to the shutter button. The idea is to make the camera app easier to use one-handed.

There's also a new Parallel Apps feature, which lets you open more than one instance of certain apps, so you can be logged into two or more accounts simultaneously. The list of supported apps includes Twitter, Instagram, Facebook, Tinder, Snapchat, Pinterest, LinkedIn and Skype, with more than 20 available so far.

You can now unlock the phone with your face, too. This seems like a bit of a 'me-too' feature and isn't backed up with special hardware in the manner of Apple's face recognition but, nevertheless, it actually works very well. It unlocks the phone almost as soon as you glance at the camera, and whisks you straight to the homescreen or the last app you were using, with no extra gestures required.

The only odd thing here is that OnePlus hasn't chosen to launch the 5T with the latest Android OS, Oreo. However, it runs Nougat well and we don't think you'll have to wait long for an upgrade, because both the OnePlus 3 and 3T have recently received Oreo and the 5 is currently in beta testing.

PRODUCT INFO

OnePlus 5T
Price: From £449
Buy from OnePlus:
bit.ly/one439

SPECIFICATIONS

- Octa-core 2.45GHz Qualcomm Snapdragon 835 processor
- 6GB or 8GB of RAM
- 6.01in 1,080 x 2,160 pixels ALMOLED screen
- 64GB or 128GB of storage
- 802.11ac Wi-Fi
- Bluetooth
- NFC
- 3,300mAh battery
- Android 7.1.1 Nougat
- 156 x 75 x 7.3mm
- 162g

FOR

✓ Large 18:9 screen
✓ Same overall size as OnePlus 5
✓ Reasonable price

AGAINST

✗ No microSD expansion
✗ Not waterproof

EVEN FASTER

iPhone 8, £699
bit.ly/iph439

FASTER CONNECTIONS

Sony Xperia XZ Premium, £515.75
bit.ly/son439

OUR VERDICT

★★★★★

The OnePlus 5T is an easy product to recommend. It's a marked improvement on the model it replaces, with a bigger screen and a better camera that takes excellent shots in low light, while retaining the 5's great responsiveness and battery life. Miraculously, it's managed all this while keeping the price of the 64GB model down to £449.

If you want waterproofing and a microSD slot to expand the storage, then the slightly smaller Samsung Galaxy S8 is a better buy at around £500. However, it's hard to outdo the OnePlus 5T's value for money and we think it's the best mid-range phone that money can buy.

FEATURES	★★★★☆
PERFORMANCE	★★★★★
EASE OF USE	★★★★★
VALUE FOR MONEY	★★★★★

Linx 12X64

Christopher Minasians tests a Surface Pro wannabe that costs a fraction of the price

If you're struggling to decide between a laptop or a tablet (and can't afford to buy both), there are plenty of two-in-one devices that offer the best of both worlds. However, the models that attract the most attention are expensive, such as the Microsoft Surface Pro 4, which costs over £400 more than this Linx. That's why the 12X64's laptop and tablet combo is such a breath of fresh air – a 12.5in Full HD multi-touch display with detachable keyboard, all for just £199.

Build and design

The main body of the laptop is disappointingly plasticky,

but we like the aluminium kickstand, which can be adjusted to any angle so you can prop it up on a desk, sit it on your lap or fold it completely flat.

The keyboard connects to the tablet with a magnetic strip and is comfortable to type on. There's a slight flex in the base when it's tilted, but with the keyboard placed flat on a solid surface, it doesn't budge. The trackpad is also a joy to use.

The Linx 12X64 has only one USB 3 port alongside the 3.5mm headphone socket, HDMI output, microSD card reader and micro-USB charging port, but its two sideways-firing speakers are better quality than we've seen on similar devices, and it's well connected wirelessly with dual-band Wi-Fi 802.11ac and Bluetooth 4.0.

Screen, performance and battery

The Linx 12X64 doesn't have the best 1,920 x 1,080 pixels resolution display that we've seen but we are impressed that it's Full HD. With a respectable contrast ratio of 1,148:1, the screen achieves an impressively rich black level of $0.25cd/m^2$ (candles per square metre) at maximum brightness. It's a little on the dark side, though, with a peak measured brightness of $290cd/m^2$.

This might be a problem if you intend to use the laptop outside in bright daylight but most of the time it's perfectly fine. However, its colours lack potency, only covering 63.2% of the sRGB colour standard.

With only a low-powered 1.44GHz quad-core Intel Atom

> 66 A 12.5in Full HD multi-touch display with detachable keyboard, all for just £199 99

x5-Z8350 processor and just 4GB of memory, the Linx 12X64's performance isn't particularly impressive but it's adequate for browsing the web and carrying out light multitasking and office work. Don't have too many Chrome tabs open, though, or it will start to struggle.

This was reflected in our

benchmark testing. In Geekbench 4, we recorded scores of 705 and 2,037 in its single- and multi-core benchmarks, which showed it to be one of the slowest devices we've reviewed in recent times. The battery underwhelmed us, too, lasting only 7hrs 10mins in our battery-rundown test.

OUR VERDICT ★★★★☆

We never expected the Linx 12X64 to be a high-performance machine and so it proved, but at only £199 for a 2-in-1 Windows 10 laptop with a Full HD display and a bundled detachable keyboard, it's still an excellent low-cost option.

If you're on a strict budget and you're after a portable, multi-purpose Windows 10 PC for under

FEATURES	★★★☆☆
PERFORMANCE	★★★☆☆
EASE OF USE	★★★★★
VALUE FOR MONEY	★★★★★

£200, get the Linx 12X64. If you can afford a little more, though, the Asus Transformer Mini (£319, bit.ly/asus439) is a superior choice with a longer battery life and a more attractive design.

BEND YOUR REALITY

AG**352**UCG   AG**352**QCX

QHD | NVIDIA G-SYNC | 200Hz | Adaptive Sync | 35"

AOC GAMING

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SCAN   OVERCLOCKERS UK   amazon.co.uk

Web User's Best Buys

Web User and its sister titles test over 2,500 products every year

HARDWARE

KEYBOARD

BakkerElkhuizen UltraBoard 940

£79 from bit.ly/bakk438
Tested: Issue 438

The Ultraboard 940 is designed for all your computing needs – desktop, laptop and mobile. It's very comfortable and has a much better build quality than most portable keyboards.

KEY SPECS
Compact form ■ Scissor-switch technology ■ Multimedia function keys ■ 2 x USB 2 ports ■ Wireless ■ Height adjustment ■ Windows, MacOS, Android, iOS ■ 285 x 147 x 19mm ■ Two-years return-to-base warranty

VOICE ASSISTANT

Amazon Echo

£89.99 from bit.ly/echo437
Tested: Issue 437

With its sophisticated speech recognition, Amazon's second-generation Echo proves that smart digital assistants have a bright future, and it keeps getting better and better.

KEY SPECS
Compatible with Fire OS, Android and iOS devices ■ 802.11a/b/g/n Wi-Fi ■ Line-out with 3.5mm cable or Bluetooth ■ 2.5in woofer, 0.6in tweeter ■ 148 x 88 x 88mm ■ 821g ■ One-year return-to-base warranty

HIGH-SPEED ROUTER

TP-Link Deco M5

£229.99 from bit.ly/tpl435
Tested: Issue 435

This is a finely balanced mesh system with good range, although it isn't the fastest router available. However, it's got great additional features including built-in antivirus and powerful parental controls.

KEY SPECS
Mesh-networking kit ■ 802.11ac Wi-Fi ■ Combined network of 2.4GHz and 5GHz bands ■ WPA2-AES security ■ 1 x WAN port ■ 2 x Gigabit Ethernet ports ■ 120 x 120 x 38mm ■ Three-years return-to-base warranty

BUDGET TABLET

Amazon Fire HD 8

£89.99 from bit.ly/fire433
Tested: Issue 433

Long battery life, superb build quality and decent performance make this an excellent 16GB tablet for the price. It's worth paying the extra £10 for this ad-free version, too.

KEY SPECS
Quad-core 1.3GHz MediaTek MT8135 processor ■ 1.5GB memory ■ 16GB storage (expandable to 256GB) ■ 8in 1,280 x 800 pixels screen ■ 2-megapixel rear camera ■ Fire OS ■ 214 x 128 x 9.7mm ■ 369g ■ One-year return-to-base warranty

BUDGET PHONE

Samsung Galaxy J5 (2017)

£219 from bit.ly/sams432
Tested: Issue 432

Samsung's updated Galaxy J5 does everything you could ask of a budget phone. Battery life is top-notch, the screen is rich and vivid, and its camera quality is excellent.

KEY SPECS
Octa-core 1.6GHz Exynos 7870 processor ■ 13-megapixel front and rear cameras ■ 2GB RAM ■ 16GB storage ■ 5.2in 1,280 x 720-pixel screen ■ Android 7 ■ 146.2 x 71.3 x 8mm ■ 160g ■ Two-years return-to-base warranty

HYBRID LAPTOP-TABLET

Lenovo Yoga Book

£548.97 from bit.ly/lenw431
Tested: Issue 431

The Yoga Book laptop-tablet hybrid genuinely feels like a step forward, with its virtual keyboard and fantastic writing surface that makes it an exceptional note-taking device.

KEY SPECS
Quad-core 2.4GHz Intel Atom x5-Z8550 processor ■ 4GB memory ■ 64GB storage ■ 10.1in 1,920 x 1,200-pixel screen ■ 1 x Micro USB port ■ 802.11ac Wi-Fi ■ Windows 10 ■ 256 x 170 x 9.6mm ■ 690g ■ One-year return-to-base warranty

All prices correct at time of review

SOFTWARE & SERVICES

CLOUD-STORAGE SERVICE

Microsoft OneDrive

From free from onedrive.live.com
Tested: Issue 438

NEW!

If you use Windows 10 or Microsoft Office, then OneDrive is a no-brainer. It's simple to use and already integrated into your PC. Recent improvements have added some excellent new features though we wish Microsoft would increase its free storage allowance. OneDrive also integrates well with both Android and iOS.

KEY FEATURES

5GB free storage ■ Web-based Office Web Apps including Word and Excel ■ 10GB maximum file size ■ Android, iOS and Windows 10 apps ■ Up to 50GB extra storage for £1.99 per month; Office 365 and 1TB of storage from £5.99 per month ■ Files expire after one year of inactivity

INTERNET SECURITY

Kaspersky Internet Security 2018

£19.95 from bit.ly/kaspersky2018
Tested: *Computeractive* Issue 493

Kaspersky is rock solid at protecting your PC from the worst of the web, and has come top in nine of our most recent tests, blocking all malware with its robust defences. Use the URL above to save £15.04 on the software (normal price £34.99).

KEY FEATURES

Antivirus and firewall tools ■ Protects online shopping and banking ■ Identity and privacy tools ■ Dangerous-website alerts ■ New software updater ■ Secure-connection VPN ■ Advanced ad-blocking system ■ Multi-device version ■ Compatible with Windows 10

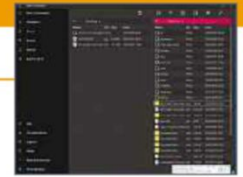## Web User Gold Award winners

WINDOWS 10 FILE MANAGER

Metro Commander

Free from bit.ly/metr437
Tested: Issue 437
Metro Commander is a smart-looking file-management tool that offers lots of great features in its free version, including a very useful dual-pane view.

NEW TAB PAGE

Momentum

Free from bit.ly/momentum436
Tested: Issue 436
Momentum fits an impressive number of useful tools into an attractive New Tab page for Chrome. It's a great way to make your day more productive.

ANDROID LAUNCHER

Microsoft Launcher

Free from bit.ly/microsoftl435
Tested: Issue 435
For all-round performance, usability and features, Microsoft Launcher is the best free launcher you can get. It's very fast and supports gestures.

VIDEO-EDITING TOOL

Microsoft Photos

Free from bit.ly/phot434
Tested: Issue 434
This tool is built into your Photos app and is very efficient at turning your home videos into professional-looking movies.

HOME-SURVEILLANCE SOFTWARE

Ivideon

Free from bit.ly/ivid433
Tested: Issue 433
Simple to set up and use, Ivideon is ideal for monitoring one or two cameras and lets you store footage for 24 hours.

⬇ Best Free Software

SYSTEM FIXER

Complete Internet Repair 5

bit.ly/cir439
Min requirements: Windows XP/
Vista/7/8+/10 **File size:** 2.6MB

With all the web-connected devices we own, we're now more reliant than ever on having uninterrupted internet access, so losing our connection is a real pain. Internet problems can be tricky to troubleshoot because you can't always be sure whether the source of your woes is at your end or your ISP's.

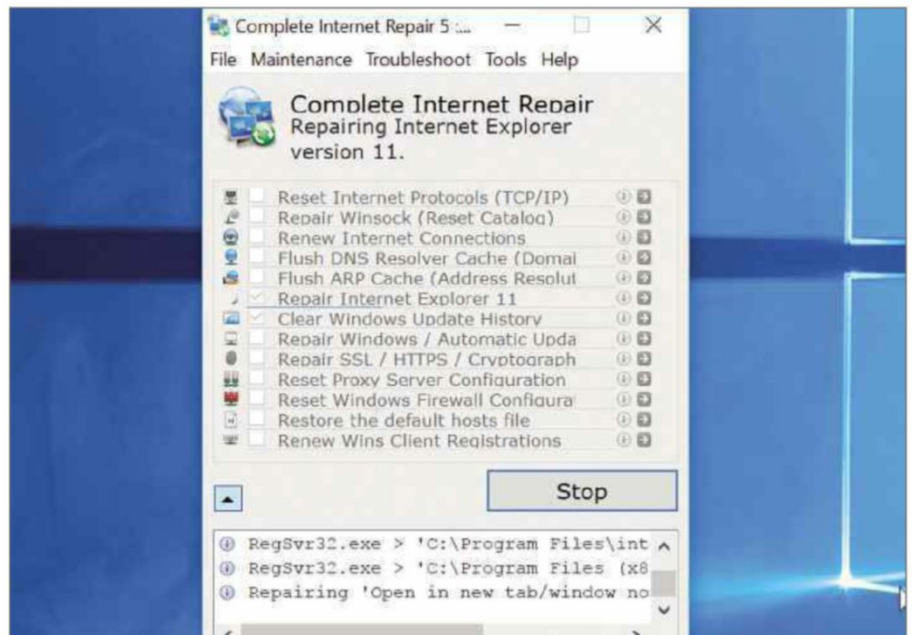Complete Internet Repair helps you fix problems with your PC network. As the publisher is at pains to point out, it can't repair hardware faults or get your ISP up and running, but that should go without saying.

When you launch the application, it presents you with a list of available

fixes. These include 'Reset Internet Protocols (TCP/IP)', 'Renew Internet Connections', 'Flush DNS Resolver Cache (Domain Name System)' and 'Reset Windows Firewall Configuration'. The program warns you that you should "Never fix something that is not broken", which is sage advice.

If you're not sure what a particular fix does, clicking the 'i' button next to it provides you with an explanation. Be careful where you click, though,

because the info button is right next to the arrow button, which starts a repair running. You can use the tick boxes to select multiple fixes and apply them all at once.

This latest version of Complete Internet Repair has had a bit of a makeover, and the code has been optimised for improved performance. Some of the options are now in different places, and the developers have made a number of improvements throughout.

⚙ MINI WORKSHOP | Fix connection woes with Complete Internet Repair 5

1 Select the options you require from the list on the program's home screen. **1** If you're not sure what something does, click the 'i' button next to it **2** to find out. The information appears below. **3** Click the arrow next to a fix to set it running **4** or click Go **5** to start all the fixes you've selected.

2 The File menu **1** provides access to the Windows Event Viewer (which you can use to monitor all system events) and application preferences. You can create a restore point in the Maintenance menu, **2** which lets you roll your system back if something goes wrong. Tools **3** contains options to open a Remote Desktop Connection and access Internet Explorer properties. **4**

3 Open the Troubleshoot menu **1** for links to Microsoft's troubleshooting tools, **2** which can help you fix other connection problems. Simply select one to run it. In the same menu, you'll find links to Ookla Speedtest and RouterPasswords.com. **3** If you can't log into your router, the latter option should provide the default information you need.

This fortnight's top new software downloads to help you make the most of your PC, and they're all FREE
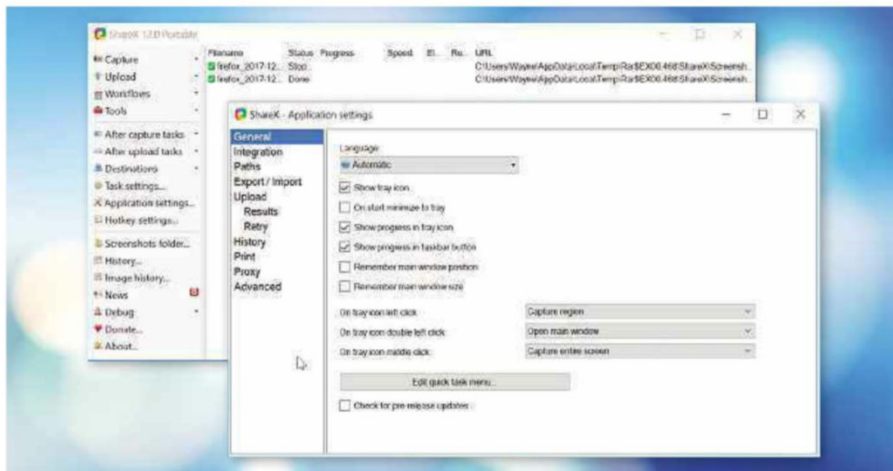
SCREEN-CAPTURE TOOL
ShareX 12
getsharex.com
Min requirements: Windows XP/Vista/7/8+/10 **File size:** 5MB

ShareX lets you take a screenshot or record a screencast of your Desktop and then perform a variety of tasks, such as copying the image to the clipboard, printing it, adding effects or a watermark and uploading it to more than 80 destinations. You can capture the full screen or select just the active window, a specific region, a long-scrolling window or text only (OCR). The new version adds tools to the image editor (including real-time image effects), a QR-code decoder and much more.

PASSWORD MANAGER
Buttercup
buttercup.pw
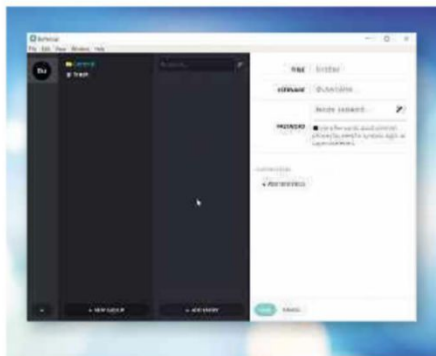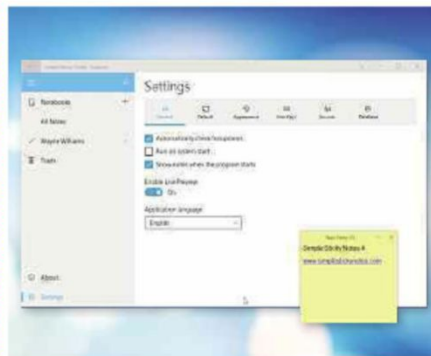**Min requirements:** Windows XP/Vista/7/8+/10, MacOS or Linux
File size: 64.3MB

It's vital that you use strong, unique passwords online, but remembering them all can be tricky. Buttercup is a new password manager that stores them for you. It's easy to master and uses strong 256-bit AES encryption to stop your login details falling into the wrong hands. It's available as a desktop program, as add-ons for Chrome and Firefox, and as apps for Android and iOS.

STICKY NOTES
Simple Sticky Notes 4
www.simplestickynotes.com
Min requirements: Windows XP/Vista/7/8+/10 **File size:** 1.8MB

Windows 10 comes with a sticky-notes app that lets you place yellow notes all over your Desktop. Simple Sticky Notes is an alternative note-creation tool that supports rich-text formatting and comes with the option to hide or show all notes. You can set notes to snap to the Desktop's edges, print them and change their colour and transparency. This version has been redesigned with several useful new features.

New Windows Apps

Web Media Extensions
bit.ly/wme439
Min requirements: Windows 10
File size: 3.6MB
This official Windows 10 app from Microsoft adds Windows 10 and Microsoft Edge support for three popular open-source media formats – OGG Container Parser, Vorbis Decoder and Theora Decoder.

QuickLook
bit.ly/quicklook439
Min requirements: Windows 10
File size: 75.8MB
MacOS has a feature called Quick Look that lets you preview a file instantly by highlighting it and pressing the Spacebar. This app brings the same useful feature to Windows 10.

Pixel Gun 3D: Pocket Crafting & Building
bit.ly/pixel439
Min requirements: Windows 10
File size: 104.7MB
This simple survival game was clearly inspired by Minecraft. To begin, create a character and choose your equipment, then explore the world as you pick up and craft items, and battle zombies.

⬇ Best Free Software

REMOTE-ACCESS TOOL
TeamViewer 13
www.teamviewer.com
Min requirements: Windows XP/Vista/
7/8+/10, MacOS or Linux **File size:** 18.4MB

This popular remote-access tool has been
available as a beta for a while (and was one
of our choices of Best Free Software for
2018 in Issue 437), but now the full version is
available to download. It lets you take
control of a remote PC (with the user's
permission, of course), make changes, fix
problems, chat, share files and more. You
can even switch control so the remote user
can take over your PC. It's all very secure
and uses an ID and password system.

   The latest version lets you troubleshoot
an iPhone or iPad from your PC, and the
new Instant Connect option makes linking
to a remote system even easier.
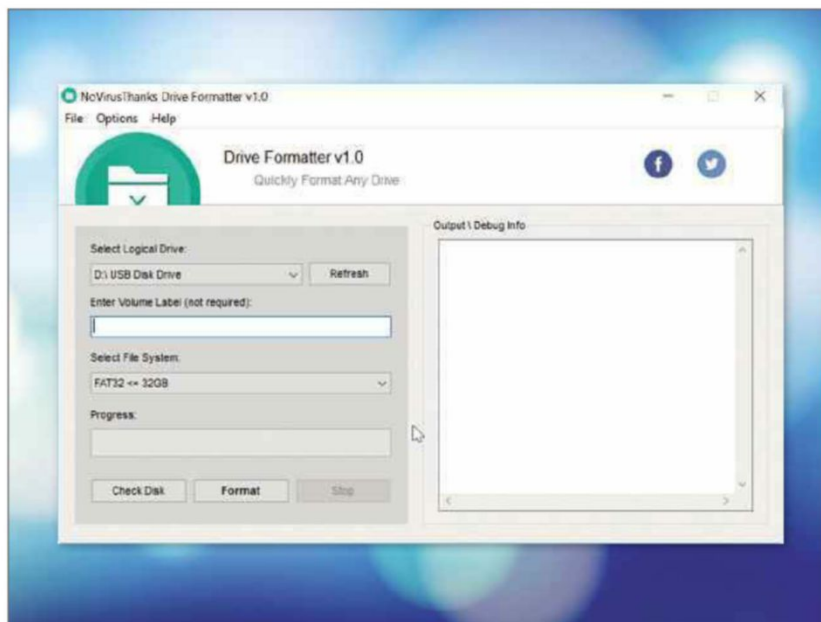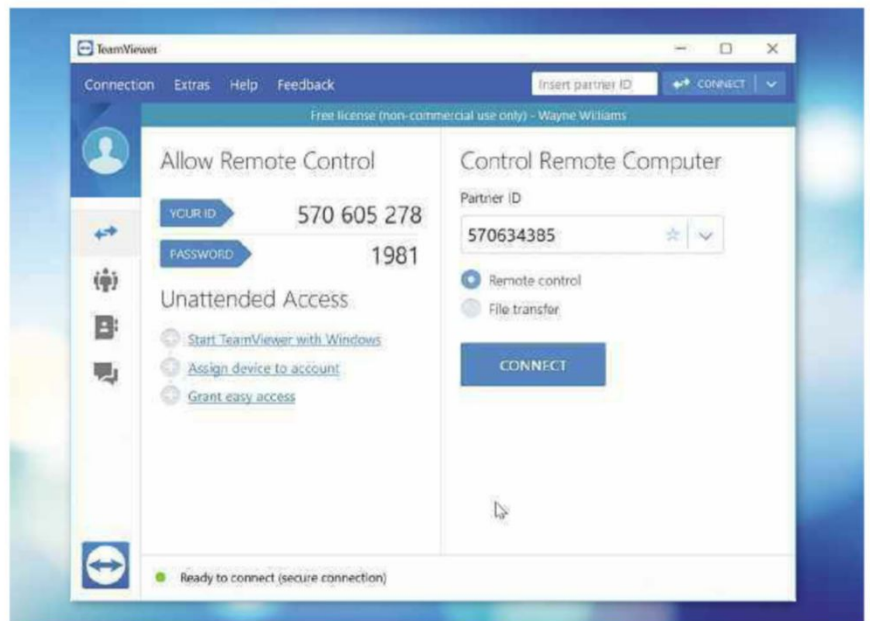
SYSTEM TOOL
Drive Formatter
bit.ly/drive439
Min requirements: Windows XP/Vista/7/8+/10
File size: 1.3MB

If you want to sell your computer or give it
away, it's important that you format the drive
before you pass it on, to prevent your personal
data from falling into the wrong hands. Drive
Formatter lets you format any drive
completely, whether it's a fixed hard drive, a
USB flash drive, an external drive or something
else. This handy free program supports all the
main file systems, including NTFS, FAT, FAT32
and exFAT, and offers options for full, quick
and secure formatting. It can also check your
hard drive for potential errors.

   Drive Formatter comes in portable and
installer versions for both 32-bit and 64-bit
editions of Windows.

ANTI-MALWARE TOOL
NoBot
nobotsecurity.com
Min requirements: Windows XP/
Vista/7/8+/10 **File size:** 1.6MB

NoBot is a tiny anti-malware tool that
aims to track down and remove the latest
threats from your PC. It's fairly basic, both
in appearance and performance, so it won't
be troubling the likes of AVG or Avast any
time soon, but it may be worth keeping in
reserve as a second line of defence. You
can scan your system with it (although this
targets only a small number of files and
Registry entries) or use it to examine
individual files.

   The program can also check running
processes for threats using Google's online
VirusTotal scanner, but you can disable
this feature if you don't need it.

✗ Don't install...

GuardedID
www.strikeforcecpg.com
Min requirements: Windows XP/Vista/7/8+/10 or MacOS
File size: 4.2MB

Nobody wants hidden keyloggers on their PC that monitor every keystroke and pass private information to fraudsters, but nor should you have to pay $19.99 (£14.89) to protect your PC from such a threat. That's how much GuardedID costs, and its badly designed website doesn't even let you download a free trial of the program.

...Install this instead ✓

SpyDetect Free
bit.ly/spy439
Min requirements: Windows XP/Vista/7/8+/10
File size: 1.2MB

SpyDetect Free makes it easy to check you're not being spied on or monitored. It can detect when an unknown process has installed 'hooks' on your system that could be used to record your keystrokes and steal passwords, as well as processes that might be monitoring the titles of any windows you open. To use it, simply run the program and click C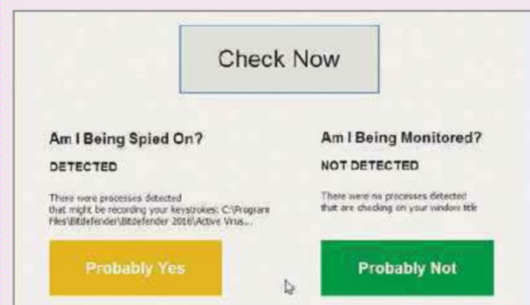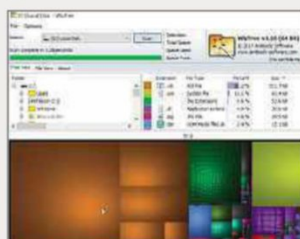heck Now. Don't be too alarmed if it finds something because some processes have legitimate reasons to monitor your keystrokes and windows. Click Details to see the results and then look them up on Google.

GAME
Balconies of Berlin
bit.ly/berlin439
Min requirements: Windows XP/Vista/7/8+/10 or MacOS
File size: 30.6MB

This short (and rather badly translated) investigative game is set in East Berlin during the cold war. Your challenge is to identify the killer in an apartment block by hovering your mouse over each window and checking the various occupants' alibis. To help you in your investigations, you can rewind and fast-forward time to deduce who is lying to you.

UPDATED | New tweaks and fixes for your favourite free programs

DISK TOOL
WizTree 3.16
antibody-software.com
Min requirements: Windows XP/Vista/7/8+/10
File size: 3MB

WizTree is a speedy drive analyser that can check any drive to identify which files and folders are taking up the most space. The latest version adds the option to copy file and size details to the Windows clipboard. See our feature on page 50 for more about removing space hogs.
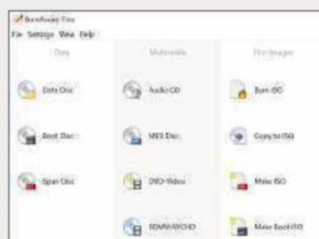
DISC-AUTHORING SOFTWARE
BurnAware Free 10.8
www.burnaware.com
Min requirements: Windows XP/Vista/7/8+/10
File size: 7.2MB

BurnAware Free can write to all types of optical disc. This update improves the interface's appearance on high-definition screens and introduces several major fixes. During installation, be sure to decline the bundled junk, which has long marred this otherwise great tool.

SYSTEM TOOL
Glary Utilities 5.89
www.glarysoft.com
Min requirements: Windows XP/Vista/7/8+/10
File size: 16.4MB

Glary Utilities is a collection of useful tools for fixing common problems, optimising Windows and protecting your privacy. This latest version adds additional program support for the disk cleaner and tracks eraser, and fixes an annoying bug that affected the quick-search function.
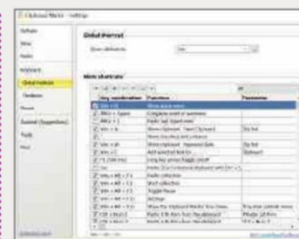
CLIPBOARD MANAGER
Clipboard Master 4.6
www.clipboardmaster.com
Min requirements: Windows XP/Vista/7/8+
File size: 11MB

Clipboard Master is a powerful alternative to the Windows clipboard that can store multiple objects across several clipboards. The new release improves the screenshot tool, and now lets you set your PC to shut down or log off when all tasks have been completed. ■

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Best New Browser Tools

CHROME

Search for specific words in YouTube videos

If you've ever sat through a long YouTube video just to get to the 'funny bit' or to glean a specific piece of information, you'll appreciate the Chrome extension Invideo for YouTube (bit.ly/invideo439). This ingeniously adds text-search capabilities to videos so you can quickly find words, phrases and names that are mentioned in them.

To use the add-on, click the Open InVideo button below the bottom-right corner of the video player and a panel will open on the right that lets you search for a term that's spoken in the content. Click a result to jump straight to the relevant moment. Invideo works by using the transcripts provided for many YouTube videos, but in some cases (particularly with music videos) you may get a "cannot transcribe this video" message. Cleverly, you need only enter part of a search term to find matching results and InVideo also displays a tag cloud showing the most frequently used words in the video.
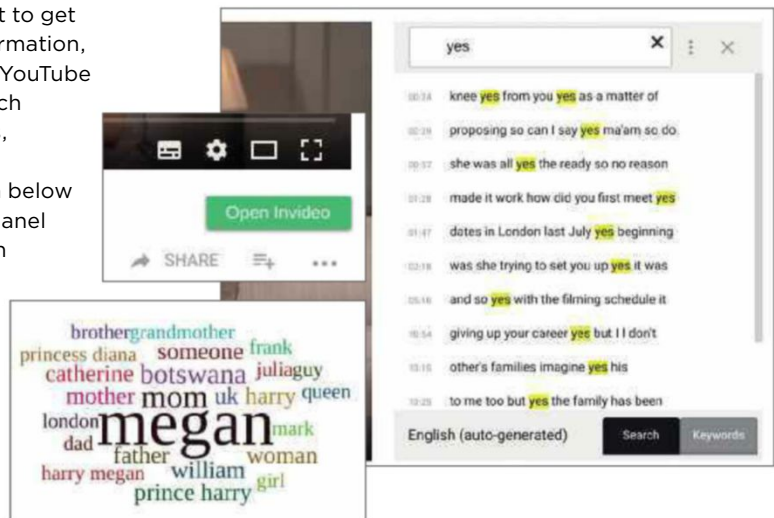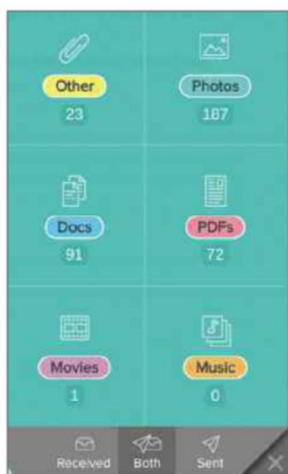
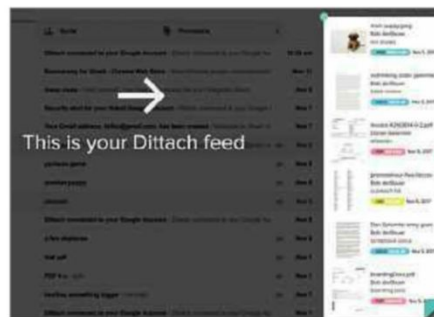## Instantly find attachments in your Gmail inbox

For all Google's superb search capabilities, it doesn't make finding email attachments particularly easy. Sure, you can open the search options and choose to only show messages with attachments, but you can't specify the type of file you're looking for. A new Chrome extension called Dittach (bit.ly/dittach439) solves this problem by grouping all your attachments automatically, so you can instantly find files you've received, sent or both. It keeps track of attachments in the form of a chronological feed that can be filtered to show only photos, PDFs, documents or other file types. You can search within attachments from the main Gmail search box, and download, forward and print them without having to open the original message.

To use Dittach, you need to grant the add-on access to your Gmail account, but it promises to respect your privacy and to not make changes to your emails.

Load cached copies of unavailable sites

It's frustrating when you can't access a web page you've visited before, perhaps because it's temporarily gone offline or because you've lost your own internet connection. One workaround when you see a 'Page cannot be displayed' error message is to load a copy of the page that's been saved in your browser, but Chrome doesn't make it obvious how to do this. To put this useful option at your fingertips, you need to go into Chrome's Experiments page, which – as we explained last issue – has been redesigned to make it more user-friendly. Type `chrome:flags` in the address bar, press Enter and find the option Show Saved Copy Button. Click the drop-down menu to the right and either choose Enable: Primary (to display the button prominently on the error page) or Enable: Secondary (to place it to the right of the Reload button). Restart your browser and the next time a page fails to load, you can click 'Show saved copy' to load a cached version. Bear in mind, however, that if a site is offline, you can't really interact with it.

Alternatively, you could just click the dinosaur on the error page to play Chrome's secret jumping game instead!

This fortnight's most useful tips and add-ons to help you get the most from Chrome, Firefox, Opera and more

FIREFOX

Remove unwanted Highlights

One of the many new features introduced in Firefox 57 – also known as Quantum – is Highlights, which is designed to give you speedy access to "interesting things" you've recently visited or bookmarked. If you share your computer with someone else, though, you may prefer to keep such things private, so it's worth knowing how to disable Highlights. On the New Tab page, this is simple – to remove individual Highlights, hover your mouse over them, click the three-dot button and choose Dismiss or 'Delete from History'. To stop Highlights appearing at all, click the cog icon in the top-right corner of the New Tab page and untick that option. Recent Highlights also appear in the Library menu that opens when you click the bookshelf icon on your toolbar. To hide these, type `about:config` into the address bar, press Enter and accept the 'dragons' risk. Search for the entry 'browser.library.activity-stream.enabled' and double-click it to change its value to 'false'. If you later decide you want to restore your Highlights, change the value back to 'true'.

Apply a colourful theme to Firefox 57

It's been six weeks since Firefox Quantum was released and although we like its speedier performance and smarter interface, we find its grey-and-black colour scheme a bit dull. So kudos to Sean Martell, Art Director of Mozilla, for designing a more attractive Quantum theme (bit.ly/quantum439). This replaces those dreary toolbars with a bright, colourful gradient, with turquoise tab icons and the new Firefox logo in the background. It makes the revamped browser much more appealing and better reflects its innovations. Click 'Tap to preview' to see how the theme will look without needing to install it.

Install the new NoScript WebExtension

The developer of popular Firefox security tool NoScript (noscript.net) missed the deadline for 'legacy add-ons' to be upgraded to WebExtensions, but has since created a Quantum-friendly version (bit.ly/noscript439) that's caused some controversy among loyal users. The interface adopts a more visual approach to script control and has been redesigned with a larger pop-up toolbar panel that blocks scripts by originating domain rather than site by site, although there's still a one-click option to temporarily allow all scripts. NoScript's settings have been simplified with fewer advanced features and a pre-installed list of 'trusted' domains that can't be deleted. Once you've got accustomed to the new look, NoScript 10 is quite straightforward to use and the developer is regularly tweaking the add-on in response to users' feedback.

OTHER BROWSERS

Generate strong passwords

If your usual method for creating a new password is to simply stick a '1' on the end of an old one, why not get some help from the Dalenryder Password Generator Addon (bit.ly/dalen439)? At the click of a button, this free tool conjures up strong passwords based on your preferences, such as the length of the password and whether it contains numbers, capital letters and special characters. We were slightly suspicious of the misspelling of 'length' as 'lenght', but this typo also appears in the Desktop program. Fair enouhg!

Browse tabs more easily in Vivaldi

In its continuing effort to redefine how we use our web browsers, Vivaldi is placing tabs on the left-hand side of the main window. This new feature in Vivaldi 1.13 is called Window Panel and has several advantages over the traditional tab layout. It's tree-like structure makes it easier to navigate multiple pages within the same site, reopen closed tabs, pin tabs to ensure they always stay open, mute the sound in noisy tabs and hibernate unused tabs to free up memory. The updated browser also improves the Download panel to let you pause and resume downloads, and view the download speed.

✚ Tell us your favourite add-ons at www.facebook.com/webusermagazine
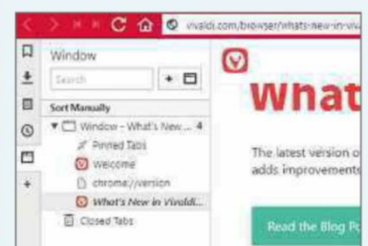
Best Free Apps

TOOLS
Datally
bit.ly/datally439
🤖 5

NEW

If you're on a limited mobile data plan (or an 'unlimited' one that employs throttling), there's nothing more galling than finding that you've accidentally gone over your monthly allowance – especially when it's because some random app has been using data in the background. Well, apparently, Google is sympathetic to your plight and has just released a new app that aims to stop this happening.

Datally has a number of clever ways to help you monitor and minimise how much mobile data you use. For starters, it uses Google's Data Saver technology, which is essentially a local VPN that monitors traffic and blocks unwanted mobile data use. You can also view and control how much background data your apps consume. When you open an app, a small floating bubble displays the amount of mobile data it's using in real time. Tap the bubble to find out more about the app's data usage or block it there and then.

To help you learn more about how the apps on your phone use mobile data, Datally also provides detailed metrics, including usage history, trends over time and how much data each app has used. There's even a built-in Wi-Fi finder that helps you save your mobile megabytes while you're on the move by hooking up to a nearby hotspot instead.

You need to give Datally permission to access your mobile data usage, although Google promises it doesn't send any of your traffic through its servers. It also asks whether you want to help improve Datally by sending your app usage data and SMS messages to Google – we'd advise politely tapping 'No, thanks' at this point if you're in any way concerned about your privacy.
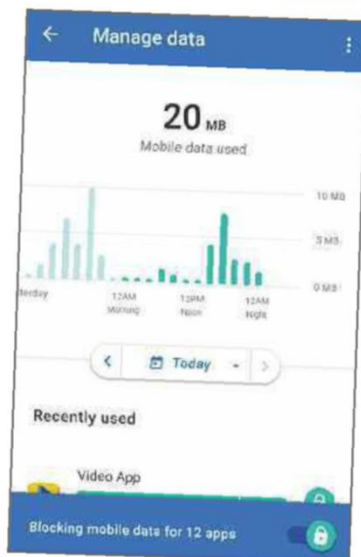
Our rating ★★★★★

MINI WORKSHOP
Use Datally to save mobile data

1 When you open Datally for the first time, it asks you if you want to 'Set up Data Saver to save mobile data'. **1** This sets up a VPN connection on your device so that Datally can monitor your network traffic. Tap 'Set up now', **2** then Allow, and OK. A key symbol appears at the top of your screen to indicate that the VPN is active.
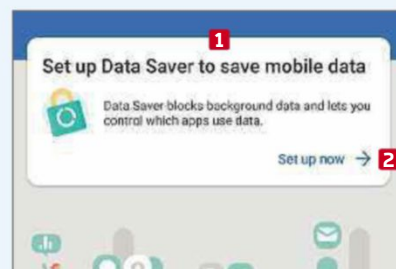
2 The main Datally dashboard has a few highlights and quick tools to explore. At the top of the screen, you can see how much mobile data you've used today. **1** Below that is a switch to enable or disable Data Saver when you're using Wi-Fi. **2** Tap 'Manage data' **3** for more details about apps that are using mobile data, and tap Find Wi-Fi **4** for a list of wireless hotspots that are nearby.
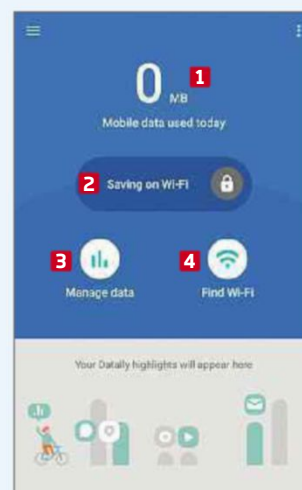
3 Tap the three-line menu button for further options. Here, you can choose to enable or disable notifications whenever Datally finds a Wi-Fi network nearby **1** and disable the Data Saver bubble **2** that shows how much data an app is consuming. You can also opt out of sending your device's usage data to Google **3** if you didn't do that during setup.
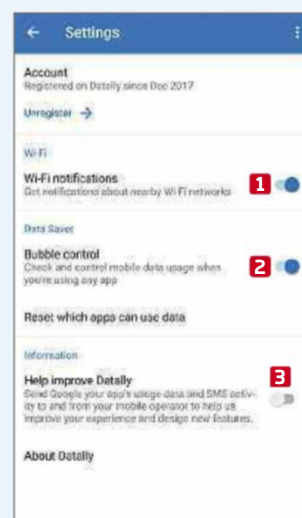
This fortnight's top free and paid-for apps for Android, iOS and Windows phones and tablets

EMAIL

Gmail for iOS
bit.ly/gmailios439
 8

The official Gmail app for iOS has been updated to support the iPhone X's odd-shaped screen and, more usefully, now lets iPhone and iPad users add third-party accounts, including iCloud, Outlook .com/Hotmail, Yahoo Mail and IMAP. Android users have been able to do this for years, and now iOS users no longer have to switch between different mail apps. To set up an account, tap the three-line menu button, then tap your account, 'Manage accounts', 'Add account' and choose the service you want to add.

UPDATED

Our rating ★★★★★

NAVIGATION

PinDrive
bit.ly/pindriveios439
 11

With PinDrive on your phone, you'll never again forget where you parked your car. Not only does the app remember where you left your vehicle, it also helps you find it using the power of augmented reality. Simply park your car and 'pin' its location in the app. Then, when it's time to head home, tap 'Find my car'. The camera view presents an animated mini-map that shows you how to get back to your parking spot, and displays a big floating AR arrow over your car so you can't miss it!

NEW

Our rating ★★★★☆

SOCIAL

Ready For Reddit
bit.ly/readydroid439
 4.1

If you use Reddit a lot, you may be interested in this alternative Reddit browser, which offers a range of useful features that are missing from other apps. These include a Quick Comments Preview for those who want to get straight to a post's top comments, and the ability to play GIFs and videos within the feed. You can also choose from several themes and layouts. Ready For Reddit is currently in beta but it already feels a lot more polished than many other Reddit apps.

NEW
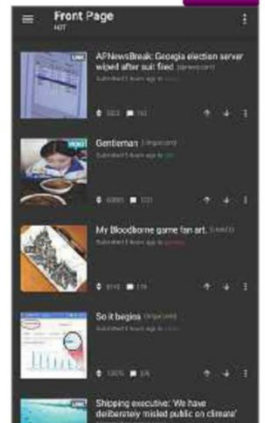
Our rating ★★★★☆

WEB BROWSER

Microsoft Edge
bit.ly/edgedroid439
bit.ly/edgeios439
 4.4 9

Microsoft has finally released its latest browser for non-Microsoft mobile devices, and it's actually pretty good. Edge is clean, fast and has a number of features that are particularly useful for PC users. Windows 10's 'Continue on PC' feature is integrated into the browser, allowing you to send web pages from your mobile to your computer (using the Share options) so you can pick up where you left off. Edge also syncs bookmarks, passwords and reading lists between devices – although, annoyingly, it doesn't currently sync your tabs. Edge doesn't yet support iPads either, but Microsoft has promised to address both of these limitations in an imminent update.

NEW

Our rating ★★★★☆

KIDS

Lego AR Studio
bit.ly/legoar439
 11

What would you get if you combined the virtual block building of Minecraft with real-world Lego toys? Our guess is that you'd end up with something like Lego's official AR Studio app. It uses augmented reality to blend digital versions of the company's Lego sets with your own physical Lego models. The virtual sets are animated, too – for example, you can send a flying AR Lego dragon to attack your real Lego castle. The app allows kids to become Lego movie makers – setting scenes, framing shots and directing the action. They can also have some fun hunting for hidden golden Lego blocks.

NEW

Our rating ★★★☆☆

5 NEW APPS WORTH PAYING FOR

PHOTO EDITING
Afterlight 2
bit.ly/afterlight439
Price: £2.99
 9

This successor to one of the best mobile photo apps around combines a suite of powerful image-editing tools with simple, intuitive controls. It's currently only available on iOS.

GAME
'Bury me, my love'
bit.ly/burydroid439
bit.ly/buryios439
Price: £2.99
 4.1 9

Proving that games aren't all just mindless nonsense, 'Bury me, my love' is a thoughtful, heartbreaking interactive story about a refugee fleeing her war-torn homeland, told through text messages and images.

KIDS
Little Kitten Adventures
bit.ly/kitten439
Price: £3.99
 10

This cute kids game sees you caring for an adorable kitten in a series of different scenarios, while subtly incorporating learning elements, such as memory games, shapes, mazes and more.

NOTE-TAKING
Lecture Notes
bit.ly/lecture439
Price: £3.19
 4.4

This is a handy all-in-one note-taking and audio-recording app for students and anyone who needs to take notes in meetings or classes. You can even scribble written notes while recording in the background.

DESIGN
Canva
bit.ly/canvadroid439
bit.ly/canvaios439
Price: Varies
 4.1 9.1

New to Android, Canva lets you design and print flyers, invitations, greetings cards and more. It's free but you need to pay for many of the templates, and other materials require in-app purchases.

Afterlight 2	'Bury me, my love'	Little Kitten Adventures	Lecture Notes	Canva

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✘ Don't install...

Best UK Deals
bit.ly/bestuk439

January is often a time of belt-tightening, so it's infuriating to see app makers, such as the developers of Best UK Deals, exploiting this by claiming to help you "save money on everything" with alleged price cuts of up to 80%. In reality, the items it offers for sale are not only incredibly niche (lawnmower blades and cup holders, for example), but also ludicrously overpriced, with very little visible discount. Steer clear of this shameless swizz.

...Install this instead ✔

HotUKDeals
bit.ly/hotdroid439
bit.ly/hotios439
 4.0.3 8

There's a hit-and-miss element to HotUKDeals, whether you're using the website or the mobile app, but the community-driven bargain-hunting tool is unquestionably brilliant for sniffing out the best money-off offers, discount vouchers and more. The app is free of advertising and, because the 'hottest' deals are voted for by the community, you know you're not being duped by misleading offers. You can search for specific items or browse the categories and view the latest or highest-rated deals. If you can't find what you're looking for, you can even set up an alert to let you know when a specific item has been discounted. ■

Give your eyes a rest from your browser by taking our fiendish fortnightly challenges. Can you guess our BBC-series emoji and solve our word puzzle?

CAN YOU GUESS THE BBC TV SHOWS FROM THE EMOJI?

1. 👨‍⚕️ ❓
2. 🗣️ 💨 🌍 2️⃣
3. ☝️ ➖
4. ⚫ 🐝 🏙️
5. 👨‍🏫 👨‍🍳
6. 🏡 🏠 ⬇️ 🔨

WEB USER WORD PUZZLE

Enter the answers in the grid to reveal a tech-related term in the highlighted column

1. Star of the long-running TV series *Rumpole of the Bailey* (3,6)
2. Biblical Magi who bought the gift of myrrh
3. Spring-flowering bulb, a feature of ancient British woodlands
4. Author of *A Child in Time* and *Atonement* (3,6)
5. Finnish-born F1 Champion 1998-99
6. UK Deputy Prime Minister 1997-2007
7. Purple-red colour and French wine-producing region
8. Capital of Cambodia (5,4)

COMPETITIONS

WIN 1 OF 5
Kone AIMO mouse

WORTH £69.99 EACH

The new Kone AIMO mouse from ROCCAT Studios has four light strips (double the previous number) and a glowing mousewheel, injecting more drama into your gaming. We're giving away five white mice. It also comes in grey and black. To enter, email your address to webusercomp@dennis.co.uk with 'AIMO' in the subject line. For more information, visit www.roccat.org and follow @ROCCAT on Twitter.

WIN 1 OF 3
MAGIX Music Maker Premium

WORTH £99.99 EACH

The new Premium version of MAGIX's Music Maker software comes with sounds, functions and instruments worth a total value of £639. There's also a Plus version available (£49.99). To enter, email your address to webusercomp@dennis.co.uk with 'music maker' in the subject line. For more information, visit magix.com/gb and follow @MAGIX_INT on Twitter.

Our guide to TENCENT

It's one of the biggest companies in the world, but you've probably never heard of it. **David Crookes** shares his two cents about tech giant Tencent

What is Tencent?

Tencent (www.tencent.com/en-us) is China's largest social-media company and one of the biggest names in online gaming. It is also – perhaps ironically, given its name – one of the richest corporations in the world, and yet it's fair to say that it has largely slipped under the West's radar. Anyone who has come across it will most likely know it for its WeChat messaging service. But, more recently, people have been taking notice for another reason.

Why is it in the news?

Tencent surpassed the value of Facebook at the end of November, allowing it to become – albeit briefly – one of the top five most valuable companies in the world. The firm was said to be worth $531bn, edging above Facebook on $519bn. It made Tencent the first Asian company to break the $500bn barrier for total worth, and it came on the back of major expansion plans.

But what's Tencent's main business?

Well, we've already mentioned the WeChat messaging service (web.wechat.com) which launched in 2011. This has more than 980 million monthly active users worldwide and it offers text and voice messaging, video conferences, games, stickers and more. There is also

a WeChat Pay digital wallet which recently launched in the UK. But this is only a small part of Tencent's empire.

Why, what else does it own?

Tencent also controls the QQ instant-messaging platform for PC and mobile (www.imqq.com), and with more than 900 million active accounts and a place in the Guinness World Records for the highest number of simultaneous online users on an IM program in 2014 (210,212,085, since you ask), there's no doubt it's doing well. The company

also has a service called QQ Wallet along with Tenpay, a popular online payment platform in China. But it owns a host of other tools, too, including the QQ Browser, Tencent Map and the image-processing software Pitu. As if that wasn't enough, it also runs the leading online video-interactive platform in China, Tencent Video, along with Tencent News and Tencent Microblog. And we haven't even got on to the games yet.

Phew! What kind of games does it create?

Its biggest title is the fantasy role-playing multiplayer online battle arena title Arena of Valor (www.arenaofvalor.com) – China's highest grossing iOS and Android game. It's so popular and profitable that it makes up more than half of the company's smartphone revenue. Nintendo is certainly impressed, which is why it's been in talks to bring the game – as Arena of Battle – to the Nintendo Switch console.

Other popular games are made by its subsidiaries: Tencent's gaming division owns Riot Games which makes League

If you use the WeChat messaging app, you're already a Tencent user

More than 900 million people use Tencent's QQ – here are two of them

Tencent's headquarters, where you'll find its multi-billionaire CEO

of Legends and Supercell, creators of Clash of Clans. Gaming brings in roughly $3.9bn per quarter for Tencent.

Wow, so someone's becoming very rich?

Well yes. The company's chief executive is Ma Huateng and he is valued at an eye-watering $47.8bn. Owning 9% of Tencent Holdings, he's currently the 13th richest man in the world, according to Forbes Real Time rankings – although at the end of November he rose to number nine. This put him ahead of Google founders Larry Page and Sergey Brin for a short spell, and it was the first time a Chinese billionaire had cracked Forbes' list.

Is Facebook putting up a fight?

Beijing clamped down on Facebook in July 2009 following the Ürümqi riots, when it was found that Xinjiang independence activists were using the social network for communication. This allowed Tencent to get a firm grip on the country with its own services.

However, Tencent isn't a new kid on the block by any means, given that it was founded in 1998. Its stock price has been rising at a rate of knots recently, though, and has more than doubled in the past 12 months.

But why *is* Tencent doing so well?

The sheer number of smartphones in China – more than a billion and counting – has allowed Tencent's revenues to soar (Arena of Valor is mobile-only and it brings in between $1.50 and $6 per month per user). Additionally, the Chinese government helps Tencent by restricting

Arena of Valor is an addictive and lucrative multiplayer battle game

outside companies such as Microsoft, Apple and Google from making inroads.

That said, Tencent isn't immune from Chinese interference: Beijing wasn't happy with Arena of Valor's addictive nature and access to it has been limited to an hour a day for children aged under 12 and two hours for those aged between 12 and 18.

Does it bombard its users with advertising?

Actually, Tencent's business model hasn't been especially dependent on advertising: just 17% of its revenue comes from ads. Instead, it has made most of its cash by selling costumes for its gaming characters and virtual items such as emoticons. By widening the scope of the services it offers (it also runs the music platform QQ Music, Tencent Comic, Penguin eSports' live-streaming platform and the education service Tencent Classroom), the company has pushed itself firmly into the centre of Chinese life.

However, according to Bloomberg, the main divisions of Tencent are now beginning to synchronise their data to deliver precise and predictive ads. If it

can take a greater slice of China's $53bn online advertising market, Tencent really will become a force to be reckoned with.
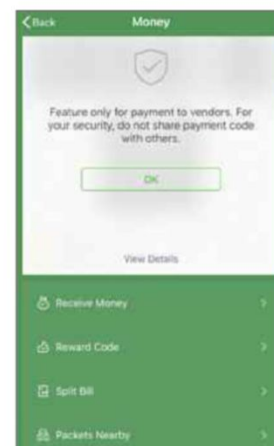
So, what's in store for Tencent?

Analysts suggest its ad revenue will double to $11.4bn by 2019 and it will continue to be strong in social media, gaming, news, sport, video-on-demand and entertainment. Tencent has already made its mark in mobile payments – WeChat Pay has 37% of the market – and it's now started

Tencent's mobile payment system WeChat Pay is bigger than PayPal

dabbling in artificial intelligence. A lot of investment is being pumped into natural-language processing, predicting user behaviour and image recognition.

Will Tencent eventually branch out to the UK?

It's likely, yes. In the US, Tencent has already snapped up stakes in the ride-sharing app Lyft as well as Snap, which owns Snapchat, and Elon Musk's electric car manufacturer Tesla. As such, it is set to have a growing impact and influence on our lives over the coming years as it continues to branch out into new areas.

CHINA IN THEIR HANDS

Tencent is by no means the only major tech company in China. Two huge rivals are Alibaba and Baidu, but Tencent is apparently pulling ahead of them. For example, WeChat Pay is a direct rival to Alibaba's Ali Pay, and Tencent is now investing heavily in artificial intelligence, once strongly Baidu's domain (ai.tencent.com/ailab).

When Tencent headhunted Dr Tony Zhang, the head of Baidu's Big Data Lab, it sent a clear message to its rivals. Zhang now leads Tencent's AI Lab, which is looking at four areas for artificial intelligence: social, games, platforms and content. It already has a research lab in Seattle headed by Dr Dong Yu, a former scientist at Microsoft Research.

So far, Tencent has created a voice assistant and is relying heavily on WeChat's data to learn more about
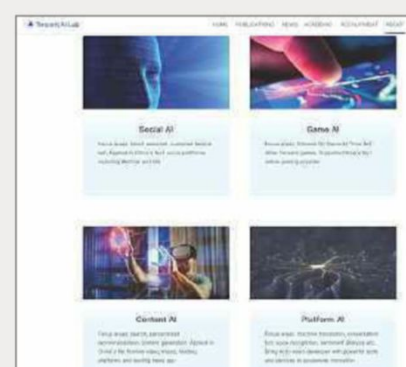
how we talk. It is lucky in that most WeChat users send voice messages to each other, which means its researchers are able to draw data from a huge amount of spoken communication. Add to that advances in picture, face and body recognition, and there's much to expect from Tencent in the near future.

Control Anything

Talking to your tech makes performing everyday tasks quicker, easier and more fun. We reveal how to make the most of your voice assistant and smart speaker

ACQUAINT YOURSELF WITH ALEXA

The power of Amazon's Alexa voice assistant lies in its huge library of skills, which you can install to add new features to your Amazon Echo or other compatible device. Not all of the 7,500 skills on offer are worth bothering with, but there are plenty of good ones that can enhance your smart speaker in all sorts of useful, surprising and fun ways. Here's our pick of the best.

Order your weekly shop
It's very easy (perhaps a little too easy) to buy your shopping through Amazon, but it doesn't always offer all the items you might want in your weekly shop. In August 2017, Ocado became the first supermarket in the UK to launch an Alexa skill, allowing customers to do their grocery shopping through the voice assistant. You need an Ocado account to use the skill, but once you've set this up and enabled it using the

Alexa app, you can use the Ocado Skill to add products to your basket, ask which products are currently in season and get help using them in recipes. You can even ask "where's my order?" to confirm a delivery time.

Learn something instantly
If you're no good at mental arithmetic and can't be bothered to open the calculator app on your phone, you'll be glad to know that Alexa can help with simple mathematical problems. Try asking "Alexa, what's eight plus 17?" and it will answer immediately with "25".

Your Amazon device can also define words for you. Say "Alexa, what's the definition of gregarious?", for example, and you'll be able to impress friends with your expanded vocabulary in no time. It's not just single-word definitions it can help with, either, but entire topics. Say "Alexa, Wikipedia Ancient Rome" and Alexa will read out the corresponding entry.

Play audio using your voice
If you buy an audiobook from Amazon's audiobook company, Audible UK (www .audible.co.uk), you can ask Alexa to read it to you. Say "Alexa, play Dan Brown *Origin* on Audible", for example, and the assistant will start reading. There are other helpful

commands you can use while listening, such as "Alexa, pause" and "Alexa, resume" if you want to stop and start the audiobook, and "Alexa, next chapter" to skip ahead.

If you have a Spotify subscription, you can connect your Premium account to your Echo and ask Alexa to play your music and playlists. Simply say "Alexa, play my playlist 'Classical' on Spotify" to listen to all the tracks in that playlist.

Easily keep track of time
Next time you're cooking and you need to set a timer, ask Alexa to set one for you. Just say, "Alexa, set a timer for 30 minutes" or whatever you need. You can check how much time you have left on the timer by saying "Alexa, how much time is left on my timer?", or cancel it by saying "Alexa, cancel my timer". You won't even need to look at your watch any more, because
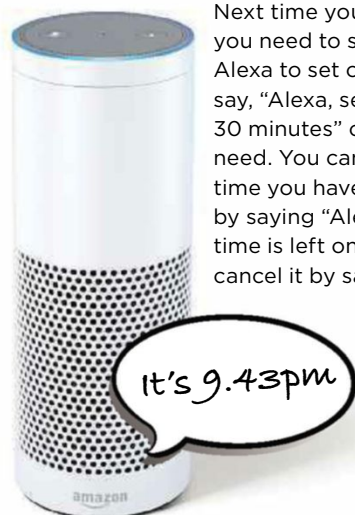
With Your Voice

The rise of voice assistants has meant talking out loud to no-one in particular has become normal behaviour. Siri, Alexa, Cortana, Google Assistant and others now let you use the web without typing or tapping, whether you're at home or on the move.

Voice assistants for the home usually come in the form of smart-speaker systems, with microphones that are always active and let you control your device by talking to it. The speaker is triggered into action by a wake-up phrase or word, followed by your question or command. If you say, "Alexa, what's the weather like today?", for example, your Amazon Echo will provide a local forecast.

In this feature, we provide essential tips for getting the most from voice assistants and offer advice on which smart speaker you should buy. Tell us about your own favourite hands-free tricks at **webuser@dennis.co.uk**.

Alexa can tell you the time. Just ask, "Alexa, what's the time?".

Save money on petrol

Fuel Finder is a simple yet highly effective Alexa skill that finds the cheapest price for petrol and diesel in your local area. You will need to grant Alexa access to your location services for the skill to work. Just ask: "Alexa, where's the cheapest diesel?" or "Where's the cheapest petrol in Cheltenham?" for details and directions.

Relax by breathing deeply

If all that talking has left you feeling stressed, you may like to try the Breathe skill. This breathing coach for Alexa guides you through a quick five-minute breathing exercise that you can do several times a day to calm your mental state and help you relax. Just say, "Alexa, start deep breathing", "Alexa, ask deep breathing for the breathing exercise", or "Alexa, ask deep breathing to breathe with me", and Alexa will guide you through the exercise.

## MINI WORKSHOP | Use Alexa skills to control your home

1 Open the Alexa app on your phone or tablet, tap the menu bar and select Smart Home. Tap Smart Home Skills and choose Enable Skills. Scroll through the list or sort it by name, date or relevance **1** to find the skill you want. It's usually named after your smart device – in this case, Philips Hue smart lights. **2** Tap it and choose Enable. Log into the relevant service, then follow the instructions to authorise Alexa and tap Discover to search for your smart device.
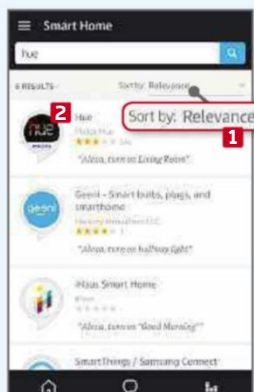
2 The app lists all the smart devices it finds **1** that you can control using your voice. Most commands are obvious, such as "Alexa, turn on the lights", "Alexa, dim the lights to 50%" and so on. With Philips Hue, you can also regulate a room's ambience using commands such as Relax, Concentrate and Energise. Search Google for your product name plus "Alexa commands" to find more detailed information.

3 You can control several devices at a time if you group them together. Go to the Smart Home section of the Alexa app and select Groups. Tap Create Group and select Device Group. Use the tick boxes **1** to select the devices you want in the group. It makes sense to group similar devices together because this makes controlling them easier. Tap Save at the bottom of the list, and you'll be able to control all the selected devices at once.
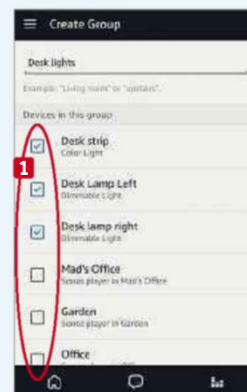
GET MORE FROM GOOGLE ASSISTANT

One of the best things about Google Assistant is that you don't need to download any skills to use it, as you do with Amazon's Alexa. However, this also means you may not know exactly what the AI helper is capable of. Here are some of our favourite commands to get you up to speed with the various ways Google Assistant can help you.

Set an alarm for the morning

This is one of the most practical uses for Google Assistant, and it's also a voice command you can use with minimal risk of embarrassment because you're only likely to be doing it within earshot of whoever you share a bed with. Say "Set an alarm for 7am tomorrow", and you won't have to waste time navigating through the clock app to enable or edit existing alarms.

Check the weather forecast

Want to know if you're likely to be cold, wet or blown about today? Ask Google Assistant "What's the weather today?" and it will give you a brief forecast for the rest of the day, including expected high and low temperatures. If you already know

that it's cold outside, you can ask for more specific information, such as: "Will it rain today?" to establish whether or not you need to take an umbrella with you. For a longer-range forecast, ask "What's the weather forecast for the rest of this week?"

Send a WhatsApp message

This is a particularly useful feature if you have a pair of headphones with a built-in microphone, because it lets you send WhatsApp messages without having to take your phone out of your pocket. It works straight away with Bluetooth headphones, but if you have a wired set, you'll need to change the settings before you can use it. Open the Google app's Settings, tap Voice and Hands-free, then make sure 'For wired headsets' is enabled.

Once you've set up your headphones, say "Send a message with WhatsApp"

and Google Assistant asks who you want to chat with and what you want to say in your message. Finally, it reads the message back to you, and asks you to confirm that you want to send it.

Get travel advice including live traffic info

Ask Google Assistant "How long will it take me to get to X?" and it tells you how long you can expect your journey to take if you travel by your default method. If the mode of transport it suggests isn't the one you plan to use, you can be more specific by asking "How long will it take to get the train to X?" or "How long will it take to drive to X?" You can also say "How's the traffic when driving to X?" if you simply want to check for delays, or ask "How would I get to X?" if you want a set of directions that you can then open in Google Maps.

Which smart speaker should you buy?

BEST ALL-ROUNDER
Amazon Echo 2
£89.99 from bit.ly/echo439

Amazon's versatile hands-free speaker is currently the one to beat, combining a sleek design with a host of useful features at an affordable price. Recently updated with a shorter body, a smart fabric shell and a 3.5mm audio output, it's the perfect digital butler for controlling your home, getting answers to burning questions, streaming entertainment, making calls and, of course, shopping online at Amazon. The Echo's excellent Alexa voice assistant is constantly being improved with new skills and 'routines' (combinations of commands) and works in tandem with your Android or iOS device, and other smart gadgets.

BEST FOR PRICE
Google Home Mini
£49 from bit.ly/gohm439

If you're still not sure whether voice assistants are for you, or you're worried that the novelty will wear off after a week or so, the Google Home Mini is a great way to sample the experience without spending a fortune. This little unit is brilliant at responding to questions and commands, and its superior search capabilities and seamless integration with Google's products and services – including Android – give it the edge over Amazon's similarly priced Echo Dot (bit.ly/echodot439). The Mini's only drawbacks are its poor sound quality when playing music and the lack of a 3.5mm jack for connecting an external speaker.
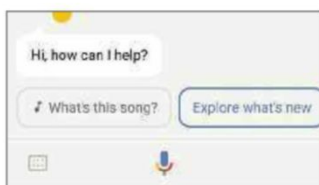
Find the nearest restaurant

Ask Google Assistant "Where's the best restaurant near here?" and it will reel off a few well-reviewed establishments that are nearby. It's a good idea to do a little follow-up research of your own, though, or you may end up with a bag of fish and chips rather than a sit-down dinner with waiter service. Again, you can ask specific questions such as "Where can I get pizza near here?" or "Where can I get a Chinese takeaway?".

Identify any song

One of the latest additions to Google Assistant is the option to identify a song that's playing in the background. Summon the virtual assistant and ask "What song is playing?" and it will produce a card showing the name of the artist and song, along with lyrics and shortcuts to play the song in Spotify, Google Play Music or YouTube. It's often faster than using Shazam, and it has the advantage that you don't need to install any additional apps – although you'll have to get over the embarrassment of revealing your music taste to everyone present.

IS YOUR ECHO SPYING ON YOU?

In August 2017, security researchers discovered that the Amazon Echo is vulnerable to tampering and could be turned into a covert surveillance device. Hackers were able to install malicious code into the device's firmware by removing the Echo's base and connecting an external SD card. This gave them 'remote root shell access', which in turn provided access to Echo's 'always listening' microphones.

According to Mark Barnes, Security Consultant at MWR InfoSecurity (bit.ly/mwr439): "The rooting of the Amazon Echo device in itself was trivial; however, it raises a number of important questions for manufacturers of internet-enabled or 'smart home' devices."

Don't get too alarmed, though – to exploit the vulnerability, a hacker needs physical access to your Echo or other smart speaker to install the malware, so if your device is safely ensconced within the confines of your home, it's likely to be out of reach of any attackers. What's more, the flaw applies only to the 2015 and 2016 editions of Amazon Echo, not the latest 2017 models. If you have an older version and you're concerned about a potential security problem, you can use the physical Mute button to disable the microphone during private conversations. Bear in mind, however, that any device with a microphone and an internet connection is potentially vulnerable to hackers.

Play your favourite music

If you don't want to pick up your phone to change the music that's playing, ask Google to do it. This feature is invaluable when you're driving, but you can also use it at home to change what's playing on your Chromecast Audio. Say "Play me some jazz" or ask it to play a specific artist, album or playlist and it will start streaming in the relevant app. To set your default music provider, open the Google Assistant settings from Google's main Settings menu, tap Music and choose the service you want.

If you weren't lucky enough to get a voice-controlled device for Christmas, we're here to help you choose the smart speaker that's right for you

BEST FOR MUSIC
Sonos One
£199 from bit.ly/sonos439

All smart speakers can play music, but the sound quality often isn't particularly good, which means they work best in conjunction with a dedicated audio system. The Sonos One, in contrast, is aimed specifically at music lovers. The speaker offers loud, crystal-clear sound with deep, reliable bass and supports music-streaming services including Spotify, TuneIn and Amazon Music. It's powered by Alexa, so you get all the benefits of Amazon's voice assistant, and Sonos says it will add support for Google Assistant soon. You can also pair the device with other Sonos speakers to expand your voice-controlled sound system around your home.

BEST FOR PORTABILITY
Samsung R6 360°
£249 from bit.ly/samsung439

One drawback to Google's and Amazon's otherwise excellent smart speakers is that they need a mains power connection, so you can't take them on journeys, for example. The Samsung R6 360° has a built-in battery, so you can ditch the cable and take it wherever you like. Its battery lasts for six hours, and it suports Bluetooth as well as Wi-Fi. Unlike conventional speakers, which project sound out in front of them, this device disperses audio evenly in every direction. It works with any streaming service that's available through the Samsung Multiroom app, and while it's not cheap, it's stylish as well as portable.

Siri has been around since 2010 – first as an app and then, after Apple bought the technology in 2011, as a feature built into iOS. The latest version of the mobile operating system, iOS 11, expands Siri's capabilities further to help the digital assistant compete with rival voice-activated tools. Here are some of the latest tricks you can try.

Translate into foreign languages

Perhaps the most useful improvement to Siri in iOS 11 is the ability to translate English phrases into French, German, Italian, Spanish and Mandarin Chinese – a feature that has long been available to Android users through Google Translate. To use it, hold down the Home button (or the side button if you have an iPhone X) or say "Hey Siri" and speak the phrase you want to translate, as well as the language you want it in.

So, for example, you could ask, "How do I say where's the train station in Chinese?" or say, "Translate 'Happy New Year' to German". Siri will respond with the appropriate translation, both vocally and in text form. You can replay the spoken translation by pressing the Play button.

Ask Siri follow-up questions

Like Google Assistant, Siri can now handle follow-up questions to your queries, which is handy when you need further information or alternative answers. Siri suggests a few secondary questions, which appear in a list after the initial response. Simply tap one to ask it.

Type your query to Siri

Although it goes against the spirit of this feature, we're pleased that, as of iOS 11, you can *type* your questions and commands to Siri as well as speak them. This is great if you want to use the feature without drawing attention to yourself, such as while travelling on public transport or attending a meeting. To activate 'Type to Siri', go to Settings, General, Accessibility, Siri and switch the feature on. Now when you long-press the Home button, the keyboard

opens and Siri displays the message: "What can I help you with?". It replies to your queries in text form, too. If you want to return to voice commands, you have to switch off 'Type to Siri' – you can't have both.

Get music recommendations

If you stream through Apple Music, Siri learns your musical preferences and can recommend songs, albums and artists for you to listen to. Just say, "Hey Siri, play something I like" or "play more like this", and it acts as your personal DJ. You can also ask questions about what you're listening to, such as "Who wrote this song?" or "What year was this released?". Siri's new music capabilities should prove particularly useful when Apple finally launches the HomePod in the UK (see below).

WHAT NEXT FOR SMART SPEAKERS?

Microsoft recently launched its first voice-activated speaker in the US, called the Harman Kardon Invoke (bit.ly/invoke439). Powered by Cortana, the Invoke offers 360-degree sound, integration with your PC and phone, and hands-free Skype calls to mobile phones, landlines and other Skype-enabled devices. It costs $199.95 (£149), but Microsoft hasn't yet confirmed if or when it will be released in the UK. Reviews of the Invoke have been mixed, with one suggesting that "Cortana isn't ready for the living room – yet" (bit.ly/invokereview439).

Apple's HomePod smart speaker (bit.ly/homepod439) was due to launch in December but has been pushed back to "early 2018". At $349 (£259), the HomePod is considerably more expensive than the Amazon Echo and Google Home, although Apple hopes to justify this by focusing on high-quality sound. If you already own lots of Apple products, such as an iPhone, iPad or Mac, Apple's Siri-powered speaker may be the string that ties your devices together in perfect harmony. It's designed to stream from your Apple Music account and work with Apple HomeKit to control your smart-home devices.

If Amazon's latest smart speaker is anything to go by, the next step for voice-assisted devices will be the addition of a screen. The Echo Show (on sale now for £199.99, bit.ly/echoshow439) has a 7in, 1,024 x 600-pixels display that lets you see the news headlines, your calendar, a weather forecast and other useful information, as well as browse and buy from the Amazon store. Its party trick, however, is the ability to make video calls using the 5-megapixel webcam. Google is also developing a version of its Home speaker with a screen, codenamed Manhattan.

CONTROL MORE WITH CORTANA

If you have Windows 10 on your PC, you can already use your voice to interact with the web. Cortana, which began life on Windows phones and is now available on Android and iOS too, has become more powerful with each major update of the operating system. Here are some of the most useful things you can do with Microsoft's voice assistant.

Force Cortana to use Google

Cortana uses Edge when you ask it to search for something, but you can make it open Chrome or Firefox instead. Go to Start, Settings, System then 'Default apps'. Click Edge and choose Chrome or Firefox from the list that pops up. You can also install an extension that diverts Cortana's searches from Bing to Google. Our favourites are Chrometana for Chrome (bit.ly/chrometana439) and Bing2Google for Firefox (bit.ly/bing439). Chrometana also lets you set DuckDuckGo or Yahoo as your preferred search engine.
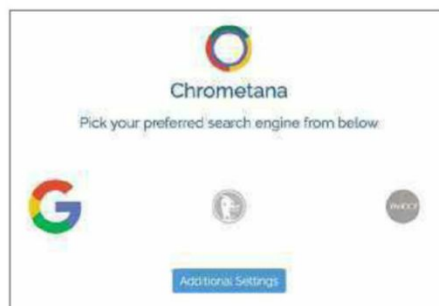
Convert units and currency

To convert quickly between units of measurement, you can say "Hey Cortana, how many pints in a litre?" or "Convert 180 centimetres into feet", for example. Similarly, you can perform instant currency conversions by saying, "Convert 150 pounds into dollars". Cortana can also tell you what time it is anywhere in the world – so, for example, you can ask, "What's the time in New York?".

### Make Cortana respond to your voice only

For added security and convenience, you can set Cortana to respond only to your voice and ignore those of anyone else in your vicinity. Click Cortana in your taskbar, then the settings cog and move the Hey Cortana slider to On. Select 'Learn how I say "Hey Cortana"' and you'll be prompted to speak six commands into your PC's microphone. Once you've done that, select the option 'Try to respond only to me'.

Predict the outcome of sporting events

If you want to know whether your football team is likely to win its next match, or you just fancy a quick flutter, you can ask Cortana to predict the outcome of Premier League matches and other big sporting events. Just say "Who will win – Arsenal or Chelsea?", for example, and Cortana will tell you what it thinks, based on prediction information from Bing. Cortana's success rate is apparently pretty high, and it can also provide details of fixtures and results.

Get Cortana to cheer you up

Cortana can be a bit of a joker at times, and provide amusing responses to particular questions and commands. Ask it to "tell me a joke" or "say something funny" and it will try to tickle your ribs with such quips as "Why was the calendar nervous? Its days were
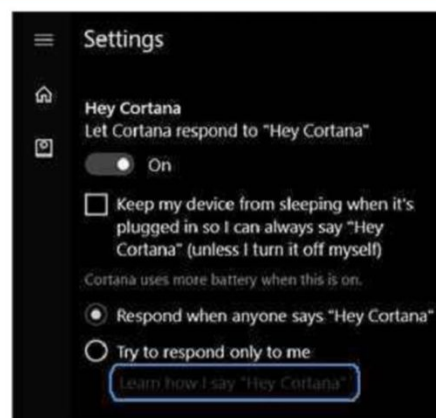
numbered" and "What's brown and sticky? A stick". Order it to "do a barrel roll" as you can in Chrome and Android, and it will present you with a Swiss roll.

If you say "Hey Siri", Cortana will respond to the mention of its rival voice assistant with "I think we might have our wires crossed", while if you tell Cortana to "sing me a song" it imitates HAL 9000 from *2001: A Space Odyssey* with a rendition of 'Daisy Bell'. And those are just a few of Cortana's quirkier retorts. ∎

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BATTLE OF
THE BROWSERS

**Should you use Chrome, Firefox, Edge or something else in 2018? Find out in our ultimate showdown**

PLUS...

EXPOSE YOUR ISP
Is your broadband provider tricking or throttling you?

RECORD YOUR CALLS
Free legal ways to capture online conversations

CONTROL YOUR DATA
Stop background programs hogging your bandwidth

Best apps for photo editing

We can't all be award-winning photographers, but with the right app, anyone can bring out the best in their pictures. **Mike Fallon** tests six free photo editors for Android
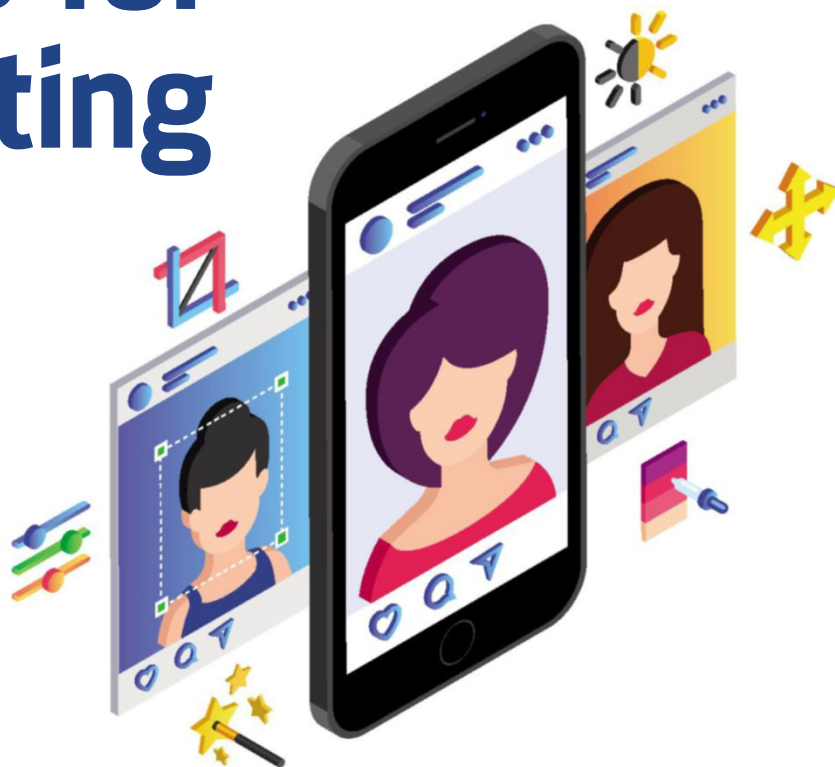
PhotoDirector Photo Editor App | bit.ly/phod439 | ★★★★★
FEATURES ★★★★★ PERFORMANCE ★★★★☆ EASE OF USE ★★★★☆

WebUser
GOLD AWARD

What we liked:
PhotoDirector pipped its closest rival, Snapseed, to the Gold Award, thanks to its wide range of features and user-friendly interface. It's the biggest of the apps we reviewed, taking up 41.82MB of storage, but if you're serious about photo editing, it's worth the space.

While it's clear that this free app is designed to hook you in and encourage you to buy the full version (which is actually very good value at £4.59), it doesn't scrimp on sophisticated features.

Swipe along the toolbar at the bottom to explore its many tools, which range from basics – such as rotate and crop – to powerful photo-enhancing effects. We were particularly impressed to see a decent cut-out tool, and there are several more fun and frivolous effects here than you'll find in Snapseed.

One of PhotoDirector's most useful features is also one of the simplest: a redo/undo button. The software also lets you compare edited and original photos, making it easier to achieve great results. If you need help, you can turn to the app's support and tutorials, which link to useful YouTube videos and cover a wide range of the app's tools – from simple to advanced.

How it can be improved:
Each tool opens with an explanatory note, but they aren't that helpful in practice. If you don't know what something does, it's easier to just start using it. The main screen has an advert right in the middle, although it's not as obtrusive as it sounds. Where some other apps use sliders or selectable tools to scroll and zoom, PhotoDirector relies on pinching and pulling gestures that can sometimes be misinterpreted, which can be frustrating.

OUR VERDICT
PhotoDirector provides lots of useful features and although there are some compromises in the way its interface works, the app does an extraordinary job of being both intuitive and effective. Despite being a free version of a paid-for app, it doesn't feel limited in the basic tools it provides. If you need more, the upgrade price of £4.59 doesn't seem at all unreasonable.

Snapseed | bit.ly/snap439 | ★★★★☆
FEATURES ★★★★☆ PERFORMANCE ★★★★★ EASE OF USE ★★★☆☆

WebUser SILVER AWARD

What we liked:
Google's Snapseed sets a high standard for free photo-editing apps that others would do well to follow. It has powerful tools and an interface that's easy to use, with each editing screen offering a choice of related options. Scroll up and down to select the adjustment you want to make, then swipe from side to side to apply it. It couldn't be simpler.

Snapseed offers a great selection of brush tools. With skill and patience, these can do more for a picture than blanket adjustments will ever manage.

There's no question that this app is aimed at skilled users but it has plenty to offer those who want to learn, too. Its in-app tutorials and embedded YouTube videos show what's possible with a little creative thinking.

How it can be improved:
Snapseed is just a photo-editing app, with no camera mode and no collages. The trade-off for powerful tools is an unforgiving experience for those who don't know what they're doing. The prominent 'auto-adjust' button only makes things worse, because it's easy to hit by accident and frequently chooses settings that don't make enough changes. The option to undo changes disappears after a couple of seconds, too, which is not very helpful.

OUR VERDICT
This is a powerful app that produces great results. It's less suitable for beginners, though, so it might be better off abandoning the attempts at hand-holding and sticking to what it does best.

Fotor Photo Editor | bit.ly/fot439 | ★★★★☆
FEATURES ★★★☆☆ PERFORMANCE ★★★★☆ EASE OF USE ★★★★★

WebUser BRONZE AWARD

What we liked:
Fotor and Pixlr have a lot in common, but we gave Fotor our Bronze Award because it strikes a better balance between ease of use and features.

The uncluttered home screen offers three main options – camera, edit and collage – which are set against an inspiring background picture. The camera mode appears basic but its tap-to-focus feature works better than those of most pre-installed camera apps. The editor is similarly good at the basics but without being showy.

We particularly liked the cropping tool, which provides a selection of preset formats as well as manual cropping, so if you need a picture to fill a specific space, you can accomplish that without any fuss.

How it can be improved:
There's no retouching tool, which means you're limited to manipulating colour values and applying filters, most of which are available only as in-app purchases.

The collage function could also be better. It asks you to choose your layout before you select the photos to include, which is the wrong way round. It's easier to pick your images first, as you do in rival app Pixlr, so you don't have to commit to a set number of frames in advance.

OUR VERDICT
Unlike our Gold and Silver Award winners, Fotor is in no way intimidating. If you just want to tweak your pictures without too much fuss, this is the app for you.

BEST OF THE REST

Pixlr
bit.ly/pix439
Fotor beat Pixlr by offering similar features but making them easier to use. One example is the way you apply changes to the colour palette. In Pixlr, changes take a while to load, so it's harder to make intuitive adjustments. The camera mode can be a little confusing, too, with swipe-activated filters that would be better left in the editing section. However, Pixlr is a smaller app and has more fun features, such as stickers.

VSCO
bit.ly/vsc439
More than just a photo-editing app, VSCO includes social networking features and the ability to create an online portfolio. This means the app requires a few more permissions than the others reviewed here. To access the full range of features, you need to sign up for VSCO X, which connects you with the community and offers the ability to save up to 10 preset editing 'recipes'.

LightX Photo Editor & Photo Effects
bit.ly/ligx439
Of all the apps we review here, this relative newcomer offers the most comprehensive set of features, including a cut-out tool – the lack of which kept Snapseed in second place. Unfortunately, LightX is also the only app where intrusive advertising was a genuine problem, and many of its features are locked in the free version.

Stop websites HACKING your hardware

There are more hidden threats in web pages than you realise. Robert Irvine explains how to protect your PC, keyboard, mouse and webcam from devious scripts

Stop websites recording your keystrokes

Researchers at Princeton University's Centre for Information Technology Policy (CITP) recently discovered that more than 400 of the most popular websites in the world – including The Telegraph, BBC Good Food, Microsoft, HP and Sky – run code that's capable of tracking everything you type. This means that, without your knowledge or express consent, your information is being taken and used by third-party servers. In fairness to the sites, it's not actually their intention to obtain this information, but a consequence of using something called a 'session-replay

script'. These scripts monitor how you browse pages to inform webmasters how they can improve visitors' 'journeys' through their websites.
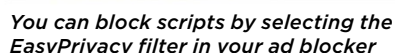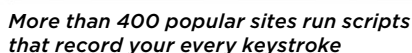
Unfortunately, these scripts record practically everything, including every keystroke you make, and send the data to be analysed. When you fill in a form with your email address, phone number and personal details, even if you change your mind and don't click Submit, the spying site will already have your data.
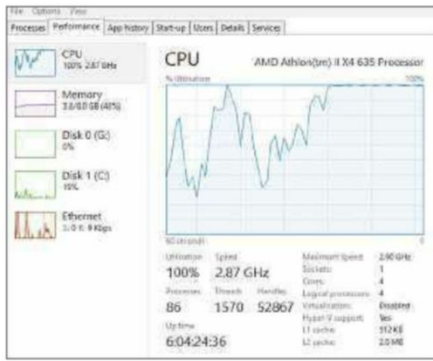
To combat this privacy intrusion, CITP has compiled a searchable list (bit.ly/citp439) of every site that uses session-replay scripts. Handily, it also tells you if that site sends your information

to third-party servers, so you can avoid it in future – although, thankfully, some sites have abandoned the practice in response to CITP's research.

If you don't want to change your browsing habits, you can foil these scripts using an ad blocker such as Adblock Plus or uBlock Origin in conjunction with the EasyPrivacy filter list, which was recently updated to block session-replay scripts. Either tick the EasyPrivacy option in your ad blocker's options or subscribe to the list through its parent website, EasyList (easylist.to).

Alternatively, use the Firefox add-on NoScript (noscript.net) to block these dodgy scripts by default – see page 33 for details of its latest version.

Don't let your PC be used to mine coins

With Bitcoin's value now exceeding $10,000, it seems that everybody wants a piece of cryptocurrency, and would rather 'mine' for coins than pay the admittedly extortionate price. Because mining requires a lot of processing power, many websites now piggyback on their visitors' PCs to generate new and potentially lucrative coins. In some cases, they do so deliberately – as an alternative to earning revenue from advertising – but hackers are also

More than 400 popular sites run scripts that record your every keystroke

You can block scripts by selecting the EasyPrivacy filter in your ad blocker

Heavy processor usage may indicate that your PC is being mined for coins

Unlock your right-click menu when websites disable the function

Who Stalks My Cam alerts you whenever your webcam is activated

injecting code into web pages that mines cryptocurrency without either you or the site owners knowing.

One giveaway sign that a site is using a coin miner is a significant spike in your processor usage when you visit. You may notice your PC getting slower and if you click the Performance tab in the Windows Task Manager (Ctrl+Shift+Esc), you'll see your CPU usage has rocketed.

Fortunately, there are several free tools that block these miners and prevent sites from making (virtual) money from your system resources. The No Coin extension (bit.ly/nocoin439) for Chrome, Firefox and Opera blocks all

NoCoin stops mining scripts stealing your processing power

known cryptocurrency miners, while Anti-WebMiner (bit.ly/anti439) protects your PC from mining scripts by making a change to the Hosts file. You can also add the NoCoin list (bit .ly/nocoinlist439) to your ad blocker to block 'browser-based crypto mining'.

Note that these sneaky miners aren't generating Bitcoin – which by now involves huge data centres containing thousands of machines dedicated to the task – but a cryptocurrency called Monero. Notorious miners include Coin Hive, JSEcoin and Feathercoin.

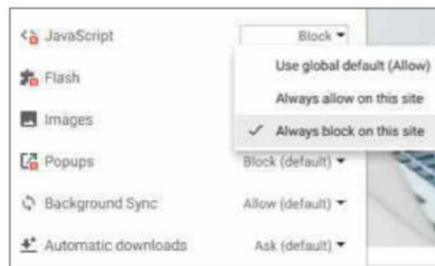## Stop sites hacking your right-click menu

Left-click to select, right-click for options: that's how mice are supposed to work, but on some websites this isn't the case. You'll either find that your right-click menu doesn't open at all – to prevent you from copying and pasting the site's content – or that the options have been hijacked to show advertising links. Both these methods use JavaScript to cripple your poor mouse, but luckily there are ways to prevent this hijacking.

To stop your right-click button being disabled, install Allow Select And Copy for Chrome (bit.ly/allow439) or Happy Right-Click for Firefox (bit.ly/happy439), both of which block the offending script without you needing to turn off JavaScript on every site. With the latter, you can unlock the right-click menu simply by clicking the toolbar button, while the Chrome extension offers an 'Ultra' mode that overrides restrictions.

Firefox also lets you stop sites hijacking your right-click options with ads. Type `about:config` into the toolbar, press Enter and accept the 'dragons' risk. Find the entry 'dom.event .contextmenu.enabled' and double-click it to change its value to 'false'. In Chrome, click the padlock or 'i' icon to the left of the address bar, click the menu next to JavaScript and select 'Always block on this site'. Reload the

Disable JavaScript to release your right-click menu from hijacking
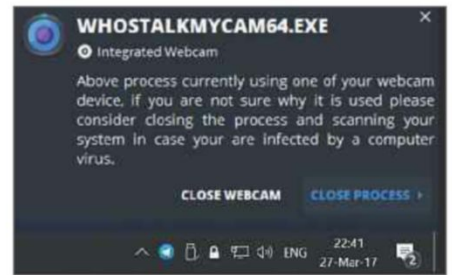
site and your right-click menu should be released.

Stop websites hijacking your webcam

Last year, we all had a good chuckle at Mark Zuckerberg taping up his webcam to keep out spies, but the Facebook CEO is right to be paranoid because camera hijacking is a very real threat. Using a remote access Trojan (RAT), hackers can turn on your webcam, record your activities and use what they learn about you for further malicious attacks. Aside from the usual advice of not opening unsolicited email attachments and keeping your antivirus up to date, you can protect yourself by using Who Stalks My Cam (bit.ly/whostalks439). This free program detects and lets you block unauthorised use of your webcam by malware and dodgy scripts, and displays a pop-up notification to warn you. It also logs which program or process used your webcam, at what time and for how long, and lets you set up useful rules, for example, to switch off your camera automatically when you're away from your PC.

By default, Who Stalks My Cam notifies you every time your webcam is activated, but if you find this distracting, you can add certain programs – such as Skype – to a whitelist. ∎

TURN OFF THE KEYLOGGER IN WINDOWS 10

It's no secret that Windows 10 has many dubious privacy settings, but did you know that one of these features records what you type and sends the data to Microsoft? To block this unwarranted spying on your keyboard, go to Settings, Privacy, General. Here, you'll see the creepy option 'Send Microsoft info about how I write to help us improve typing and writing in the future', which you should switch to Off. In its defence, Microsoft says it's collecting keystrokes to improve handwriting and pronunciation recognition, not to monitor everything you do, but that's surely the oldest excuse in the book!
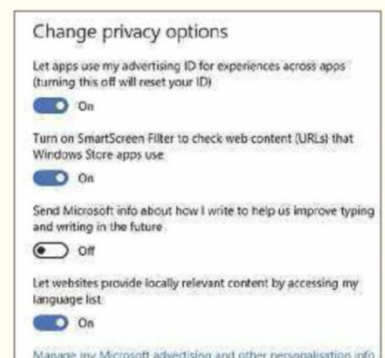
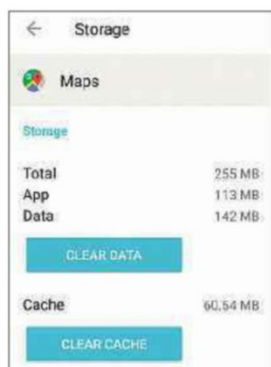*Prevent Microsoft from recording and analysing your every keystroke*

Free up space without losing anything

Need a clearout before 2018? **Wayne Williams** explains how to reclaim storage on your PC, phone and tablet without having to delete important files

Clear the caches of mobile apps

Most popular apps, including Google Maps, Chrome and Spotify, download and cache data so they can load it again quickly when they need it. This cached data can really build up over time, eating into your mobile device's available storage. To clear the cache and free up storage space, tap the cog shortcut in Android to open the Settings menu. Look for Apps (or Applications) in the menu and select the first app you want to clean up. Tap Storage, then use the buttons provided to clear the cache and app data. The exact procedure will vary slightly depending on which version of Android you're running.

Clear app caches and data to free up space on your mobile device

You could download an app, such as Clean Master (bit.ly/clean439), to perform this task for you, but it's better to take control of the process yourself and clear your caches manually.

Clear junk files from your PC

Avast's cleanup tool CCleaner (www.piriform.com/ccleaner) can remove large quantities of junk from Windows, and gives you complete control over which areas to tackle. You can clean the cache and history for all your browsers, delete temporary file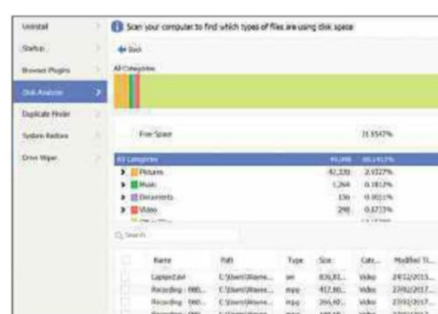s, empty the Recycle Bin and more. It can also clean up after most popular applications installed on your PC. By default, the program automatically selects the safest sections to clean, but you can remove a lot more junk by ticking additional options. Pay close attention to any warnings that appear when selecting Advanced options, though.
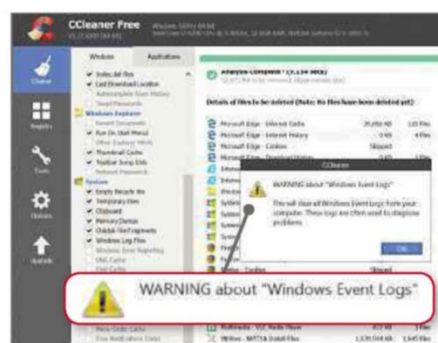
CCleaner makes it easy to delete junk files – but don't ignore its warnings

Locate and delete unnecessary space hogs

You may find that a handful of oversized files and folders, such as 4K videos, are taking up a lot of your hard-drive space. TreeSize Free (www.jam-software.com) helps you find them by displaying your PC's data-storage use in a visual way that's easy to understand.
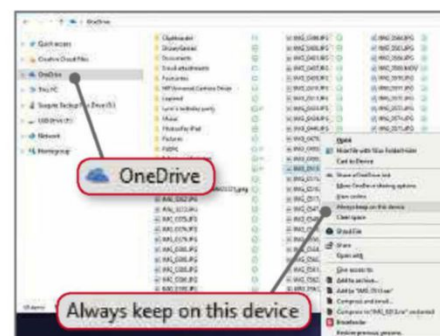
CCleaner can also identify these space hogs for you. Go into Tools and select Disk Analyzer from the sidebar. Pick the categories you want to look for (the best option is Everything), tell it which drives to target, then click Analyze. CCleaner sorts the files into size order. Right-click one to open its folder. You can then move it elsewhere or delete it if you don't need it.

Use Files On-Demand to store files in the cloud

The Windows 10 Fall Creators Update introduced a new Files On-Demand option for Microsoft OneDrive. This lets you view all the files you've saved to OneDrive as if they were on your Desktop, without having to download them first. Open File Explorer and click the OneDrive entry on the left. You can view everything that's stored in Microsoft's cloud service and also add new files to upload. Colour-coded icons let you see at a glance whether a file is on your computer's local storage or only available online.

Find out which files use the most space and move or delete them

Store important files in the cloud to save space on your hard drive

Free up space without losing anything

If you save a file in OneDrive, you can free up space on your PC by deleting any local copies from your hard drive. Right-click a file and select 'Clear space'.

Reduce the quality of photos and videos

Many smartphones now come with 12-megapixel cameras that can take photos with lots of detail and record high-resolution 4K video. The drawback is that the files they produce can be enormous.

If you copy your photos from your phone to your PC, you can use free software such as ImBatch (bit.ly/imbatch439) to reduce the size of multiple images at once. It may also be

Use ImBatch to reduce the size of media files and leave more room on your PC

a good idea to limit the size of your images and videos before you take them. You can reduce the quality of the video your iPhone captures by going to Settings, Camera. Sadly, you can't do the same for photos, but by default iPhones now use the HEIF and HEVC formats to produce smaller image and video file sizes.

Samsung phones give you the option to reduce the size of photos in the camera app.

Compress your files and folders

If you have lots of files on your hard drive that you don't use regularly but don't want to remove from your PC, it makes sense to archive them in groups. This can free up lots of space, and having fewer individual files on your hard drive also makes things much tidier. JPEG images are already compressed, so you probably won't save much space by archiving them. You can squeeze them down a little bit more, however, by using 7-Zip's (www.7-zip.org) own 7z file format, which offers a higher compression ratio than Zip.

Remove duplicate files

Storing more than one copy of the same file in different directories can account for a surprising amount of wasted hard-drive space. Dedicated duplicate finders are available that can identify these clones but again, CCleaner also comes with a tool for the job. Click Tools, then select Duplicate Finder. You can match duplicates by Name, Size, Modified Date and Content, and specify locations to include and exclude in the search.
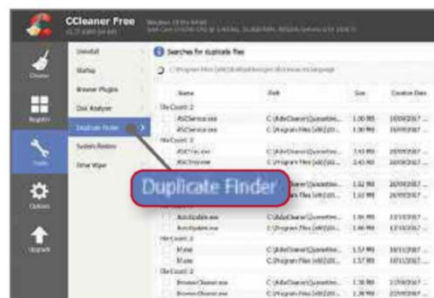
Removing duplicate files is a good way to free up space without losing anything

Remove old System Restore points

System Restore is an absolute lifesaver at times, but many of the restore points you accumulate over the weeks and months are simply a waste of space. You can limit how much hard-drive space System Restore can access by typing `system` into the search box to launch the System control panel. Click the System Protection link, select the drive you want in the System Properties box and click Configure. Drag the slider to change the amount of space allocated to System Restore points.
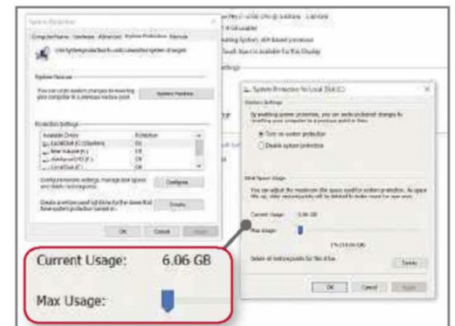
Delete old System Restore points to stop them wasting valuable space
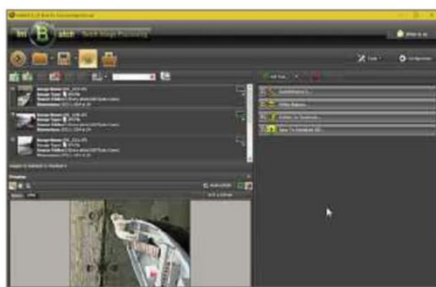
Move media files to a USB drive

Rather than filling up your PC with photos and videos, consider buying a dedicated USB drive for storing them. Western Digital's My Cloud (bit.ly/mycloud439) provides a central storage device for your network that lets you access your media from anywhere. You can use it to back up your PC or Mac, as well as phones and tablets, and it's available in a choice of capacities – from 2TB to 8TB. Prices start at £129.

WHAT NOT TO DELETE

It should go without saying, but there are certain files and folders you shouldn't delete. Windows system folders are at the top of this list: if you delete any of these, you risk breaking the operating system.

Two of the biggest files you might find on your PC are Hiberfil.sys and Pagefile.sys. If you want to get rid of Hiberfil.sys, simply turn off hibernation (if it isn't switched on, you won't have this file). Follow the instructions at bit.ly/hiber439. Pagefile.sys, meanwhile, acts as virtual memory, so we recommend leaving it well alone.

You can free up lots of space by using Windows' built-in Disk Cleanup tool to remove old Windows

installations, but you won't be able to roll back to the previous version of Windows if you do.

Finally, always make sure you uninstall programs properly rather than simply deleting their folders. This ensures that all its components are removed with no leftovers and no risk of messing up your PC.

Use IFTTT with Google services

IFTTT (If This, Then That) has added brilliant new tools for working with Google Drive, Docs and Sheets. Here's what you need to know.

IFTTT: ifttt.com | ⏱ **20 mins** | **IFTTT and Google accounts**

IFTTT is a useful service that lets you link popular apps and devices so they can 'talk' to each other. It works by connecting triggers to actions, using applets. A simple example might be: "IF I post something on Facebook, THEN I want it tweeted" or "IF I take new photos in iOS, THEN they should be backed up to Google Photos". The possibilities are endless, and you can use ready-made applets or construct your own. IFTTT recently introduced new triggers and actions for Google Drive, Docs and Sheets, making it easy to perform tasks such as uploading files to Drive, adding rows to a spreadsheet, appending documents, getting notifications of changes to shared documents and more.

1 If you've never used IFTTT, get started by going to ifttt.com and entering your email address, or by logging in via Google or Facebook. Once you're signed in, click Search, **1** then click the Cloud Storage option. There are tiles for Google Drive, **2** Google Docs **3** and Google Sheets. **4**

2 Click Google Drive and you'll see a list of applets you can use or adapt. **1** Click More **2** to view additional ones. To activate an applet, click it to go to its page, then click the button to switch it on. You'll need to connect to the related services and grant them any required permissions.

3 To create a new applet, simply click My Applets, **1** then click the New Applet button. You'll see an 'If + this then that' message. Click the blue plus sign and either find Drive in the wall of available tiles **2** or search for it. **3** Click the tile when you've found it.

4 There are five triggers available – 'New file in your folder', **1** 'New file from search in a folder', **2** 'New photo in your folder', **3** 'New video in your folder', **4** and 'New starred file in folder'. **5** As an example, we'll create an applet that records every new photo you add to Google Drive in a spreadsheet.

5 Install Google Drive Backup & Sync (bit.ly/gdbs439) on your PC, if you haven't already. Open the Google Drive folder at C:\Users\[username]\Google Drive and create a subfolder for new files. Enter its path into the box **1** and click 'Create trigger'. **2** You'll see an 'If [Google drive icon] this then + that' message.

MY APPLETS
Access any applets you've created and view all connected services. You can delete or disconnect any you don't require
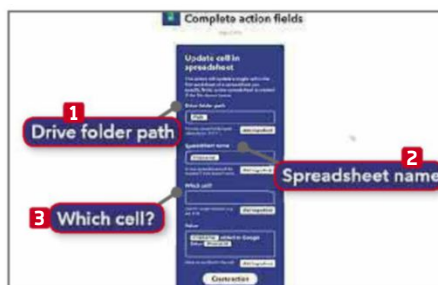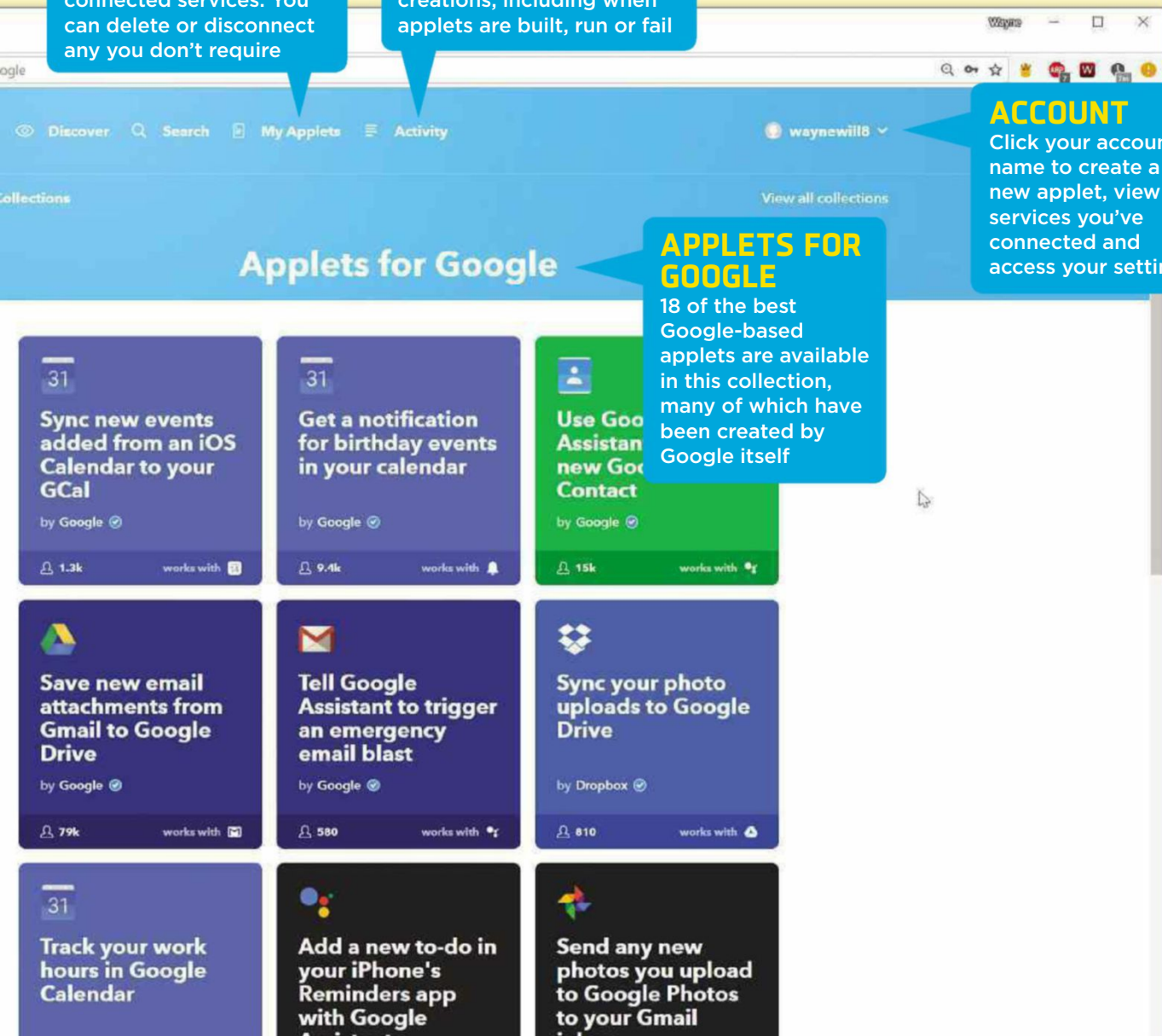
ACTIVITY
Keep an eye on what's happening with your IFTTT creations, including when applets are built, run or fail

ACCOUNT
Click your account name to create a new applet, view services you've connected and access your settings

APPLETS FOR GOOGLE
18 of the best Google-based applets are available in this collection, many of which have been created by Google itself

6 Click the blue plus sign and search for Google Sheets. There are two new actions – add a row to a spreadsheet or update a cell in a spreadsheet. We'll select the latter. Next, complete the action fields. You can specify the drive folder path, **1** spreadsheet name **2** and a cell you want to change. **3**

7 Click 'Create action', then review the new applet. **1** Toggle the switch to On if you want to receive notifications when it runs. **2** Click Finish. **3** To make sure it works, drag some images into the drive folder you specified. Either wait for the applet to run or click the 'Check now' button on the applet's screen.
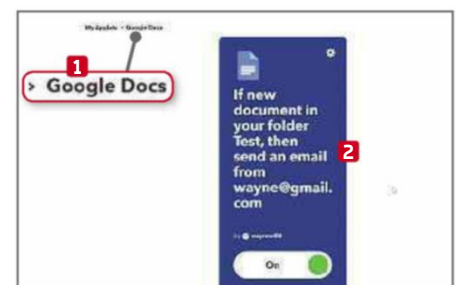
8 A new spreadsheet will be created in Sheets. It will also be available in the Drive folder alongside your images. You can build lots of similar applets. In the example above, when a document is copied to a specific folder in Docs, **1** an email message will be sent to a friend to let them know it's there. **2**

Switch to the safest DNS server yet

**Quad9: www.quad9.net** | 🕐 **10 mins** | **Any device**

When you type the name of a website into your browser, the request goes to a DNS (Domain Name System) server, which returns the numerical IP address of the site in question so the browser can find it. Most people use the default DNS server provided by their ISP, and while it will be perfectly adequate, it may not be the fastest or most secure. Quad9 is a new security solution from IBM, PCH and the Global Cyber Alliance that promises to improve your system's security, privacy and performance by routing requests through its own DNS servers, which have been designed to prevent you from accessing unsafe sites. Your requests are handled by the nearest data centres, which should result in a speedy response. Quad9 doesn't record or store your browsing history.
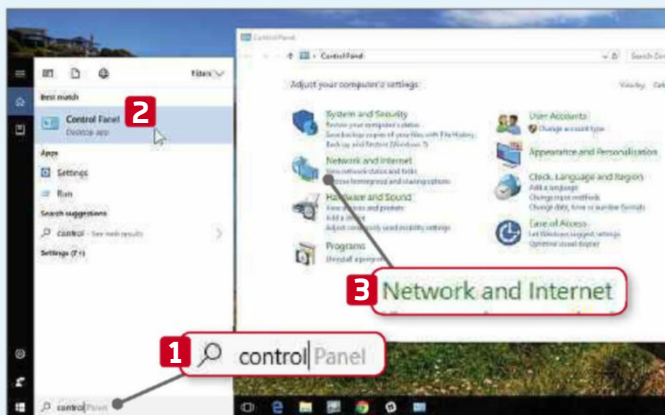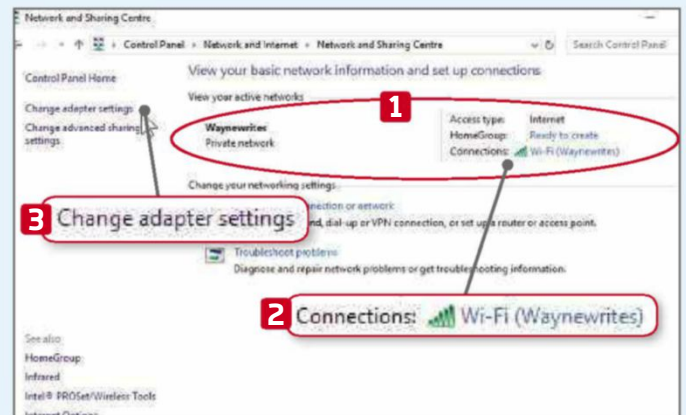
**1** Changing your PC's default DNS server is easy to do and shouldn't take more than a few minutes. The process is mostly the same in any version of Windows. Type `control panel` into the Windows search box, **1** then launch the Control Panel app. **2** In Category view, click 'Network and Internet'. **3**

2 Click the 'Network and Sharing Centre' link in the next window. From here, you can view information about your active network, **1** including the current connection type (Wi-Fi in our case). **2** In the side panel on the left, click the 'Change adapter settings' link. **3** This opens a separate Network Connections window.
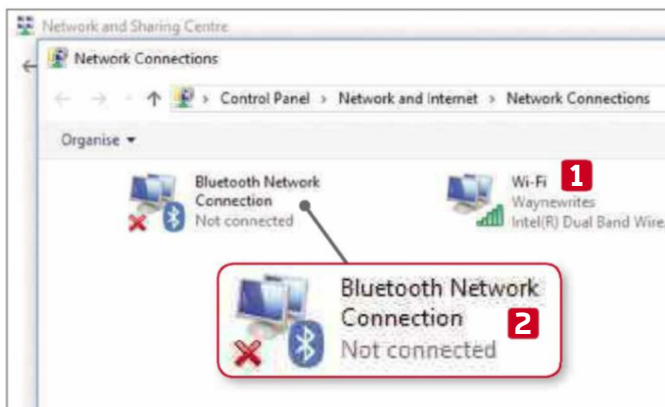

3 Identify the network that you use to access the internet. This will be the connection shown on the previous page. **1** You may have more than one option listed, including connections that are not in use, such as Ethernet or Bluetooth, **2** marked with a red X. You can ignore anything other than your main network.
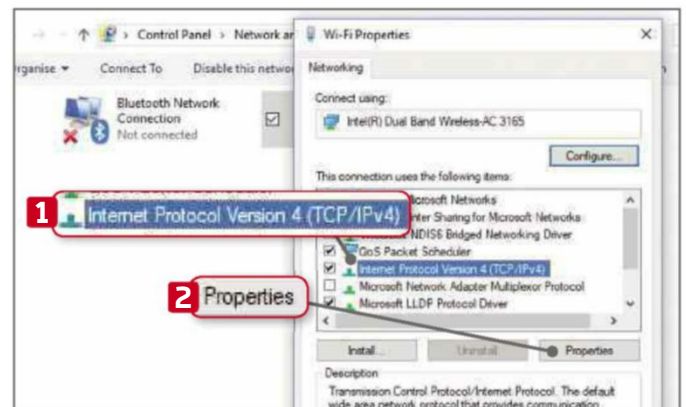
4 Right-click your network connection and select Properties. In the box for 'This connection uses the following items', find 'Internet Protocol Version 4 (TCP/IPv4)'. **1** Note that there is also a setting for Version 6 – just ignore it and click Version 4. Click the Properties button. **2**

5 In the Properties window that opens, 'Obtain DNS server address automatically' should be selected (unless you've changed this previously for some reason). **1** To enter the new Quad9 details and secure your DNS, select 'Use the following DNS server addresses'. **2**
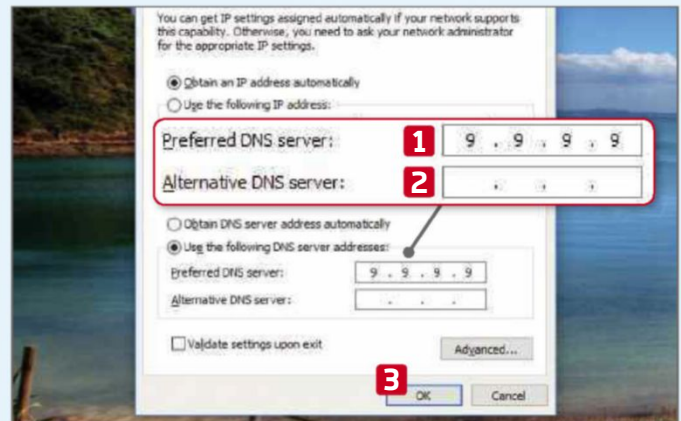

6 In the 'Preferred DNS server' box, **1** type the address for Quad9. It's ridiculously easy to remember: `9.9.9.9` (which is why it's called Quad9). You don't need to enter anything into the 'Alternative DNS server' box. **2** Click OK **3** and close the rest of the boxes. Everything is now set up for you to use.


7 You can also set up Quad9 on your router, so all your devices connect to the internet via the more secure DNS. The process will vary depending on your router, but Setup Router (setuprouter.com) should be able to help. Click the initial letter of your router **1** and find the exact model.

8 Log into your router using the instructions on the website. You'll need to enter the IP address for the router into your browser, then enter your password (and maybe other details). Find the DNS settings option and enter the Quad9 details (`9.9.9.9`). **1** Not all routers allow you to change the DNS setting.
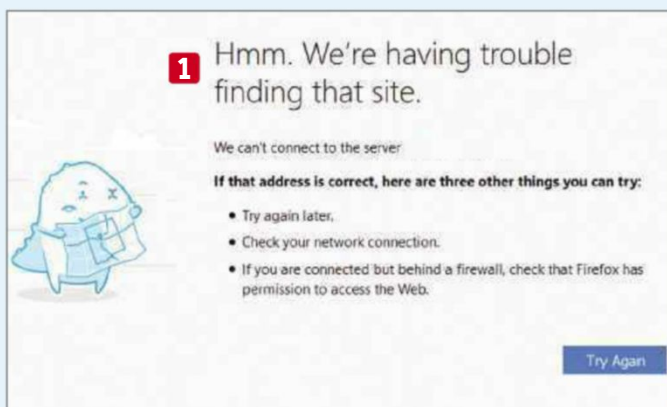
9 Once your new DNS provider is set up, just browse the web as you would normally – you shouldn't notice anything different (although pages might load a little quicker). If you try to access a 'bad' page, however, Quad9 will act as if the domain simply doesn't exist and your browser will return an error message. **1**
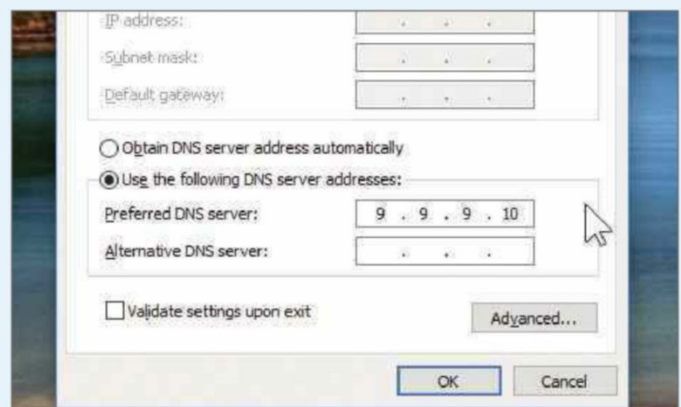
10 Quad9 also offers a DNS server that doesn't protect you from malicious sites or provide any other security – it simply behaves like a regular DNS server. To use it, open the Internet Protocol Version 4 (TCP/IPv4) Properties window and enter `9.9.9.10` as the primary DNS. Only ever use one of the addresses – either 9.9.9.9 or 9.9.9.10.

Make your Chrome history easier to search

Your web browser stores your browsing history so you can easily check which sites you've previously looked at and revisit them. In Chrome, you can bring up your browsing history by pressing Ctrl+H or visiting `chrome://history`.

Better History is an add-on for Chrome which, as its name suggests, offers a clearer and more efficient way of viewing this information.

Better History: better-history.com | 🕐 **10 mins** | 🌀 **Chrome**

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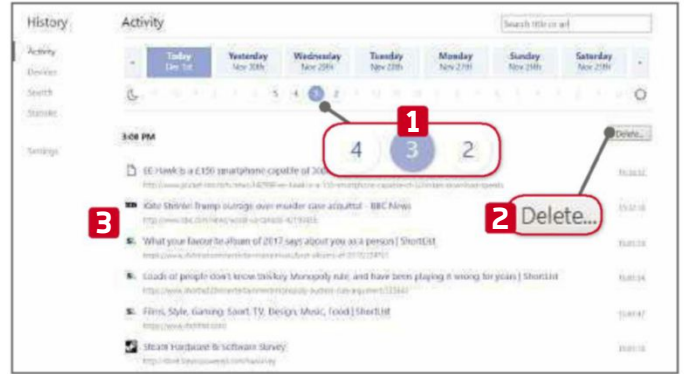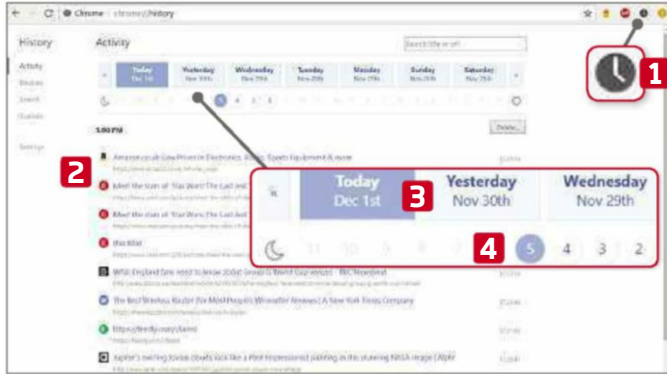
1 Once installed, a Browse History button is added to your browser. **1** Click it and your history is displayed as a list of the web pages you've visited. **2** The add-on replaces Chrome's default History tool. A bar at the top lets you explore your activity by date **3** and by time. **4**

2 You can see the hours when you were active on the web. Clicking one of the circles that isn't greyed out will display your history from that point. **1** Wipe all the pages visited at a specific time by clicking the Delete button next to it. **2** To reopen a site, click its entry. **3**

---

3 Hover over an entry and you'll see the option to get 'More from site'. Click this to view a list of pages you've visited from that site. For speed, only your last 10,000 pages are used. If the page you want isn't there, click 'Search deeper' **1** to go back further, though this may slow down the tool.

4 If you use Chrome on other devices, such as another computer or mobile device, you can view the history for those, too. Click the Devices option and select the device name. **1** You'll need to be logged in with the same Google account.

---

5 If you're looking for a specific page or site, you can simply search for it. **1** Results will appear in a list in the Search section. **2** Visits are searched by page title and URL, and downloads by filename and URL. You can also delete everything relating to a search. **3**

6 Click Statistic **1** to view a graph of your browsing history, showing the percentage of time you've spent on each site. **2** You can see the exact length of time you were viewing those sites. **3** Use the links at the top to change the time period. **4**


Check your startup programs are malware-free

Lots of programs set themselves to start automatically alongside Windows. Some, such as your antivirus software, are vital for the safe and efficient running of your PC but others will unnecessarily slow it down and may even be considered unsafe. Autorun Organizer keeps an eye on these programs for you. Make sure you decline any extra software offered during installation.

**Autorun Organizer: bit.ly/auto439** | 🕐 **15 mins** | 🪟 **Windows XP, Vista, 7, 8, 10**
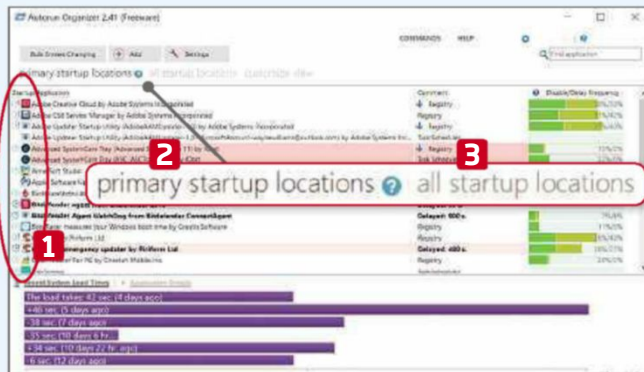
1 Run the software to display a list of all the applications that start with Windows. **1** By default, it shows entries from the primary startup locations (ones which need the most optimisation), **2** but you can switch to 'all startup locations' **3** if you want to be more thorough.
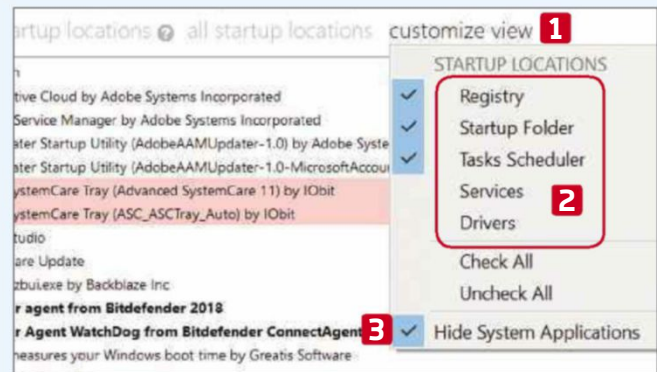

2 The 'customize view' option **1** lets you specify startup areas to include, such as Registry, 'Startup folder', 'Tasks scheduler', Services and Drivers. **2** You can also hide all system applications. **3** This is the default option, and stops you accidentally disabling important Windows components.
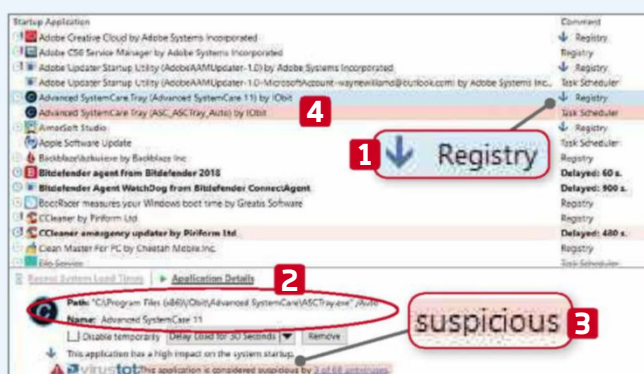

3 Items marked with a down arrow **1** have a big impact on your PC's startup speed. Click an entry to see info about it below, including its path and name. **2** All entries are checked for malware by Google's VirusTotal service, which flags suspicious entries **3** and highlights them in the list. **4**
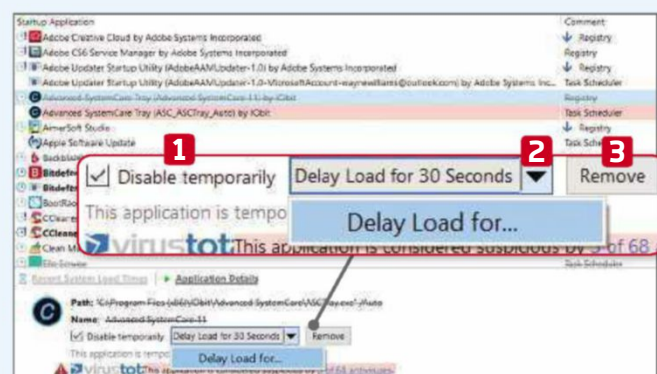
4 You can temporarily delay the application's startup, so Windows gets into a usable state faster, by ticking the 'Disable temporarily' box. **1** By default, the delay is 30 seconds but you can click the down arrow **2** to choose your own delay time. You can also Remove the program entirely. **3**
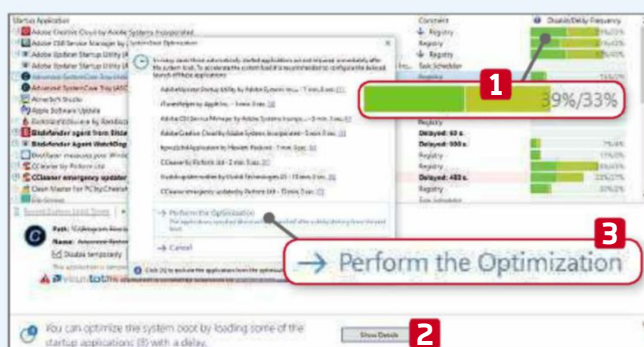
5 To provide guidance, the Disable/Delay Frequency sidebar shows the percentage of other users who disabled or delayed an entry. **1** Autorun Organizer can also optimise your PC's boot-up for you. Click the Show Details button, **2** then click 'Perform the Optimization'. **3**
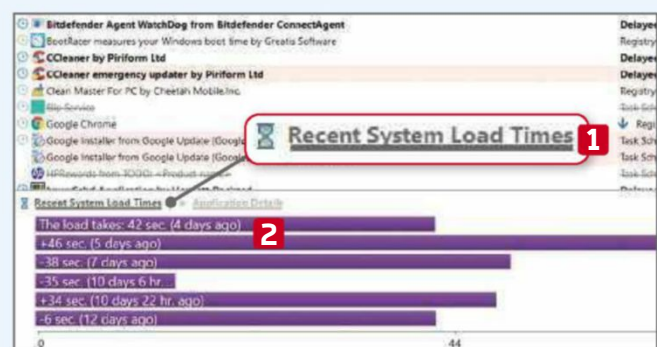
6 Click the Recent System Load Times link **1** to see how long previous boot-ups have taken. **2** If you've installed new software, or removed or delayed a startup entry, this will give you an idea of the impact that action had. Restart your PC to get the current load time.

How to... Build your own PC from scratch

Ben Hardwidge helps you finish the PC you started building last issue

**Part 2
Put your PC together**

Constructing a PC from scratch is a big job – so big that we've had to split our guide across two issues! If you didn't catch Part One, you might want to go back and see what you missed at **bit.ly/webuser438**, where we covered the tools and components you need, and finished with a skeleton PC ready for its first test.

In this second and final part, we'll go through the testing process, demonstrate how to mount the components in the case and show you where to hide any cables. By the end of this project, you should have a fully functioning PC.
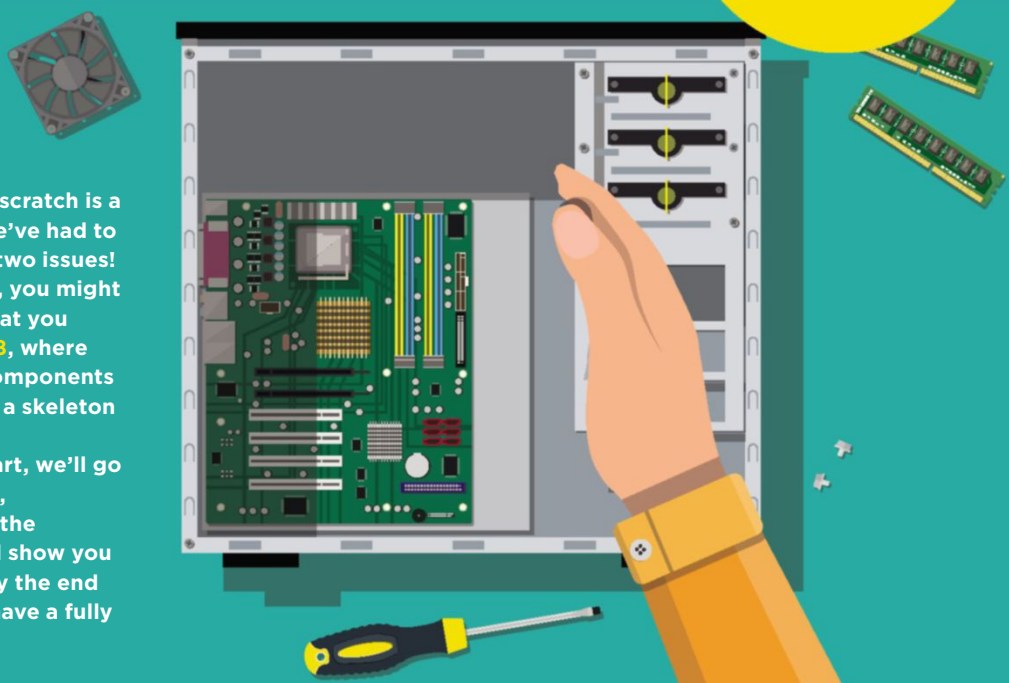
Run your first test

If you followed last issue's project, you should now have a basic, working PC, so it's time to assemble and test it before you screw everything into the case. Before touching any components, make sure you're earthed, ideally by using an anti-static wrist strap.

Start by putting your motherboard on a raised surface, such as your motherboard box. If you're using a graphics card, remove any plastic covering from its main slot connector and plug the card into the top 16x PCI-E slot – that's the large slot under the processor socket. **1** Plug a keyboard and mouse into the USB ports on the back.

Hook up your power supply's 24-pin ATX and 8-pin EPS plugs (see our guide to the various power connectors on the opposite page) to the sockets on your motherboard. You can now connect the PCI-E power plugs to the sockets on your graphics card (if this is an 8-pin socket, use the 2-pin extension with the supplied 6-pin plug).

Connect any SATA drives such as hard drives and 2.5in solid-state drives to the SATA power connectors on your power supply, and use the data cables (which came with your motherboard) to connect the drives to the motherboard's SATA

1

ports. Connect any SSDs to the Intel-controlled SATA 6Gbps ports on an Intel motherboard for optimium speed. Refer to your motherboard's manual to see which ones are 6Gbps.

If you're using an M.2 SSD, you can plug it directly into your motherboard because it doesn't need to be connected to the power supply. First, find out the length of your SSD – it's specified in a number such as 2260 or 2280. There should be corresponding holes for your SSD's length on your motherboard, which should also come with an M.2-specific standoff and screw. Hold the SSD by the long edges and insert the end with the metal contacts into the socket at a diagonal, with the top of the SSD pointing upwards. Gently lower it into position before finally screwing it into place. **2** If you feel the SSD isn't slotting in

POWER CONNECTORS

24-pin ATX connector (motherboard)

8-pin EPS 12V (motherboard near CPU socket)

SATA (hard drives, DVD drives and some CPU coolers)

Molex (fans, fan controllers, pumps)

PCI-E 6-pin and 8-pin (graphics cards)

properly, gently remove it and try again.

Plug your monitor into an appropriate port – either on your graphics card, if you've installed one or, if you haven't, on the motherboard.

Plug the power supply into the mains and switch it on at the wall. You may see a couple of LEDs light up. You now need to switch on your skeleton PC to see if it works. If your motherboard has an on-board power button (sometimes called Start), you can push it. If not, find the front panel header on your motherboard – a series of pins where you connect your case's power, reset and basic LED cables. Your motherboard manual will show you where to find this but it's usually at the bottom, towards the right. You'll be able to switch on your PC by placing a screwdriver between the two power switch pins to short them out. **3**

When your PC boots, your monitor should fire up. Tap the Del key on your keyboard to enter your motherboard's EFI (Extensible Firmware Interface) system – the motherboard's basic setup software. If you've managed to get this far, your core hardware is working.

Troubleshooting

If nothing appears on the monitor, power off your PC and make sure all the power connectors are securely plugged in. Next, try removing the graphics card, memory and CPU, then reseat them, just in case there's a loose connection.

If you still get no display, you'll need to diagnose the problematic component. Some motherboards have a POST (Power-On Self Test) code display on the motherboard, while others generate a series of beeps. In either case, check the

manual to find out the meaning of the codes. If you have a friend with a similar but working PC, ask if you can use their components and swap them in, one by one, to find the fault by a process of elimination. Start with easily replaceable components such as the memory, then move on to the graphics card, leaving the CPU until last.

Check your EFI

Your EFI shows basic information, such as which storage devices are connected to your PC. Make sure any solid-state drives and hard drives are listed, though they may also appear in the boot devices section. Make sure your motherboard is using the best communication protocols for your drives. If you have an NVMe PCI-E M.2 drive, set it to use the NVMe protocol. Any SATA SSDs or hard drives should use the AHCI protocol.

Finally, check your CPU temperature, which should be in a section called 'health' or 'monitoring'. If it's above 50°C and you're using a good CPU cooler, it's too hot, so turn off the PC and check that the cooler is mounted correctly. The temperature should stay below 40°C at average UK room temperature.

Test-fit PSU and motherboard

Once you've established that your PC is working, you can switch it off and start fitting it into your case. Remove the case's left and right side panels, and test-fit your PSU and motherboard, being careful not to scrape the bottom of the motherboard on any metal.

With your PSU and motherboard in place, you can then work out where your cables need to go and where you need to route them for your components.

Cable routing

Your case should have holes around the motherboard area that are designed to keep your cables out of the way. Run your PSU cables around the back of the motherboard and push them back through the holes. Moving as many of the cables as possible away from the front will help to clear the way for airflow and provide easy access to your expansion slots and ports.

If your case doesn't have a cover for the PSU, it should have a large hole through which you can pass your cables. Route the cables so they come out near the ports they need to connect to. **4**
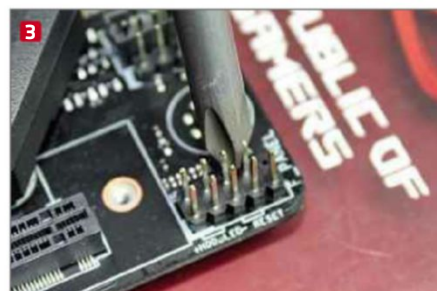
Most cases also have clamps through which you can pass cable ties for keeping cables together and holding them in place, out of sight. Make sure you can still close the side panels, though.

Once you know where everything goes, secure your PSU in its mount using the four screws provided in your case's screw kit. In most cases, the PSU should be positioned with its fan facing downwards but you should confirm this by checking your case's manual.

Mount the motherboard

Fit the motherboard's rear I/O shield into the hole at the back of the case (if it isn't already fitted) with a firm push in each corner. Remove any expansion-slot covers used by your graphics and other expansion cards.

Put your motherboard into position, using all the mounting points possible to secure it. Make sure you don't scrape the bottom on any metal edges and that every mounting hole sits on top of a standoff – these standoffs look like screws with another screw-thread in the

Broadband Deals

CONNECTORS

These four labelled cables connect your case's buttons and lights to the motherboard

USB 3 connector – connects your motherboard to your case's USB 3 ports

USB 2 connector – connects your board to your case's USB 2 ports

Audio header – connects your case's audio jacks to your motherboard

top, and they'll be supplied with your case, usually pre-installed. They force a gap between the motherboard and the motherboard tray, ensuring that the solder points on the back of the board don't short circuit. Make sure that no standoffs sit under a part of the motherboard that doesn't have a mounting hole.

When the motherboard is tightly in position, with the ports pushed through the I/O shield and a standoff hole clearly visible in every screwhole, fix the motherboard into place using the screws provided with your case's screw kit. **1**

Your case will come with a bunch of cables for connecting the power and reset buttons, LEDs, audio jacks and USB ports. We've outlined these connectors, above. Check your motherboard manual and plug these headers into the appropriate sockets on your motherboard.

If you're using a graphics card, you can now slot it into the large PCI-E slot at the top, though you may need to make room for it by removing optional drive bays and cable-hiding panels. Once the card is sitting firmly in its slot and the notch on the slot is gripping the card, secure the back bracket(s) in place.

Fit your drives

SSDs and hard drives mount in various ways. Some are secured within brackets, while others simply slot into a cage or screw into a mount. Hard drives get hot, so position them close to your case's front intake fan, if it has one.

SATA SSDs are best installed on 2.5in

mounts behind the motherboard tray or on top of the PSU cover, if your case has one. These mounts usually just require you to screw the SSD's bottom into the mount with four screws. If not, you'll have to use a drive bay. The same applies to hard drives. The case's manual should be able to help you with positioning. **2**

Optical drives (CD, DVD or Blu-ray) are mounted in the front of the case using a 5.25in bay. If you have one, you may need to remove a blanking plate at the front of the case behind the panel covers, then your drive can slide into place and be secured. If possible, remove any drive bay cages you're not using to improve the air flow in your case.

Hook up any other parts that need power, such as LED strips, fans, fan controllers and other cooling devices.

Tie your cables

Once you've threaded your PC's cables through the various routing holes and hidden them as well as you can, tie them down to secure them using any available holes in the frame to anchor the cables in place. Thread your cable tie through the anchor points, then pull it tight around the cables **3** and snip off the end with your plastic cutters.

Configure EFI and install Windows

Give your PC a once-over, making sure that all the power cables are properly connected. You can then plug your PC into the mains, plug your monitor into your graphics card, connect your keyboard and mouse, and push the case's

power button. If nothing happens, follow the troubleshooting tips from page 59.

If your PC powers up, insert your Windows 10 installation (usually on a disc or memory stick). Some motherboards provide the option to select a boot device on their startup screen – if so, select your DVD drive or USB stick and kick off the Windows installation process; if not, tap the Del key to enter the EFI system when your PC starts, then find the boot section and set the first boot device to the type you're using.

In the Windows installation, select your language. You'll be given the option to install Windows on a specific drive – choose your fastest. The PC will eventually restart, so remove the DVD or USB stick and let the PC boot from the drive on which you installed Windows.

Once you're in Windows, install your motherboard's Ethernet or Wi-Fi driver, get your PC online and download the latest Windows updates. After that, visit your motherboard manufacturer's website to get the latest Windows drivers – start by installing the Intel chipset driver, then install the other ones. Now is also a good time to install any available software for your motherboard.

Finally, download the latest AMD or Nvidia driver for your graphics card from www.amd.com or www.nvidia.com. Once they're installed, change your Desktop resolution to the native resolution of your monitor – right-click the Desktop, select 'Display settings' and select the correct resolution. Once that's all done, you should have a well-built, clean-looking PC that's ready for your software. Enjoy! ■

HOW TO SUBSCRIBE...

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STEP 3   Choose whether to create an optional PixelMags account

STEP 4   Enter your Apple ID password to confirm

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STEP 2   Chose your subscription term from the drop down menu on the popup that appears

STEP 3   Tap 'Subscribe'

available on kindle fire

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STEP 1   Search for *Web user* via the search box in the Shop tab

STEP 2   Tap the 'Subscribe' button

STEP 3   Choose whether to create an optional Zinio account

STEP 4   Enter your Apple ID password to confirm

## Subscribe to *Web user* today and save on the single issue price

Get more from the Windows **Start menu's Live Tiles** with these tips from our experts

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Switch on Live Tiles in the Start menu

The Start menu's grid of tiles can be customised to suit your needs. You can change the number of tiles that are displayed, resize them and decide what information they show. In some cases, you can replace a regular tile's rather dull static icon with a Live Tile – a changing display of text and images from the app the tile links to. These Live Tiles are sometimes purely for fun, but they can also be useful – displaying relevant info at a glance so you don't have to open the app to check for status updates.

Click the Start button, right-click a tile, select More, then 'Turn Live Tile on'. Be aware that older programs such as Notepad don't support Live Tiles, so there's no option to enable a tile. However, modern apps from the Windows Store include the option and many support it.
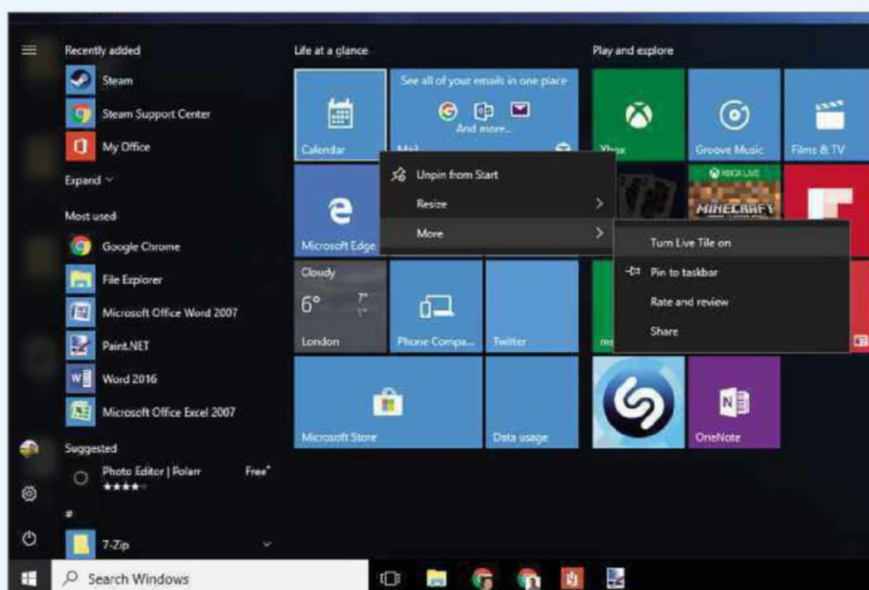
Right-click Start menu tiles and click More to switch Live Tiles on

Get different info from different sized tiles

The information displayed on a Start menu tile is determined by its size. To see this demonstrated, right-click the Weather app and select Resize. The tile at its smallest displays only a static app icon; at Medium size, the tile flips between a display with current, high and low temperatures, and a mini forecast for the next three hours. Resize it to Wide and the tile flips between a display of the temperature and wind speed, and a three-day forecast. The Large-size tile shows a full five-day forecast with icons for sun, cloud and rain, along with high and low temperatures.

The information displayed by a tile is dependent on its size

Run apps to kickstart tiles

After switching on an app's Live Tile, you should immediately see it display information. However, if this doesn't happen, you may have to run the app to kickstart the flow of information to the tile.

Launch the app and use it for a couple of minutes, then quit. Now check the Live Tile on the Start menu. Not every app will display information in its Live Tile; it's entirely up to the app's developer whether this is supported.

Live Tiles update at different times – some update every minute while others may not do so for an hour or more. But don't worry if you don't immediately see Live Tile information. The Windows Store tile, for example, takes some time to get going, but once it starts, it will display the latest updates, offers and apps.

Shrink regular tiles

To maximise the usefulness of Live Tiles, it's best to make them Large so you can easily see the information they display. However, this takes up a lot of room so it's a good idea to make more space by shrinking any tiles that are static, unless you want to make them prominent for other reasons. Right-click a tile and select Resize, then choose either Small or Medium and drag the tile into position on the Start menu.

If you see words that `look like they've been typed in a typewriter`**, follow the instructions and type them exactly as they appear, paying close attention to spaces and punctuation.**

Expand the Start menu

To display the maximum information available, Live Tiles should be sized to Wide or Large. To fit them all in, you may need to increase the size of the Start menu. Click and drag the top and right edges of the Start menu to increase the amount of available space.

Add more app tiles

Apps installed from the Windows Store aren't always automatically added to the Start menu as a tile, primarily because there's only a limited amount of space available. After downloading a new app from the store, find it on the Start menu, right-click it and select 'Pin to Start'. Then right-click the tile to resize it and enable Live Tiles.

Add website tiles

Windows 10's Edge browser can be pinned as a Start tile by right-clicking it on the Start menu, but this only displays the static app icon. To create Start menu tiles for your most visited websites, open Edge and browse to a website, then click the three-dot menu in the top-right corner and select 'Pin this page to Start'. The website logo and the first few words of the page title are displayed on a new tile.

Show unread email count

Add the Mail app as a Start tile if you haven't already and turn on the Live Tile. The tile will display the number of new email messages you've received in the bottom-right corner.

Add game tiles

Games often support Live Tiles and can display notifications, status messages, achievements and more. If you have a Steam account, add the Steam Tile from the Windows Store and sign into your account to see your Steam games.

Windows Store games have their own tiles. Set them to the largest size and switch on Live Tiles to see if they display any live information. Support varies from game to game – some show all kinds of information while others don't update at all.

The Steam Tile app is useful for showing information about games

TAKE IT TO THE NEXT LEVEL
### More advanced tips for when you're feeling brave

Add email accounts

The Mail app can be used to access multiple email accounts, so how does this affect the Live Tile? Open the Mail app and click the cog icon at the bottom of the left-hand panel. Click Manage Accounts in the Settings panel, then click 'Add account'. Adding Google, Yahoo and other email accounts is easy, and often only requires your email address and password.

If you have two or more email accounts in the Mail app, right-click an account in the left-hand panel, such as Gmail, and select 'Pin to Start'. This adds a tile that can be clicked to open the Mail app with the selected account's inbox showing your latest messages.

Configure the Photos tile

Some apps let you configure a tile's display. For example, open Photos, click the three-dot menu and select Settings. Scroll down to Appearance and find the Tile section. Click the menu and select either 'Recent photos' or 'A single photo'. Choose the second option and you'll see a 'Select photo' button that lets you choose the photo to display on the Live Tile.
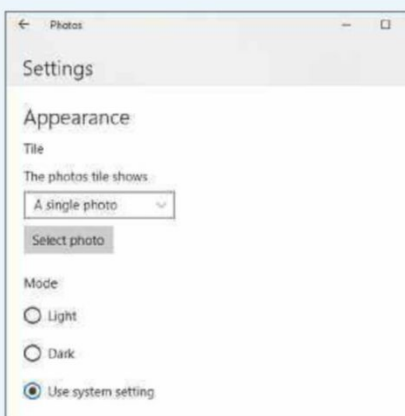
Choose what to show on the Photos Start menu tile in the app settings

Add sports events

The Calendar app has a handy option that lets you add sports, which show up on your calendar as events. You don't even need to open the Calendar app to see when your team is playing because matches appear on the Live
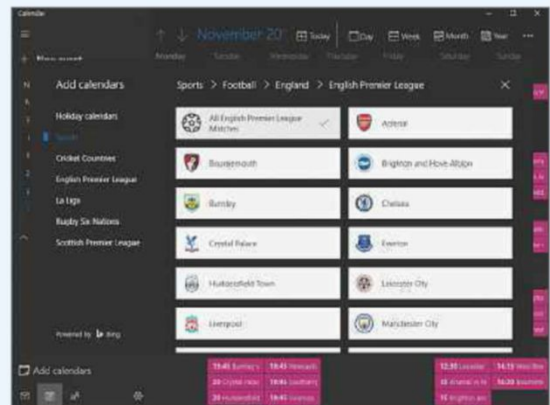
Add sporting calendars to the Calendar app and see events on the Live Tile

Tile. Here's how to set it up.

Set the Calendar tile to the largest size by right-clicking it and selecting Resize. Make it live by right-clicking it and selecting More, 'Turn Live Tile on'. Run the app and click 'Add calendars'. Click the sport you want to follow, such as Football, and select a country. Our choice of England, in the screen grab above, let us then select from FA Cup, English Premier League and so on. You can choose all matches and teams, or just select your favourite, for example Liverpool or Everton.

All the season's matches are added to your calendar as events. If you check the Live Tile on the Start menu, it now lists the next matches to be played, showing which teams are playing and at what time. You'll never miss another match!

Solve Live Tile problems

Some people have reported that restarting Windows Explorer fixed problems with Live Tiles failing to display properly. To do this, right-click the taskbar and select Task Manager. Select the Processes tab, click 'More details' if necessary, then right-click Windows Explorer and select Restart.

Still having Live Tile problems? There are two Registry entries related to Live Tiles that can be used to fix issues such as out-of-date information. Press Windows+R, type `regedit` and press Enter. Go to:

HKEY_CURRENT_USER\Software\
Microsoft\Windows\CurrentVersion\
ImmersiveShell\StateStore

Double-click ResetCache. Enter '1' for the value, click OK and close the Registry Editor, then restart Windows. The old tile info is deleted and the apps should refresh with new data.

Ask the Expert

Roland Waddilove, computer programmer and PC journalist since 1981, answers all your technical questions. Email us for help at webuser@dennis.co.uk

HARDWARE
Restore printer's automatic shutdown

Q My two-month-old HP Envy 5640 e-All-in-One printer has developed a problem with automatic shutdown. I have to physically press the On/Off button to shut it down because it no longer switches off automatically after two hours, as it used to.

Trying to contact HP by phone or online is virtually impossible. Can you help, please? I am using Windows 10 with all the latest updates.

Ian Palferman, via email

A HP wireless printers have a built-in web-based configuration tool, which you can connect to by entering the IP address into a browser, just as you can with a router. Open the Control Panel and click 'Devices and Printers', then right-click the printer icon and select Properties. At the bottom of the Web Services tab is the

Wi-Fi printers have a web-based configuration tool for tweaking settings

IP address. Type it into your browser.

The menus may vary but on our HP printer, clicking the Energy Save Mode section provides two options: Energy Save Mode, which reduces power to a minimum while keeping the printer on; and Auto Off, which sets the length of time before the printer switches itself off. Check both sections.

Also in this section, Restore Defaults has a Restore Factory Defaults section that you can use to reset your printer. It means having to set it up all over again but it may also fix the fault you're experiencing.

EMAIL
Gmail quirks in IncrediMail

Q Using IncrediMail (www.incredimail .com) with a Gmail account (mail .google.com), the main window not only shows the IncrediMail inbox, draft folder, sent folder, deleted folder and spam folder, but the same again for my Gmail account and my wife's account. Any mail we receive is duplicated in all folders and, in Gmail's All Mail folder, it shows all our mail for the past few weeks, even messages I've deleted.

R J Phillips, via email

A We tried IncrediMail with two Gmail accounts and it can indeed be a bit confusing. This is partly due to the way Gmail works, which is unlike most other email services. IncrediMail has an Inbox, Sent Items, Deleted Items and other folders in the sidebar. Adding a Gmail account creates an extra section with folders that look like duplicates, such as

All Mail, Drafts, Sent Mail and so on. It is just the way Gmail works and you can simply ignore them.

Gmail actually uses labels rather than folders, labelling emails with 'inbox', 'sent' and 'bin' rather than placing them within those folders. When you select the Inbox folder in Gmail, you're really asking Gmail to filter the list of all the emails in your account and show only those labelled 'inbox'. With IncrediMail, it may look like your emails are duplicated in different folders, but they're probably just the same email showing in two different filing systems.

Selecting All Mail in Gmail effectively shows you a list of every email you've received, regardless of the label. Deleted emails in Gmail are labelled with 'bin' rather than sent to a Deleted folder, and are not actually deleted by Gmail for 30 days. In a browser, you don't see these deleted emails but perhaps IncrediMail is showing those, too.

EMAIL
Email errors from switching software

Q I recently switched from Windows Live Mail to eM Client (www .emclient.com), but I still receive mail in Live Mail. Often (but not always), I get an error message saying a connection can't be made, but when I retry, there are messages there. I have also failed to receive several emails in eM Client that have appeared in Live Mail.

I am running Windows 8.1 and Firefox. Do I need to change any settings and what is the security risk with Live Mail, given that I have no sensitive or financial information in my emails?

Roger Keene, via email

A When an email client such as Windows Live Mail downloads messages, it usually deletes them off the server. This could be why some emails are coming through in Live Mail but not in eM Client – they have been downloaded and deleted. For this reason, don't run two email programs on the computer. Use one and stick to it.

Windows Live Mail is old software that Microsoft no longer supports, so make eM Client your only email program. Live Mail should be set so it doesn't check for new messages automatically. This should stop it deleting mail from the email server.

ANDROID
Recover deleted photos

Q I have accidentally deleted some wedding photos from the internal memory of my Asus MeMO Pad HD

Recover lost files on mobile devices with EaseUS MobiSaver

ME173X tablet. I would love to get them back. Can you tell me if this possible? Is there software that could help?

AW, via email

A Because this is an Android tablet, you may have the Google Photos app installed, which automatically backs up all your photos and stores them in your Google account for free. If you have the Google Photos app, check the app or go to photos.google.com in a browser. All your photos will be there.

If you don't have Google Photos, your files are lost. Some may be recoverable but some may not, and it's best to use your tablet as little as possible until recovery software can be run because the files could be overwritten.

There are several paid-for programs that can recover lost and deleted files on tablets and phones, but very few are free. If you care more about your photos than your tablet, try EaseUS MobiSaver for Android Free 5.0 (bit.ly/eas439). It runs on your PC while the tablet or phone is connected with a USB cable. The recovery process is a bit complicated and it requires the device to be rooted, but it provides clear instructions and free software, and has received good ratings from users.

GENERAL PC
Speed up Windows login

Q How do I speed up the Windows 7 startup? When I switch on my PC, it takes a long time to display the Desktop and icons. I created a new admin user and when I log in with this, it only takes three seconds to display the Desktop. However, I then don't have access to all files and programs I installed with my original username. Also, is there a way I can reduce the size of my original profile? It's currently set to 4GB.

Tissa Balan, via email

A The programs that are set to load automatically when Windows launches are slowing your startup. Sometimes we try software, then stop using it for various reasons, so use 'Programs and Features' in the Control Panel to see what software is installed and remove anything you don't use.

To see a list of startup programs, press Windows+R, type `msconfig`, press Enter and select the Startup tab. None of the items on the list are essential to Windows but some, such as antivirus software, may be useful for other reasons. Clear the ticks against anything non-essential.

Use TreeSize Free to see which folders are using all the drive space on your PC

Select the Services tab and tick the box next to 'Hide all Microsoft services'. The remaining items aren't essential for Windows but could be needed for other reasons. Clear the tick boxes against anything you obviously don't need.

Autoruns (bit.ly/aut439) is a powerful tool that identifies programs that slow Windows startup, but it's more complex than the Windows tool and requires a bit of technical knowledge. Check out our Workshop on page 57 for instructions on how to use it.

Reducing your user profile to less than 4GB isn't a good idea. The C:\Users\YourName folder contains photos, music, videos, downloads, documents and other files, and is likely to need a lot more space than that. TreeSize Free (bit.ly/tree439) shows which folders are

GENERAL PC
Programs won't pin to Start

Q I upgraded my Windows 8.1 Pro PC to Windows 10 last year but I didn't like it and uninstalled it. Since then, I've not been able to pin tiles to the Windows 8.1 Pro Start screen. I have over 200 existing tiles, which I use regularly, but I can't add any more.

John Tee, via email

A Two possibilities spring to mind. One is that something went wrong with the upgrade and downgrade process. The other is that you have reached the limit for the number of tiles in the menu.

To see whether the limit has been reached, delete a few tiles to lesser-used apps by right-clicking them and using the menu option to remove them. Then try adding a tile. If you can, then you must have hit your limit.

Tiles are shortcuts to your favourite apps, not a list of everything installed on your PC

using the most hard-drive space. Scan the drive, then open C:\Users\YourName to see the folders in your profile and how much space they use.

GENERAL PC
Avoid Registry hacks when fixing driver problems

Q I managed to uninstall Realtek HD Audio which, according to Event Viewer, was causing a fault. I now have a Critical event, according to Reliability Tool, which states that ATKEX_cmd.exe has stopped working.

Having found it in the Registry, should I rename it? And will I be able to edit it?

Anne Ellis, via email

A You may have turned a minor problem into a major one and we don't recommend renaming Registry entries. The solution to your original and current problem is to go to the computer manufacturer's website, search for the computer model and download the audio drivers for it.

Drivers may be available from Microsoft if not from the manufacturer. Open Device Manager from the Control Panel, expand 'Sound video and game controllers', right-click each item and select Uninstall device'. Restart Windows afterwards to reinstall them.

The Start screen is designed to display just a handful of your most used programs, so you can quickly switch to it, click a tile and open a favourite app. Having to hunt through 200 tiles to find the app you want rather defeats the purpose.

Tiles aren't always created when new apps are installed, but if you want to see an alphabetical list of every installed app on your PC, click the arrow in the bottom-left corner of the screen. A quick way to find an app when it doesn't have a Start screen tile is to search for it by typing its name on the Start screen.

This fortnight Roland backed up his websites in case the WordPress 4.9 update caused problems – thankfully, it didn't!

Your Top Tips

Our pick of the best advice from our readers. To get help or offer it to others, visit forum.webuser.co.uk

TOP TIP

ONLINE STORAGE

Find Google Drive space hogs

I use Google Drive with my desktop and laptop PCs, and have hundreds of files on it. Now that it's nearly full, I wanted to find out which files were taking up most space, so I could delete them or move them elsewhere.

I discovered that Google Drive can list files by size and show how much space they use. Go to drive.google.com in a browser and hover the mouse over the 'Upgrade storage' icon at the bottom of the left panel to see your Drive usage. Click the tiny blue 'i' icon and you'll see a list of all the files you've saved to Google Drive with the biggest at the top. You can browse the
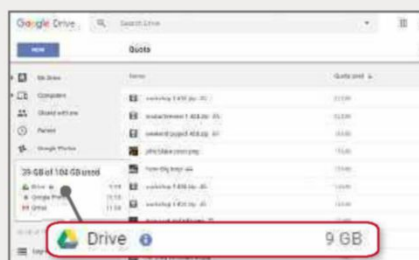
Search for the largest drive space hogs on Google Drive

list and delete the biggest files to recover the maximum amount of space with the minimum of work.

Steven Davila, via email

Set the lock screen to show beautiful images from Microsoft

All the files in this location are images. Simply copy them to another folder and rename them so that they have a .jpg file extension. You can then view them simply by double-clicking them.

Peter Hogan, via email

GENERAL PC
Get a better fragmentation report

Windows defragments mechanical hard drives automatically, but its built-in defragmenter is too basic and provides very little information about what it's doing. I prefer to use the Command Prompt tool instead. Type `command prompt` into the search box, right-click the option when it appears and select 'Run as administrator'. Windows 7 users will find it on the Start, All Programs, Accessories menu.

To view a comprehensive report on fragmentation, type:

```
defrag c: /a /u /v
```
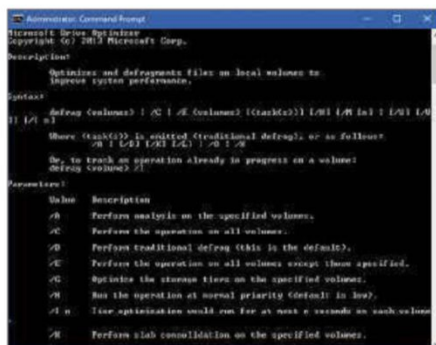
To see all the options for the Command Prompt's Defrag tool, type `defrag /?`

It's not only files that become fragmented but your hard drive's free space, too. When Windows saves a file, it sometimes breaks it up to fill in lots of gaps, which means the file is fragmented from the start. To defragment your free drive space, type:

```
defrag c: /x
```

Chris Stoneman, via email

GENERAL PC
Save lock-screen images

The Windows 10 lock screen displays superb photos from Microsoft that change every day or two. This option should be enabled by default but if your lock screen always shows the same image, open the Settings app, go to Personalisation and select the 'Lock screen' section. Set Background to 'Windows spotlight'.

Windows saves these lock screen images to disk, so if you want to see them or use them elsewhere, such as on your Desktop, open Explorer, click View and tick the box to show 'Hidden items'. Next, go to:

C:\Users\YourName\AppData\Local\ Packages\Microsoft.Windows .ContentDeliveryManager_ cw5n1h2txyewy\LocalState\Assets

MOBILE
Save mobile data

If you have an Android phone, you can activate a setting in Chrome to save data when browsing the web over your mobile connection. Open Chrome and open the menu. The data saver is at the bottom of the menu on my phone, but if you can't see it, go to Settings, then Data Saver. Switch it on and your phone will use less data.

Use a Chrome setting to save mobile data while browsing the web

Robin Masterman, via email

GENERAL PC
Track what uses your data

Did you realise that Windows 10 keeps a log of your last 30 days of internet data usage? It arranges this information in a list and shows you how much data each

See which apps have used all your data over the past 30 days

type of connection uses, even breaking it down by app. To see this information, type `data usage overview` into the search box and click the program to run it when it appears.

The Overview screen shows your overall data use. Mine was up to 63GB as I was writing this.

To see which of your apps use the most data, click the 'View usage details' link. No prizes for guessing that my top data guzzler was Google Chrome, which consumed 59.6GB, followed by System at 2.01GB.

Bedstor, Web User Forums

GENERAL PC
Stop Superfetch to make your PC start faster

My PC was taking a long time to start up and I read online that this could be due to a Windows tool called Superfetch. This tool learns which programs and apps you use and loads them into the computer's memory in advance when it thinks you might use them. This sounds like a good idea in principle, but it can make your startup take longer than necessary because Windows is loading programs you may not even want to use.

If you think this problem might be slowing your PC's startup time, try switching off Superfetch to see if it makes a difference. Type `services` into the Windows search box and click the Service app when it appears. Scroll down to Superfetch, right-click it and select Stop.
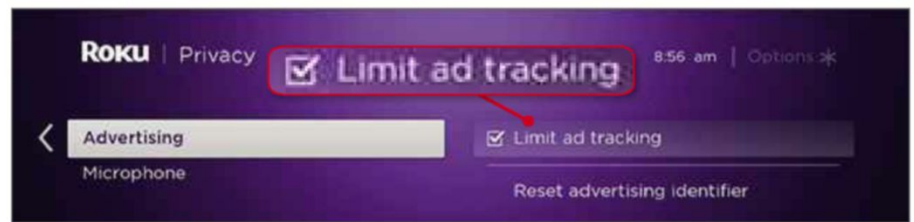
This turns it off for now, but you also need to stop the tool loading when you next start your PC. In Services, right-click Superfetch again and choose Properties. Select the General tab and change 'Startup type' to Disabled.
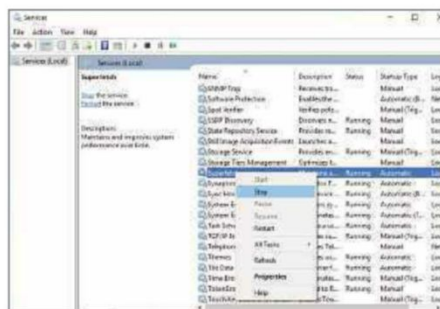
Right-click Superfetch in the Services window to choose whether or not it runs

Stop some tracking happening on Roku devices by ticking this box

If this doesn't improve your startup time, it's a good idea to switch Superfetch back on again. Choose Automatic as the 'Startup type' and everything should return to normal.

Arthur Ewing, via email

STREAMING
Stop Roku tracking you

I love my Roku TV streamer because it's one of the only devices that lets me access practically every streaming service out there. I use it to watch all the TV and movies that are included with my Amazon Prime account.

However, I was a little annoyed to discover that it might be tracking what I do on the device. There's not much you can do about it saving searches and things like that, but you can turn off some of its advertising tracking. From the main menu, choose Settings, Privacy, then Advertising. Move across to 'Limit

ad tracking' and press OK to place a tick in the box. Doing this is a bit like setting the Do Not Track feature in your browser, because it indicates to Roku's advertising partners that you don't want to be tracked if you click on their ads. However, it's only a guideline and isn't something that's enforced by Roku.

Karl Fisher, via email

GENERAL PC
Swipe away notifications

A small but useful feature for notifications appeared in the Windows 10 Fall Creators update. In the past, I had to click the X to delete an item in the Action Centre's notifications panel, but now I can simply swipe it to the right and it's gone. It now takes me about two seconds to review and clear this board, even if it's full of items. The X is still there for those who prefer to use it.

Bedstor, Web User forum

BLUNDER OF THE FORTNIGHT

PHOTOS
Don't let your photos reveal too much

I got into trouble recently when I uploaded a photo to a website that had some information in the metadata (specifically the location and the time the photo was taken) that someone who appeared in the photo didn't want me to reveal. I won't go into more detail because I'd only be making things worse, but I've since discovered that there are ways to remove this information.

Find a picture you want to remove this data from. Right-click it in Explorer and choose Properties. Click Details and you'll see all the information about the photo that's stored in the file.

At the bottom, there's a link labelled 'Remove Properties and Personal Information'. Click it and you can choose whether to remove all the personal information that can possibly be removed from the file, or remove specific details individually, such as 'Date taken' and GPS information.
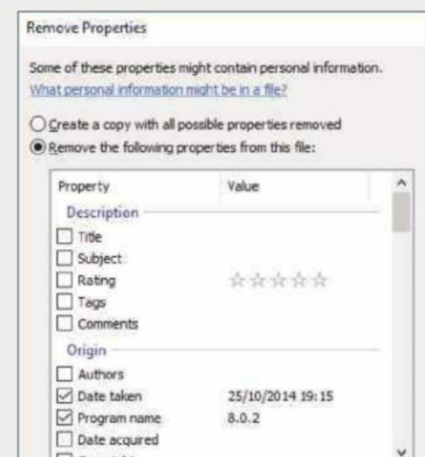
Hide information from your photos if you think they reveal too much

It's probably a good idea to make a copy of the file before you remove any of its metadata, just in case you ever need to refer to this information again in the future.

Peter Richardson, via email

Have you managed to fix a PC-related disaster? If so, please send your story to webuser@dennis.co.uk

Readers' Helpdesk

Our pick of the best solutions posted on our reader forums. Visit forum.webuser.co.uk – it's friendly and free!

GENERAL PC
### Can I stop a browser window opening on startup?

Q I've just installed the Windows 10 Fall Creators Update to update Windows to version 1709 but, since then, it opens an Internet Explorer window every time I start the PC. I can't find anything in the startup folder or in System Configuration. How do I stop it happening?

harleygjc, Web User Forums

A It may not be Internet Explorer itself but another program trying to report something. Open Task Manager by right-clicking the taskbar and select the Start-up tab. Change the status of everything to Disabled and restart your PC. If it still opens, go back to System Configuration (press Windows+R, type `msconfig` and press Enter). Under the Services tab, tick the box to 'Hide all Microsoft services', then press the 'Disable all' button. Click Apply, then OK and restart the PC.

If the Window stops popping up, switch on items one at a time to work out which one is causing the problem.

Cantrel, Web User Forums
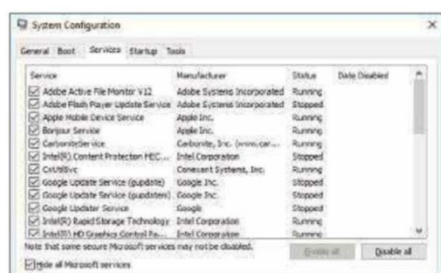
Switch off non-essential services to stop random events occuring

EMAIL
How is Thunderbird protecting my passwords?

Q I prefer Thunderbird to webmail because I don't have to sign in every time I want to check my mail. However, my Thunderbird account holds the passwords for the webmail providers on my PC. How safe is this? Could a hacker

SECURITY
How do I remove Optional Conduit?

Q I just did a routine scan with Malwarebytes (www.malwarebytes.com) and it picked up 'PUP.optional.conduit'. I quarantined it and did another scan, but it picked it up again. I repeated this action but it's still picking it up.

In accordance with information at Malware Removal Guides (bit.ly/opcon439), I should now perform a scan with AdwCleaner. If that can't remove it, what should I do to prevent it from reappearing?

NE5, Web User Forums

A There's a useful post on the Malwarebytes forum that tackles this issue (bit.ly/mwbf439). It suggests the problem might be related to Chrome Sync. After performing

Some unwanted software can get stuck behind Chrome's sync settings

a Malwarebytes scan with the latest version, open Chrome's settings, find the People section, then choose Sync. Move all the sync switches to the left. Click 'Manage synced data on Google Dashboard', click Reset Sync, then OK. Close Chrome, perform another Malwarebyte scan, then reopen Chrome and switch syncing back on.

kevinf80, Web User Forums

go to a particular file and extract all my email account passwords?

george29, Web User Forums

A When you enable a master password in Thunderbird (and Firefox), it uses that password as the key to encrypt all your other passwords. It uses 3DES encryption, which should keep them safe from anyone who logs onto your computer or accesses your profile.

If you don't use a master password, your other passwords are stored as plain text. Anyone using your computer might be able to access them, if they know where to look. If your computer is stolen or hacked, would this be a problem? If so, you should set up a master password.

Sneakybeaky, Web User Forums

SECURITY
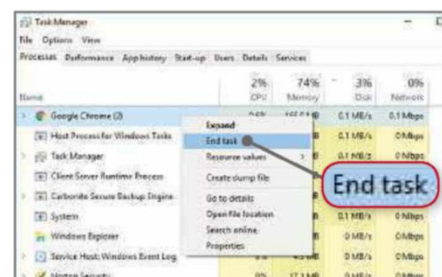### What should I do if I suspect a ransomware attack?

Q I was logged into eBay when my screen turned blue with a message about an infection. A female voice, supposedly from Microsoft, told me

about a serious operation flaw and told me not do anything but to ring a freephone number to speak to an advisor. Suspecting a ransomeware attack, I panicked a bit because I couldn't close the Window, but I eventually turned off the computer and router.

chipblock, Web User Forums

A To close down a program that isn't responding, right-click the Taskbar, then click Task Manager and click the Processes tab. Right-click the process that's stuck and click End Task.

rogerman40, Web User Forums

If you suspect a window is attacking you, shut it down from the Task Manager

✚ Share your knowledge at forum.webuser.co.uk

Inbox

You can let us know your views via:
webuser@dennis.co.uk, www.facebook.com/webusermagazine, www.twitter.com/webusermagazine and forum.webuser.co.uk

Star Email

Mug winner WebUser

The Google Home Mini is a revelation!

I was especially pleased to read your comparison between the Amazon Echo 2 and the Google Home Mini last month (Product Test, Issue 437) because I was contemplating buying one as an early Christmas present for my father-in-law. He's registered blind, struggles with his memory, lives in an area with very limited broadband speeds (around 0.3Mbps) and had requested a radio with raised, high-contrast buttons. We took a bit of a risk and treated him to the Google Home Mini instead and it's been a revelation – we couldn't recommend it more to anyone in a similar situation!

It streams all his favourite radio channels, tells him the news and weather, can set countdown timers, alarms and reminders, and can add things to a shopping list (which we then order for him). We're now contemplating getting a second one for him to have in his bedroom so he can ask it the time in the middle of the night, as well as treating him to a set of Bluetooth headphones so he doesn't disturb my mother-in-law!

We're hoping that with a bit of IFTTT programming, he'll soon be able to email us for the first time in years, too. Best of all was his face when he asked it a joke!

The mental-health issues associated with an elderly person losing their ability to see are profoundly worrying, but this small, grey – and surprisingly affordable – device has opened a new window to the world for someone who the whole family dearly loves. Thank you!

Tom Howes, via email

Web User **says:** We're delighted to hear that your father-in-law is finding so many uses for his Google Home Mini. See our feature on page 40 for more tips and tricks for smart speakers.

Software licences should be ours to keep

I was interested to read Richard Bale's letter (Inbox, Issue 437) regarding software licences that are only valid for limited periods.

A few months ago, two of my computers were damaged by a nearby lightning strike. For many years, I used the AVS4You suite of programs (www.avs4you.com), but it was lost when the computers went down. I replaced one computer and, because the program had an unlimited licence, set about installing it on my new machine, only to be told that the serial number had already been used. I contacted the manufacturer who said that the licence was 'per machine' not 'per user' and I would have to pay for another licence.

Last week, I replaced the other damaged computer and tried to install Microsoft Office 2007 but I was unable to use my licence key because support has been withdrawn for the older programs, with neither online nor telephone registration available. I now use another (less expensive) office suite that offers all the same features.

I bought these programs in good faith.

Surely manufacturers should allow those who have helped them to make their millions to continue to use the product in which they have invested their hard-earned cash. It is of such dreams that good customer relations are made.

Bryan Darby, via email

How I maintain my privacy online

As someone with a Higher Diploma in Education in ITC, IT and Computing, I keep up with all the latest gadgetry and innovations.

The first thing I do is turn off everything possible in Twitter, Google and Facebook and delete everything possible from within my accounts. I do the same on my Android phone, only connecting to the net when I need to. My PC and laptop both run VPNs and DNS encryptors, as do the rest of my family's devices, and our routers are heavily password-protected, too.

Quiz Answers: Issue 438

1. *Fairytale of New York*
2. *Driving Home for Christmas*
3. *I Saw Mommy Kissing Santa Claus*
4. *Rocking Around the Christmas Tree*
5. *Silent Night, Holy Night*
6. *I Saw Three Ships (Come Sailing In)*

WINNER!
Well done to **C Deegan** who wins a Web User mug

WORD PUZZLE

Gigabyte

I have nothing to hide, I just like to stick it to the big boys as much as possible. If I wanted them to know everything that I do, I would write them a detailed essay every weekend.
Doug Seabury, via email

Price comes before a fall

The price of phones is getting crazy and it is only a matter of time before people say enough is enough. These big companies should be aware that getting too big for your boots will ultimately be your downfall. Just look at Microsoft. Gone are the days when it was top of the world. Nokia and others have fallen from grace, too.

I have just got my hands on the OnePlus 5T for £450 and it performs just as well if not better than the iPhone X. Watch out big boys, OnePlus is coming to get you.
Stan Elliott, Belfast

Web User **says:** We quite agree, Stan. See our review of the OnePlus 5T on page 22.

Why the disparity in download speed?

I use an Ethernet connection to run speed checks on my Windows 8.1 desktop PC from time to time, but the results are a puzzle to me. Today, using the Internet Health Test (Issue 437, bit.ly/speed437), it showed approximately 18Mbps on Opera. A minute later, a test with the Opera extension Internet Speed Test showed 2.5Mbps. Previous tests with the BT Speed Checker on Internet Explorer 11 have showed around the 14-17Mbps figure and this is the speed I am paying for. However, anything I actually download – whether from Dropbox, YouTube, Dailymotion or various Best Free Software goodies – never exceeds 2.5Mbps.

This raises the questions: why the disparity in results? And do websites themselves impose a throttle on the speed they support?
Bob Hubbard, via email

What you say...

LOOKING BACK...

WHAT'S THE BEST DEVICE YOU BOUGHT IN 2017?

Google Home and Mini. It works well as a speaker with Spotify. The kids have asked it for help with their homework and love the fun responses you get with certain commands.
Caroline Alderson

My Amazon Fire Stick, which I use to watch Netflix. They have some really great shows (*Mindhunter*, *Stranger Things*, *The Crown* and more).
Lynn Sharpe

My Android box in the bedroom and my new iPad (the old one broke).
Joanne Evans

A Sonos One smart speaker with Alexa. Now I can listen to what I want without having to pick up my phone.
Iain Loudon

WHICH WEBSITE DID YOU SPEND MOST TIME ON IN 2017?

BBC's website for news, weather and other information, followed closely by Twitter and Facebook.
Kevin Spencer

Web User for the best PC forum, eBay for buying, BBC News for real news, YouTube for a laugh and Facebook for friends.
Colin Wallace

Facebook to talk to my friends and www.game.co.uk because I love to play Sims 4.
Mark James Gregory

Twitter. It's my newspaper.
Steve Ellis @gb022621

LOOKING FORWARD...

WHAT ONE THING WOULD YOU CHANGE ABOUT THE INTERNET IN 2018?

I'd regulate Facebook and its mind-control psychologies, which depress vulnerable people – especially now that they have a Facebook Messenger app for kids.
Liz F Lambeth

Fibre-optic broadband across the UK.
Edgar Lapada

Fewer snowflakes who get offended by everything. More help for those who may get conned online.
Gavin Green

More cats, less hate. People would be nicer to each other.
Nat Grove

IS THERE ANYTHING YOU'LL BE DOING LESS OF ON THE INTERNET IN 2018?

Certainly less Facebook, if possible, and I'll use more privacy services.
Goldmaster @imthegoldmaster

Taking part in pointless political 'discussions' on social media (mind you, I promised myself the same thing last year, too).
Richard Morgan

Even less Facebook than I do now (if that's possible) to the point where I may even get rid of it completely.
Sir Cumference @Gary_Olsen

Twitter is the only site I go to, so using it less would be tough, but it has become terrible recently. I'm expecting Twitter to collapse one day due to disastrous mismanagement and failing to listen to its users.
Heather Hear @heather_hear

I'll use Twitter less. I'm fed up with Trump, war and Brexit. As soon as people mention them, I unfollow or block them.
Cunningham Hutchison @MrChutchy

⚠ Page 404

Barry Collins struggles to comprehend the stupidity of password-sharing politicians

MPs' passwords are Commons knowledge

Have you ever sent a confidential email to your MP? Turns out you probably sent it to Pablo, the Spanish exchange student who popped in for a spot of work experience last summer.

That's what we've gleaned from a host of Tory MPs, who in their rush to defend the embattled Damian Green from accusations that he's been sitting in his office watching internet porn all day, freely admitted that they share their Commons usernames and passwords with all and Sundar (the Indian intern who came over last February).
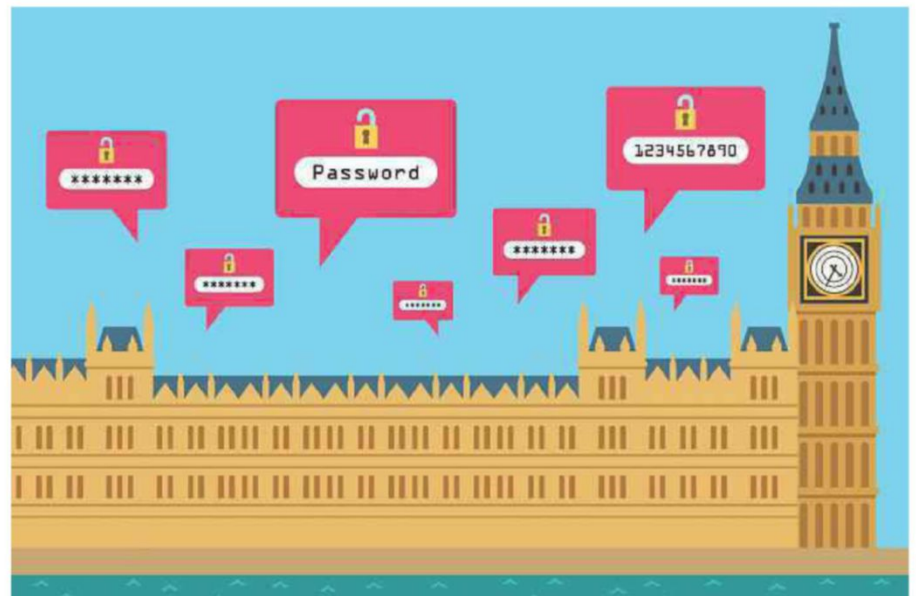
"My staff log onto my computer on my desk with my login everyday [sic]," wrote the Conservative backbencher Nadine Dorries. "Including interns on exchange programmes."

"I often forget my password and have to ask my staff what it is," tweeted Nick Boles MP, who went to Oxford and Harvard, but apparently can't memorise seven consecutive characters.

Will Quince MP goes a step further and does away with security altogether. "I leave my machine unlocked so they can use it if needs be," he tweeted. "My office manager does know my login, though. Ultimately I trust my team."

I'm not sure what's more depressing: the fact these MPs can't even grasp the rock-bottom basics of IT security or that they're happy to boast about it on Twitter. Even when confronted by Twitter users with a dollop of common sense, Dorries continued to stand her ground. "I'm a backbench MP – 2 Westminster based computers in a shared office. On my computer, there is a shared email account. That's it. Nothing else. Sorry to disappoint!"

Except there is something else, Nadine. Your computer isn't a little electronic post box that's disconnected from the rest of the world. It's part of the House of Commons network. Even if there really is nothing more confidential on your computer than a letter from Mrs Digby about the double-parking in Toddington, you're part of a network – and by sharing your credentials with the work-experience kid, you're massively increasing the risk of intrusion on a network that's also used by government ministers and even the Prime Minister herself. You are the weakest link.

You'd hope Dorries and her colleagues would know this. Because not only is it spelled out in black and white in the House of Commons Staff Handbook ("you MUST NOT share your password"), but Dorries has twice sat on the Commons Science and Technology Committee. She is one of the MPs tasked with scrutinising IT security in this country, yet she's basically writing her password down on a Post-It Note and sticking it to the monitor.

After days of vilification and even a public rebuke from the Information Commissioner's Office reminding MPs "of their obligations under the Data Protection Act to keep personal data secure," Dorries was still unrepentant, dismissing her critics as sexist and "geeky/tech/computer nerdy types!".

Still, who would want to break into the House of Commons computer network in the first place? As Dorries was explaining to that nice lad, Yuri, who came over on the exchange visit from Moscow in the summer, there's probably nothing worth stealing on there anyway.

> **" Nick Boles MP went to Oxford and Harvard, but apparently can't memorise seven consecutive characters "**

Illustration: Andrew Torrens

✚ Do you agree? Let us know at **webuser@dennis.co.uk**

WebUser

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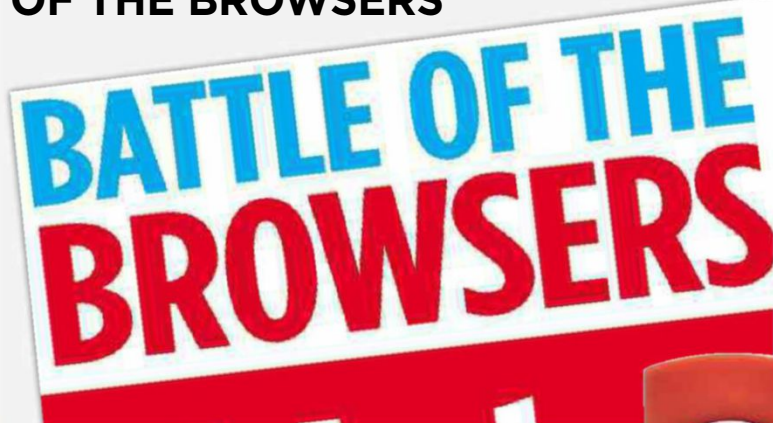
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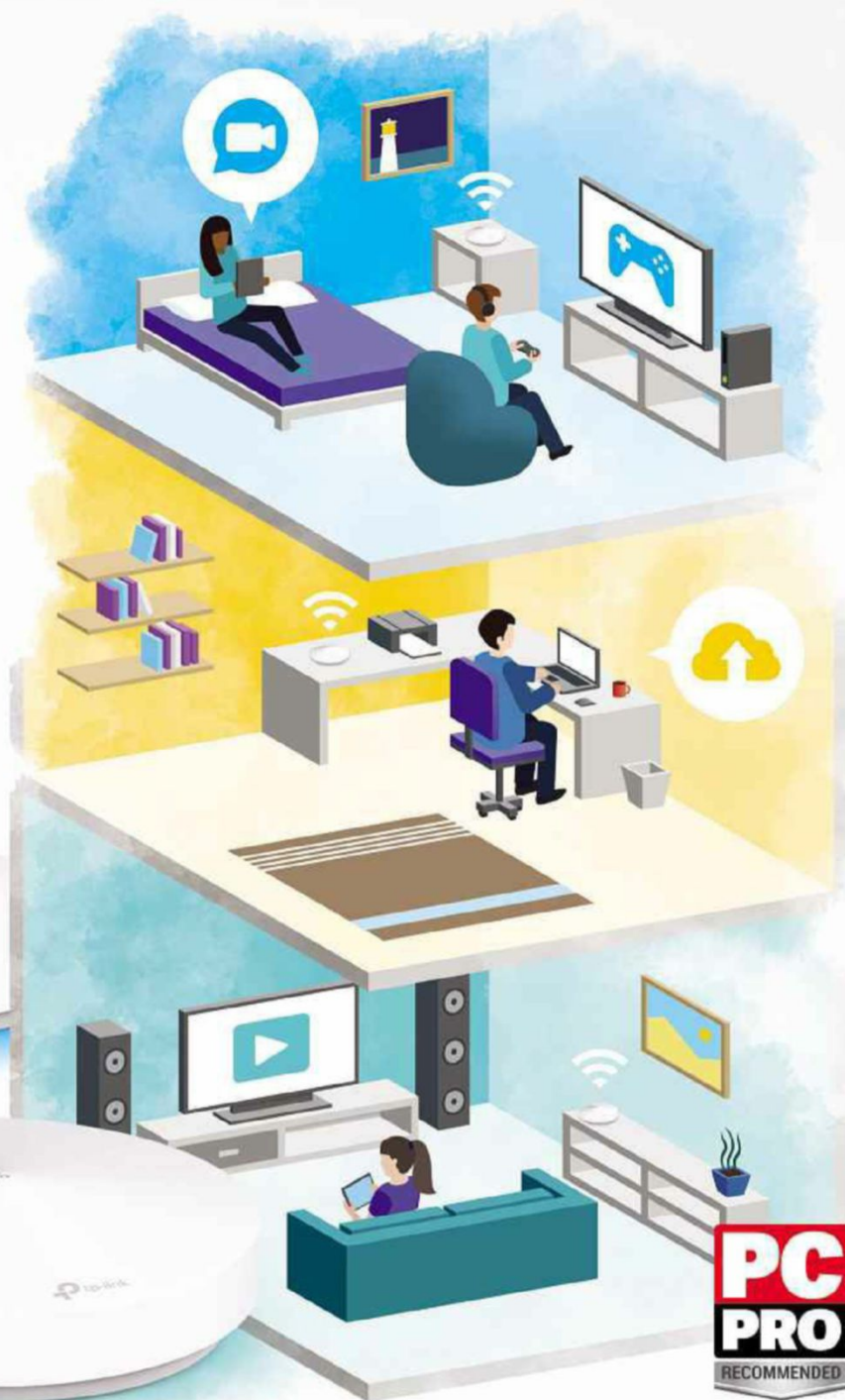# subscribe.webuser.co.uk
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